JANUARY

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COMET

STF

STORIES OF SUPER TIME AND SPACE

On tour with the
Legion of Space
in the
LIGHTNING'S COURSE
by John Victor Peterson

— STF —

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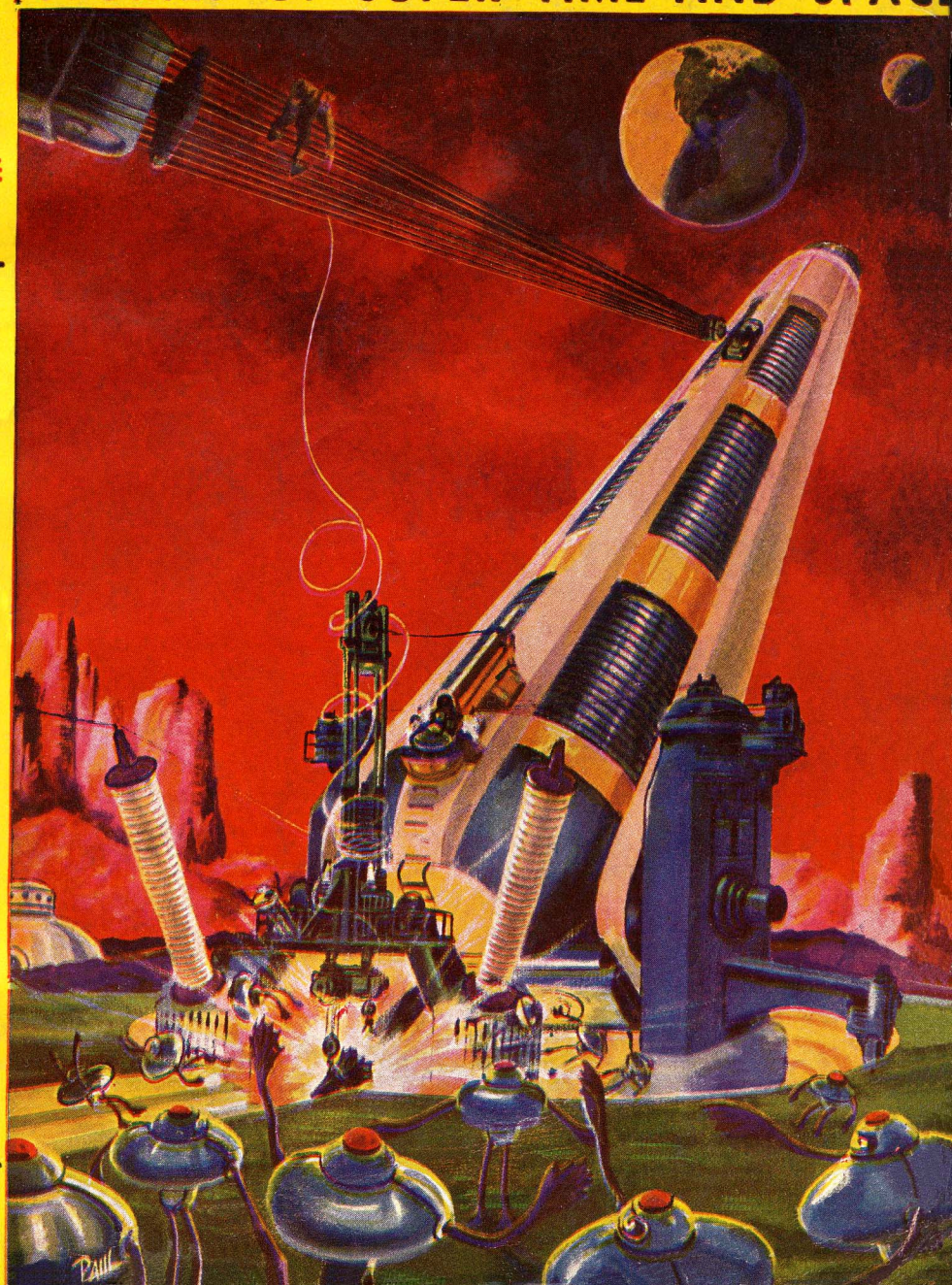

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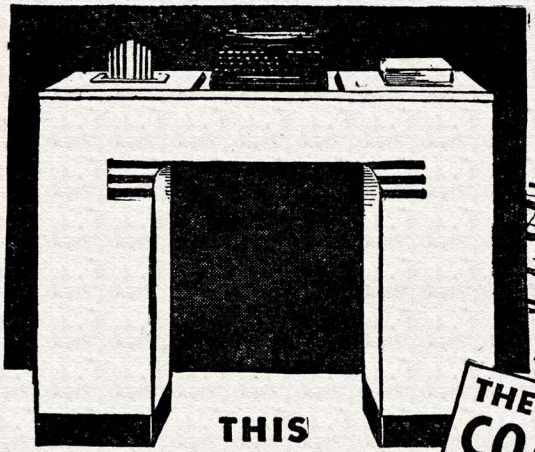

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VOL. I **COMET** No. 2

January, 1941

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Short Short Stories

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for a better understanding . . . .

JUST AS the monks of old, during the dark ages, kept alive the glow of enlightened knowledge through the medium of their painstaking writings on papyrus—fighting against tremendous odds to preserve what their conscience and teachings told them was for the betterment of humanity . . . just as these same monks, through their inspired writings, DID bring about a far superior world than had ever been known before . . .

SO, in the present day and age—with personal greed, atheism, and widespread misunderstanding between nations and individuals bringing about another chaos—there are countless thousands of God-inspired teachers seeking to show us the light . . . seeking to prevent utter ruin . . . seeking to lead mankind forward, ever forward—the priests, ministers, rabbis and other members of the clergy, and leading laymen, in every denomination throughout the world.

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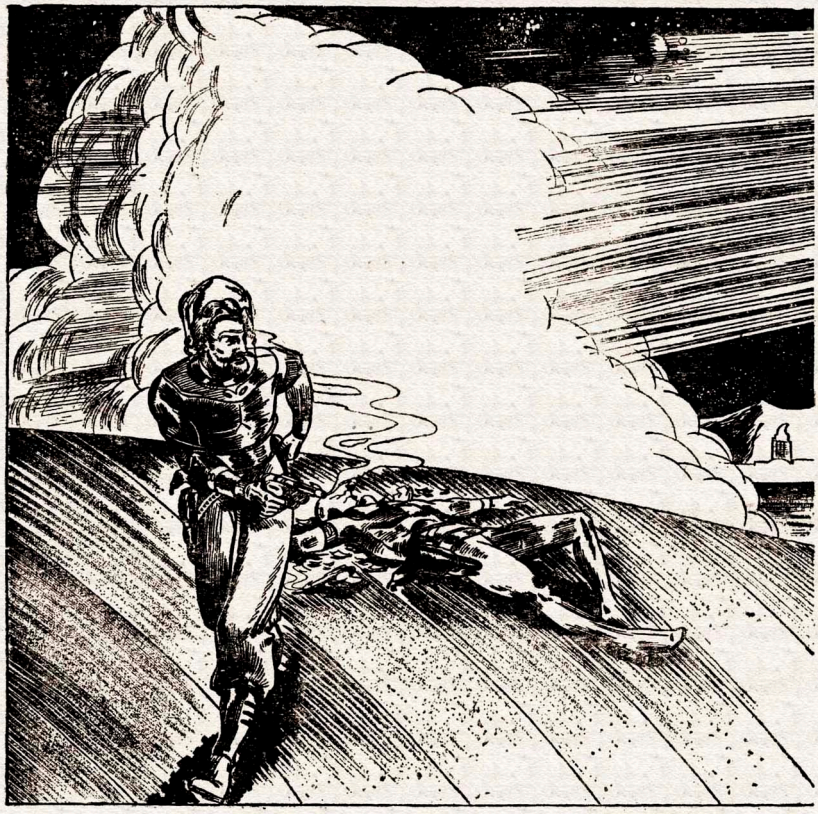
THE LIGHTNING'S



In a glory of pyrotechnic thunder the ship was off—

It was only a robot, tiny, chubby, for all the universe like a Ganymedean monkey. It stood in the dark old mansion alone, stiff, immovable. Its pink, oewhiskered, rubberoid face seemed twisted vith abject loneliness . . . Aye, it stood alone and lonely, as if awaiting the return of its master—

THE SONG pulsed in a vibrant, ominous cadence through the streets of nightclad Certagarni, clashed against the glassite atmosphere—retaining walls of the ancient Martian city, and penetrated faintly into a dimly lighted room of the Earth Embassy where the two earthmen sat smoking, listening.

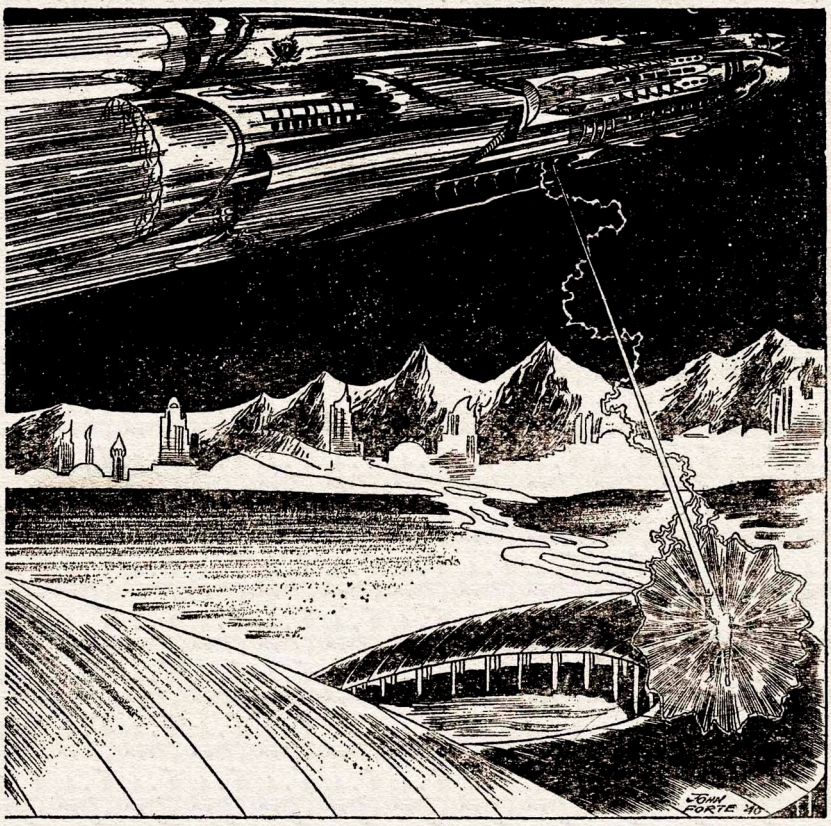
One of them spoke in a hoarse whisper which cut out above the dull, endless drone of discontented voices like the scream of a tortured soul:

"God, if it would only break! Flame across a world—battles to be fought and won!"

"And lost, Del Andres!" came the other's calm voice. "If this revolt does come, it'll be so big that we'll never stamp it down without the Legion!" His slender fingers rose to caress

COURSE

by JOHN VICTOR PETERSON



but in seeking revenge the captain made one mistake!

thoughtfully a close-cropped, golden beard.

A twisted, bitter smile played on Del Andres' full, sensitive lips. Strange pain was etched on his dark, handsome face and in the black pools of his eyes flame burned. He remained silent.

"What are you thinking about, Del?"

"Battle—and death! War like we had in Alpha Centauri. A blaze of conquest like the Fall of Kackija-kaala. What else is there to live for?"

"There are many things!"

"Not any more, Frederix. The years have been too cruel." The dark eyes were staring out into the night, thrusting aside the enfolding curtain of a dozen decades and many trillion miles of outer space. "Oh, why did I stay here fooling around with robots when I could have gone out to Sirius with the Legion—to battle, to glory?"

"Because you're needed here. Hear those voices! Of what are they singing? Revolt, of course. And why? Because they think earthmen are wholly

to blame for the loss of control of their industry and commerce!"

"Aren't they?" blazed Andres. "We think we're always right, we of Earth. Because we were the first to conquer space we think we should rule its farthest bounds, cosmic policeman, arbitrator of all internal strife from here to the ultimate!

"We went out to Centauri over a century ago, brought the Vrons out of subjugation beneath the Dwares, gave them freedom after tying up all kinds of trade agreements for our benefit; and then skipped over to Lalande and fixed everything according to our scale of values. And now Sirius!

"Here in our own system what goes on? I need not mention the names of the men who are undermining and usurping the greatest Martian institutions. Earthmen all!

"Mars has as much a right to freedom and monopoly on its own civilization as Earth on hers. Because a few greedy men spread tyranny through Certagarni, the Thyles, Botrodus, Zabirnza and other regions, they blame all of Earth. Neither you nor I can say they're wrong!"

"It's deeper than that, Del. The Vrons of Centauri have as great a hand in it as Wilcox, Onupari and the other earthmen here. You'll find—"

"Bosh!" snapped Andres, and then that smouldering flame was in his eyes again, something that leaped to the lure of the far places and spoke of the meteoric winds that blow between the worlds. His deep, resonant voice grew strained, lingered on his words:

"I wonder—"

THE PURRING of a bell insinuated itself above the dull droning without. Hunter Frederix arose, switched on the televisorphone.

"Hello, Dave," he addressed the face on the video, "what's up?"

"Plenty, Hunt. Just received a teletype from Kaa. Revolt has broken out all over Botrodus. Captain Adelbert Andres is commanded to report immediately to eleventh division Kaa to command the defense squadrons. Signed by old 'Zipper' Taine himself. And, Hunt, something is screwy in the air over here. The old man's on a hot jet over something or other. Better get over here quick!"

"O.K., brother Cravens! Del will break a speed record getting to Kaa; he has the old battle itch worse than ever. I'll be over to the Station as soon as my gyro'll make it. Sounds like all hell is about to break in the city!"

"So? Well, you'd— So long!" Cravens broke off abruptly, and they could see him whirl away from the transmitter as the videos died.

Snapping off the T V P, Hunter Frederix turned and said slowly, regretfully:

"Well, this is it!"

A smile lightninged across Andres' face.

"It's about time! This inactivity was killing me!"

"Be careful; the best of luck and all that; and may you come back in one piece!"

"One *live* piece, Frederix!" he mocked, and his dark face, tanned by long exposure to Centauri's blazing binary sun, set forth the fierce glint in his eyes and sudden, bitter pain on his lips. "Thank God it matters to some one—"

"It matters to the world," Frederix said softly. "After all the Legion is ten light years away, and the Defense Squadrons must keep our system at peace!"

"Just keep believing that we will. Faith helps a lot sometimes."

Their hands clasped warmly.

"So I'm checking out. If you get near Botrodus, drop in at the Rendezvous; I'll be there if I'm off duty. You see, I've a new robot to show you—something I can't understand myself—powered by radium; and I *know* it has intelligence!"

"O. K., Del. And I may be in sooner than you think. When Dave Cravens gets the jitters something pretty powerful is giving them to him!"

"Good old Dave. He was with me at

Kackijakaala, helped me at the robot controls—but you know about that. Ask him to tell you about the time we were surrounded at Travarga."

"He has!"

"Well. Oh, hell, Hunt, goodbye!" Andres whirled lithely, and with long strides left the room.

"So long!" Frederix called after him; then turned, swept a mass of Starcharts into the safe, locked it, and turned towards the tiny landing outside where rested his one man gyrotomic . . towards the beginning of a strange destiny which would weave together the fates of worlds and stars, and bring to him knowledge of greatness such as man had never known before.

II

The robot stirred restlessly and moved at length across a room littered with parts of others of its kind. Its blue photocellular eyes peered out into the starshot Martian sky. Could it know that its creator was coming nearer, riding flame through the night?

SWIFTLY the gyrotomic sped beneath the vaulted ceiling of Certagarni, using the air propellers and gyrovanes as local ordinances demanded for the sake of air conservation, slanting above streets thronging with gesticulating, chanting men wearing the bizarre native dress of old Mars.

It was no impersonal, cursory glance which Frederix gave that tense mob; rather was it a careful, searching observation. Here and there his keen gray eyes discerned Centaurians, tall, slender men, haranguing the natives. More uneasy grew his anxious heart. Had his words to Andres contained more of the truth than he had realized?

Beating down through the thick glassite ceiling, clearly audible above the faint purr of his motors, he heard the roar of many gyrotomics, flashed a glance upward and glimpsed an hundredfold of blasts flashing to the east towards Kaa. With revolt so imminent here, had the Station ships been ordered to Botrodus?

Out into the clear cold Martian night through a photocell-actuated lock he raced, his atomics red-flaring now, towards the Spacestation.

Ten miles out the great towering structure housing mighty positron guns (anti-spacecraft batteries) rose in the blackness. Dropping down low, he slipped into a small lock behind the hangars and clambered forth beneath the vaulted roof.

The tall, blond man paused for a moment, listening for the familiar sounds of men playing poker with virile blasphemy over in Barracks, but, save for the hum of generators in the power plant, all was deathly still.

Strange, he thought, that *all* the men should go to Kaa, even the mechanics, draftsmen and ordinance men!

He turned uneasily towards the lighted Communications office, finding it deserted. Now where was Cravens? He should be here at the teletypes, T V P's and radios. He wouldn't have gone to Kaa nor deserted his post wilfully.

Advancing to the silent teletype machine Frederix saw that it was cut off all circuits save the direct Certagarni-Calidao band. What he read on the page brought a mounting fury into his brain:

"VRON XII DE XIV. CERTAGARNI STATION HELPLESS. SEEDRONA PLANTED. WHAT ARE YOUR ORDERS?

"XII REPORTING. GREATER CALIDAO ABSOLUTELY IN OUR POWER. INDUSTRIAL SECTIONS SHOULD FALL BY DAWN. BOTRODUS IS IN SAFE FOR KAA WHERE SPACESTATION HAS RESISTED ALL ATTACKS. SEND SHIPS OF YOUR STATION PILOTED BY MARTIAN GROUP IX FOR IMMEDIATE ATTACK ON KAA. UPON DEPARTURE DESTROY ALL GUN EMPLACEMENTS LEST THEY BE RECAPTURED BEFORE THE ADVENT."

The messages were dated scarcely ten minutes before. They must have been completed directly after Cravens had called the Embassy. But who had sent the first and received the second?

There was only one Vron at Certagarni. It couldn't be he; he was loyal to the Legion.

Perplexedly Frederix turned towards the inner room. Simultaneously a voice cut across the silence:

"Looking for someone, Lieutenant?"

Slowly he turned to confront Captain Meevo of the Defense Squadron —Meevo of whom he had thought but seconds past.

"Yes, sir. What does this mean? Where are the men?"

Meevo's thin, haughty face twisted cruelly. "The men have been taken care of; and this means that the old regime is going out; that a new race shall rule all of this system when the Legion returns from Sirius!"

"A new race?"

"Yes. Mine, the Vrons, true blood of Alpha Centauri—"

Frederix could sense again the mystic alien strength of this man who had joined the Legion years ago during the Liberation; that subtle magnetism at which he had so often wondered, which kept him now from plunging recklessly into that leveled weapon.

"And just how do you propose doing this?"

"First, internal revolt, the rekindling of the old fires of worldly and national prejudice by a few well-ordered murders and the wholesale destruction of the spacestations. Even now my good friend Manuel Onupari has a ship waiting in Calidao, waiting to be loaded with *seedrona* from Jethe's munitions plant which will blast every station on Earth. Tomorrow night we will put that ship into its orbit.

"But you shall only see the beginning here, Frederix. Now be so kind as to go out to the control turret."

Slowly the young ordnance engineer turned and walked out through the glassite tunnel to the turret overlooking the fortress. His heart was hammering madly and his slender hands nervously clenching and unclenching. He forced himself to speak:

"And this Advent. What of that?"

"Three years ago an Armada left Centauri, two thousand light ships armed, as you earthmen say, to the teeth. Three more years and they will be here; and a system ruined by internal revolt will lie helpless for conquest!"

"God!" burst Frederix.

"Call on your God, Earthman, and I will call on mine to speed those mighty ships!"

Frederix forced himself to stop that mad desire to whirl about, to charge Meevo with bare hands. For that would be certain, horrible death with burning disruption in his vitals.

Now he glimpsed Captain Marlin's huddled, ray-ribboned body lying near the smashed controls within the tower. Close by Lieutenant Gorman lay in hideous death.

Strange thoughts passed through his brain. Why did not Meevo, schooled in slaughter, slay him, too?

But Meevo merely motioned him to enter the room; he did so, then the frail, haughty Vron said slowly, relishing the situation with an alien humor which the other could not understand:

"You've about fifteen minutes, Frederix. Fifteen minutes to realize the fact that you'll be blown to bits. When the station goes, Certagarni will revolt; in a few weeks, as the other stations go, Mars will fall completely into chaos.

"A few months and Onupari shall have lain waste the Earth stations. It's too bad you must miss it all; but you must! So I'm locking you in here where you can view the glorious beginning. This room has been the *sanctum sanctorum* of these two dead gentlemen; I've no doubt you'll be unable to solve the diallock's combination. It will give you something to pass the moments away with. So, goodbye, Earthman. May your ancestors welcome you with wine and tribulation!"

With that alien idiom uttered, the Vron stepped outside. The great du-

rite door crashed shut, the diallock whirled.

A moment later a small gyrotomic blasted into the night sky and moved swiftly into the northeast towards distant Calidao.

FREDERIX heard the purring of the electric clock, turned his gaze towards it, and the second hand going 'round, swiftly. He tried the door, turned back into the room. Glassite-durite walls faced him, transparent but comprised of the hardest alloy in the system.

Flicking on a desk lamp, he rummaged around the room. No weapons, no tools. . . And the minutes were fleeing —ten minutes more—nine!

And then his eyes fell on a portable cathode ray oscillograph, and inspiration lighted up his rugged, bearded face!

The door was locked by a high frequency radio wave diallock, the most delicate and most burglar proof lock in the system. Its shielded exterior made it invulnerable to the most advanced instruments of a modern Raffles; but its unshielded inner side—

Quickly he plugged in the oscillograph on A.C., brought it to the door, adjusted the wires from the jack-top binding posts to the terminal of the lock, stepped up the anode voltage, cut in the sweep circuit and paused for a long moment to still the quivering of his hand as he reached for the diallock.

His eyes were glued to the greenish fluorescence of the slow-screen tube as he started twirling the combination. Waves pulsed evenly across the grid. And then they jerked almost unnoticeably; a wave-plate had fallen into position! He changed the diallock's direction back slowly. Another variance in the oscillation. Back, again!

The clock purring, purring, and somewhere another clock ticking the doom of the station away.

His whole body was trembling as he made the final turn and was breathlessly rewarded with the sight of a higher frequency wave p u l s i n g smoothly across the tube. The door fell silently open. The clock said a minute to the zero hour!

He raced across the roof, full in the flare of a swirling beacon. Of course he did not see the crawling, bleeding body in the darkness near the radio-room's door, did not hear the hoarse, feeble cry:

"Oh, God, not Frederix!"

He blasted his ship out through the automatic lock at full speed. Seconds later his radio receiver burst into life:

"Calling KBM, Kaa. This is Cravens at Certagarni. Meevo and Frederix killed all the men; sent the squadron to attack Kaa. Station will blow into Hell within a minute. Oh, God, get them—Captain Meevo and Lieutenant Hunter Frederix—traitors! The Cen—"

The weak, quavering voice died away.

THE NIGHT turned to crimson flame. *Boom!* A vast concussion shook the earth, the sky. Frederix fought the bucking controls. Behind, the space-station's defenses were debris spouting into the upper air, and livid, leaping fire cast macabre patterns upon the distant vaults of Certagarni.

He sat in the cushioned seat, stunned by the immensity of the deed and by the startling denunciation he had heard as Cravens, with whom he had conversed so much, Cravens who had made the trio of Andres, Frederix and himself rich indeed in the folklore of the stars—Cravens had named him traitor!

Dave had even taken his transmitter to overhaul the day before. Consequently he could not contact Kaa or Del and protest his innocence, warn them of the awful fullness of the Vron plot, of the Armada. He would probably be shot down should he stumble upon the aerial battle which would soon be waged over Botrodus since Cravens had warned Kaa, the key station there.

As if in attendance upon his thoughts, his open receiver burst, amid general static:

"KBM calling all ships. Apprehend all suspicious craft approaching Botrodus; engage if they refuse to give proper clearance. Meevo—Frederix—if you hear my voice, understand that you will be given no quarter—"

Suddenly another carrier wave whined into the wavelength; Andres' angry voice broke in:

"Blake, you damned fool, Frederix had nothing to do with this!"

"Captain Andres, unless you have absolute proof, please get off the band—"

Silence. Heartbreaking s i l e n c e. KBM took up again, vainly calling Calidao.

Frederix looked at his directional finder. He was heading for Kaa at nearly a thousand m.p.h. If he changed his course a few degrees and headed for Andres' Rendezvous on the Kaa-Calidao airline, he could call KBM and straighten the matter out. Quickly he made the necessary alterations. . .

The bitter chill of the Martian night cut through the ship's hull. Locking the robot controls, Frederix slipped on a beryl-durite oxysuit, locked the glassite helmet in place and turned on the thermo-electric unit.

Straight out across the Hargoan Swamps he flew, towards the Rendezvous. And he thought of the past, back before his birth when Andrese, as legend ran, had come back from far places, from a memorable battle in Alpha Centauri's vast system, wounded in body, and, his legion buddies whispered, in heart. Aye, even in soul. Rumor had it that he had loved with all the native fire and enthusiasm that were his—fighter extraordinary, D'Artagnan of the Legion. Had loved and lost and something within him had died.

He had for a while lived a hermitary existence in an old Martian ruin on a narrow, arid, mountainous strip cutting across Hargo; but combat, strife, adventure called—

Reenlistment. Out to Lalande 21,185; for Centauri was in peace. Battle after hellborn battle until that lesser and nearer Lalande had found a newbirth of freedom.

But Andres had not embarked upon the twelve-year journey across the 8.4 light years to Sirius in the Legion's stellatomics. He had told Frederix that the day might come when Sol would need him more. And so he remained with the Solarian Defense, clinging to that ancient estate—his Rendezvous where he held communion with his memories and with the ghosts of those who had fallen beside and before his blazing guns—haunting it when on Mars and off duty. . .

Far to the south Frederix caught the fierce glare of disrupters, of jets flaming in the black, starshot night as furious combat raged. Del, too, was probably there, deep in the bloody game which was his life now—

Onward, onward.

DAWN SHOT UP, breaking with all the suddenness of Martian day. To his right Frederix glimpsed a ship bearing down upon him—a Certagarni ship, named doubtless by a Vron-minded Martian.

Suddenly the savage whine of other atomics crescendoed from above. From the corner of his eye Frederix caught the crimson splurge of a master disrupter from the nose of an insanely-plunging blue ship—a Kaa ship!

A red finger burned across his right wing, tearing it cleanly free; the ship whipstalled, hung like a stricken, one-winged bird and whirled into a dizzy, whipping spin. Grimly he wrestled with the useless controls, tried to avert the crash, flung his eyes upwards towards the victor, and a scream sundered his lips:

"DEL!" A useless scream, killed by the higher keening of wind and unleashed jets.

The craft careened erratically into

the swamp, down through infinitely intermeshed trees which broke the velocity of its fall, and crashed sickeningly into the frozen mire.

Miraculously Frederix retained consciousness and tore his bruised, throbbing body from the shattered cabin, plunged to the slippery ground and screamed madly, flinging his helmet open:

"Del! Del! Oh, God! Come back!" But the atomics screamed as Andres whirled towards the other Certagarni ship and, embattled, fled into the distances towards Kaa.

He dragged himself weakly from the frozen, broken ice, reeling in dizziness. Blood was spurting from his nostrils, his breath was shot and rasping in the frigid, ozone-tainted atmosphere. Feebly he fumbled for his helmet catch, closing it after an eternity, and collapsed on a nearby hummock, gulping in the oxygen which meant life.

He looked at the crumpled, broken ship. Something man had built, gone the way of all his creations. And why? Because of man's savagery, man's impetuousity, man's searching after the vain chimera of glory—"

Rising, he stumbled into the north, towards the Rendezvous and, beyond, Calidao, Onupari, and that upon which the future freedom of Earth depended—the *seedrona* in the vaults of Jethe.

At length he dropped in utter exhaustion. The noonday sun shone upon his inert body near the foothills of a low-lying mountain range.

Long hours later he awoke, incredibly refreshed, and scrambled upward to the highest summit of the range. A cry of exultation burst from his lips. Before him was a tiny valley on whose farther side clung a huge, rocky pile which only a Martian—or Andres and his kin who had beheld the insane architecture of the hither stars—might call an abode of man.

The Rendezvous—Del Andres' Rendezvous, at last!

III

Within, the monkey-like robot waited, weapons gleaming in its finely fashioned hands. A stranger was approaching—someone who knew the Master—friend or foe, it knew not; yet something purely intuitive spoke inside it, saying "Friend!"

DARKLY RED and ominous, the old pile seemed untenanted when first its bloody portico spread beneath his swiftly questing feet. Fantastic, ponderous arches topping offset, fluted columns; weirdly carven facades. An architect's nightmare; a surrealistic concept of a palace in Hades; but house ne'er seemed so welcoming to a lone man against a world.

Silence broken only by the faint, thin whisper of a rising wind sweeping red dust through the trellises about the time-scarred walls, indicative of a simoon in the offing.

Advancing to the great door, he rapped sharply, then tried the latch. To his surprise it yielded. Entering the vestibule, he opened his helmet to a revivifying blast of oxygen fresh from the automatic ozone transformers, and called. The echo of his voice alone came back.

He found the library dustless and orderly. Trophies hung on the walls: mounted heads and bodies of creatures slain beneath alien suns, ghastly travesties on solarian mammals, creatures envisioned in dreams. Weapons from the far places, taken (as the labels read) at the siege of Kackijakaala in Alpha Centauri, six years distant by the fastest stellatomic.

How old, then, was Del Andres the magnificent? Man's allotted span, increased by the elimination of all disease, covers but a hundred and fifty years; yet Andres had seen and fought those years away within the vast systems of Centauri and Lalande, and he seemed still a young man, by appearance no older than Frederix's thirty years.

Aye, there were mysteries about Del Andres—rumors about a Vron

princess far across space, years ago as time runs.

Intuitively Frederix moved to luxurious draperies hanging on the walls, moved them aside and a sigh came from his parted lips. The sheer, glorious, breath-taking beauty of the picture revealed stunned him! Third-dimensional it seemed, tinted with an ethereal loveliness, the supreme glory of womankind—

Haughtiness, perhaps, but the haughtiness that breeds the hope of conquest that would be rich, indeed, in its fulfillment.

He released the drapes and turned aside with a cry in his heart. Only now did he fully realize the fatalistic spirit which drove Del Andres: the devil-may-care fearlessness, the sheer recklessness, the constant hoping, perhaps, for death.

Small wonder that Hunter Frederix left that shrine and quested inward, saddened immeasurably by what he had seen and what he had so suddenly realized. For he had seen, in that moment, into the hidden recesses of a great man's soul.

The dining salle opened before him, seemingly converted into a species of *chambre-des-horreurs* since robot parts were strewn all over the place: limbs, wires, sockets, photo-cells, small atomic motors. Robot control was a hobby of Andres'—a robot of his making had, at Kackijakaala, entered and opened the gates of the fortress at which the Legion had hammered futilely for months on end in conquering the Dwares of Centauri and bringing peace and prosperity to the system's many races—prosperity and *the ultimate hope of cosmic conquest!*

He crossed the sill, started hurriedly towards a radio cabinet in the far corner. Simultaneously a door nearby fell silently open and what he saw caused, at first, a smile to flash across his bearded face.

Into the room came a tiny form, probably three feet tall, hairy and chubby like a Ganymedean monkey, its face a delicate pink, its large eyes an innocent baby-blue, dominating a pudgy simian face. A robot, no less—the robot about which Del had talked—whose comical aspect was not at all in keeping with the grim menace of a paralysis-pellet gun in one manual extremity and a disrupter in the other! Its thick lips parted and a reproduction of Andres' voice said:

"Don't move or I shall be forced to shoot. You will kindly remain as you are until Del Andres returns!" Whereupon the litany continued rapidly in Lalandean and Centaurian and abated.

Frederix stood frozen in his tracks, his smile gone now. He'd heard of automatic robots before, guarding bleak, desolate outposts in the still watches of extra-terrestrial nights whose weapons would be automatically discharged should anything change the visual pattern on their photocells during or after the warning.

The suspense was maddening. A radio transmitter and receiver stood scant feet away, and he dared not move to reach them—the means of calling Kaa, of sending angry ships swarming at Calidao, for perhaps (a *perhaps* that was maddening in its import)—perhaps Onupari had not swept into the void with his cargo of death.

Andres had spoken of some intelligence manifest in the robot's actions. Might it then understand if he spoke to it?

"I am Hunter Frederix, Del Andres' friend," he sai dsoftly, scarcely moving his lips. The robot remained motionless, irresponsive. Was it merely the sparking of relays or had he described a gleam of something else in those mechanical eyes?

He talked on, explaining the entire situation. Abruptly, amazingly, the automaton sheathed its weapons.

Frederix turned towards the radio, astounded by what he had seen, striving to give the exhibition of understanding some explanation which did not admit of a created mentality;

then, without, he heard the jetting of a landing gyrotomic.

A WARM, excited cry cut the silence of the old mansion:

"Hunt! I thought you'd come here! Oh, I knew Dave was wrong!"

Del Andres rushed into the room, his dark face agleam, his strong arms outstretched in welcome greeting.

Frederix caught his hands, crushed them and said nothing.

"We captured a Vron, learned that they have sent an Armada—"

"I know," Frederix said simply.

"Oh, I knew they'd come!" Andres raced on. "I warned the Legion years ago; but they knew more than I who lived with the Vrons at Centauri, who —well, it doesn't matter! What matters is that I know them for what they are: cruel, domineering, the greatest actors in the universe; and when they want something—power or love or gold, it doesn't matter which for their fancies change in a moment—nothing will stop their mad rush towards that goal—" Suddenly he was staring into the shadowed room whence he had come and there was bitterness in his dark eyes—the bitterness of cruel and undimmed memories.

"But they must be stopped!" Frederix cried.

"We'll stop them!" whispered Andres, his strong, white teeth bared almost wolfishly. "The Legion can't get back in time; but we've worlds to defend, Hunt, and the courage to defend them. But why did Dave Cravens name you traitor?"

He could talk now. He could empty his bursting heart. Swiftly he recounted everything from those dangerous moments in Certagarni to the present.

"We'll win through!" Andres cried, his great hands strong and encouraging on Frederix's shoulders. "We'll get the Kaa ships to Calidao; we'll wireless Earth; we'll curb it now while it's not too late! Their armada is years away; much can be done ere it comes!

"Why, we've already downed the Certagarni squadron and reestablished control there and in Botrodus!"

That supreme confidence banished the hopeless resignation in Frederix's heart, buoyed him up and gave him newborn hope.

Andres was smiling, reaching into the young engineer's open helmet to grasp his golden beard in iron fingers, to tug at it playfully.

"Getting gray, fella! Must've happened when I shot you down!"

That broke the strain. They grinned boyishly at each other; then Del spun on his heel, walked to the radio cabinet, and simultaneously a carbon copy of his own voice cried in mockery:

"Don't move a muscle or I shall be forced to shoot."

He started to turn; the robot's unsheathed pellet gun coughed and Del toppled over against the transmitter, smashing the bared, delicate condensers into nothingness as he dropped into paralysis.

Frederix stood stunned. "No . . no . ." he murmured; and then he was leaping forward, tears of rage and futility in his eyes, to lift Del to a nearby couch, to call to him incoherently.

He looked then to the robot standing silently nearby. The curses on his lips were never uttered, for flooding into his mind came a strong feeling of sorrow, regret, and the automaton was extending the weapons to him grip foremost, as though their surrender might repair the damage done!

He tried to fight off the thoughts which thronged the threshold of his mind then. He tried to think of Del and of Onupari and his death cargo, of hellish death rushing across the light years towards Sol; but instead he could think only of the things Del had told him of creating this robot, powering it with a full gram of radium, releasing intelligence.

That there was intelligence here, he did no longer question. A reasoning intellect which had forbade slaying him and now had done this inexplicable thing. Or did it have complete control of the robot's form? Had it acted

of its own accord or had the robot's relays automatically caused this dilemma? That final thought brought a counter-thought, a clear and sorrowing affirmation!

But how could he credit anything existing independent of a flesh and blood body as having intelligence? Must not every life form remain an insoluble psychophysical being?

And yet—is not the basis of all things electrical? Life and all that pertains to it and the universe? Why not, then, a pure, radioactive intelligence? Could it not have arisen by evolving degrees from the complexity of atomic fluctuations finding genesis in the pitted core of Pallas—where Andres, prospecting to pass empty days away, had found it—a sentient consciousness born in cosmic loneliness out of the very fabric of the universe? Had not One Other thus found genesis?

The weird new wonder of it strong within him, Frederix looked down at Andres, silent, immovable on the couch. A strange little smile played on sensitive, parted lips beneath the thin black mustache. Frederix wondered if he dreamed—

Spinning around to the radio, he discovered that to repair it would take hours. Yet he must call Kaa, summon the Service men, and depart in Del's ship for Calidao, on the slim chance that Onupari might still be there and that he might stay the take-off.

Atomics moaning above. He rushed to the window. Five ships V-ed into the south, magnificent against a dust-darkened sky, flashing swiftly out of sight under full power. Service ships, so near and yet so far!

Of course, the ship! Del's ship would have radio equipment. He rushed out on the impulse, his breath coming fast within his helmet.

Snapping on the transmitter, he called quickly into the microphone:

"Frederix calling KBM, Kaa. Calling KBM . ."

QRM snapped through his receiver, born of those lowering skies over Botrodus, one of those rare but violent sandstorms come to disrupt radio communication.

Now a calm official voice answered, badly distorted by atmospheric disturbance:

"KBM to Frederix. What (brrrrrt) . . . . message?"

"Andres is paralyzed at the Rendezvous. Send a doctor. Send all available ships to Calidao—"

"Andres paralyzed . . . . . Rendezvous . . . . Repeat . . . . mess- . . . . can't. . . ."

Frederix repeated grimly, persistently, but Kaa kept calling:

"KBM . . . . do not get . . . . repeat . . . . K . . .rrrrrrrr . ."

And then QRM blotted even that out.

DISGUSTEDLY he turned towards the port and the grim old mansion looming large in the cold, storm-born dusk, and hesitated. The message had gotten through. They at least knew Andres' condition and position; they would doubtless come plunging to the Rendezvous. He must leave a message!

Moments later he returned to the ship, a disrupter and a freshly-charged paralysis-pellet gun buckled at his waist. Before him scurried the automaton, its tragi-comic simian face turned back to him as if exhorting him to greater speed.

Gently, awesomely, almost reverently (for is not reverence born in recognition of the mighty and the mystic unknown which man cannot quite understand?), he handed the monkey-like thing into the cabin and followed.

Blasting off, he set a Mercator course, with all due corrections, for Calidao. Soon he outflew the fringes of the storm and then night fell like a finely-stitched widow's veil, the stars danced crazily as the air cooled, and he was alone in the darkness, roaring at full speed towards Calidao. Alone, aye, save for the weird little robot

standing by his side, whatever life it possessed recording his every movement.

Gloom and hope held thrall in his soul. Things had seemed soluble with Andres smiling and pledging his support. Now he had weapons and a ship and a strong feeling that Onupari was still in Calidao, but—he was alone! Del was not here to help him. Still, he did have weapons. He might—

Aye, gloom was fighting a losing battle. A transcendental confidence was stirring his breast—and yet he wondered if it were not telepathic hypnosis finding genesis in the mind of the alien life which was close beside him? What were the limits of its intellect? What aid might it give? He did not dare to even wonder.

IV

Who could say what thoughts, emotions, surged through the robot's mind? Intelligence there was and an undeniable strength inspiring confidence. . . . And something greater—some indefinable prowess beyond, perhaps, the ken of man—

CALIDAO, city of mystic intrigue, cosmopolitan city where Solarian, Centaurian and Lalandean hold daily intercourse, bartering in lives and souls, and in treasures and alien lore whose origin and significance shall remain forever hidden in the womb of time—

Thither flashed Frederix in the dead of night, riding the radio beam in from the direction of Kaa. Starshine alone and what light the almost indetectable moons gave illumined the semi-somnolent cosmopolis. Along the main artery, famed Space Boulevard, the varicolored lights of night clubs blazed up through the glassite vaults; the spaceport, a mile and more out of town, shone in a wavering splendour of swirling beacons, pointing white, stabbing fingers into the dark, and the whole was flooded intermittently with brightest green as the great concentration of spacelamps flashed a mighty, guilding column upward and outward to whatever craft might move across the firmament.

Frederix drove down low over the port, searching for sight of a large black freighter marked with Onupari's famous (and infamous) boxed-star insignia. Just as he was rewarded by a glimpse of it lying in the ways, just as exultation swept in a warm tide over him, a blindingly-crimson blast seared up from beneath, cutting a great gap in the left wing, waving futilely after him as he careened into the night, his tortured sight seeping slowly back, trying desperately to keep the crippled ship awing.

He realized that the Calidaoan Vrons and sympathizers bought with golden coins, promises of greatness, and freedom from the "Anarchy of Earth," had indeed taken dictatorial possession of Calidao and were guarding well the ship of Onupari which would bring death to the Double World.

Opening the purring atomics wide, he swept in a wide arc far out over the wastes and back to the farther side of the city, and, cutting in the infra-red viewplates, glided to a swift albeit unsteady landing on the verge of the encircling desert.

He hesitated, but the robot, dropping to the ground, led him unerringly to a small lock opening on one of the back streets. Pausing in the darkness, Frederix peered through the glassite wall.

A young Martian policeman stood smoking thoughtfully beneath a carbon arc, handsome and proudly erect in his bright, apparently-new uniform, quite alone in this narrow thoroughfare.

Frederix's hand dropped to the disrupter, shifted to the needle-gun, and, opening the lock slowly, he aimed and pressed the trigger. Leaping within, he caught the paralyzed youth, lowering him into the shadows of a nearby doorway.

A surge of commendation beat in his brain—praise for his choice of weapons. For why should one so

young and handsome die? Why should any of Sol's disillusioned billions die because of a few greedy men who had rushed into a bund which would damn the entire system unless someone revealed their duplicity, which had already precipitated all manner of internal strife? Violence would avail naught; they must be shown the plain truth of it so that they might live and be free!

The robot hurried away now, turned swiftly in a high-arched tunnel which intersected the street, and led Frederix to the fantastically carven front of a large mansion whose portal had been but recently blasted asunder. Over that shattered door was the crest of Jethe the munitions baron, and *within the room—*

Nausea seized Frederix's stomach. Hoary-haired Jethe, dealer in power for peace or war, was sprawled across a paper-strewn table in terrible death, his wizened face and body ribboned into one horrible mess of blood and gore, sliced by a disrupter, signature no doubt of Meevo or Onupari—

Dizzy with the sheer bestiality of the scene but driven by some manner of apprehension, Frederix threaded his way through the debris to an all-wave radio clinging on the farther wall, snapped the switch and dialed to the Kaa frequency.

A message was coming through, clear now, proof that the sandstorm had subsided and skies were clear. Frederix recognized the cold emotionless voice of Blake, the Kaa chief operator.

" . . the message you've found may ring true, but in the light of Cravens' message from Certagarni, proving Frederix to be in league with anti-service factions, we find that we cannot send ships to a possible trap in Calidao until you've learned from Andres what's really behind all this. Please inform us of any developments. Off!"

Oh, the blind fools! They had found Andres and the message but would do nothing until the paralytic spell had worn away! And Onupari must have been in this room hours before; his ship, prepared for flight, must have long been loaded! He left the place of death at a run.

The tiny monkey-thing led the way toward Space Boulevard, and into the engineer's mind an encouraging thought came. *Onupari has not left!* And Frederix raged inwardly against the callousness, the bloodlust of that fat, swarthy renegade whom he had seen so many times glossing over crimes charged to him by the Embassy.

The freighter had not taken off yet; the thunder of its atomics would have been easily heard. He might yet—*what?* If the Service men— *If*—

As if they, trying to resuscitate an unconscious man almost an hour's flight away, could come in time!

V

Dwells there a thing in all of space
Without a smile to light its face?
Intellect: Puck's dwelling place?
"What fools we mortals be!"

AHEAD he saw an enormous Geissler tube sign flashing alternately with neon's bright red and argon's blue:

THE SPACASINO
Dine & Dance—Floorshow Tonite
Joy Rikki & Martian Madcaps

and simultaneously, he heard voices and the double tread of footsteps down a cross street. The robot slipped intelligently into the shadow of an ornate doorway and he followed.

Coarse voices—the voices of space-hardened men:

"We gotta git Manuel out to the ship. 'S been loaded since sundown. What'll the Envoy think? Cripes, we're behind schedule now—'most a day!"

"You git 'im out! Ain't I tried? Y'know 'ow 'e is when 'e gits drunk! Give the blighter a bevy of chorines to dance in front of 'im and some vodvil stuff and the blinkin' fool will set

there all the bloomin' night 'e will, if 'e's anywheres near tight, an 'ell itself won't move 'im!"

. . . The voices became inaudible—

Inspiration came to Hunter Frederix then. It was a futile, vain hope. It was a desperate gamble and Death held the odds; but an hour's delay might mean success. Andres would soon be conscious; the rockets would flash out of Botrodus.

A wild plan flashed across his brain, and then a pure thought which held in it understanding and acknowledgment — understanding of one man's weakness and acknowledgment of another's genius.

He looked down at the robot, saw the photocellular eyes turned upwards to his face. Despite the seriousness of it all, he smiled crookedly as he caught the automaton up in his arms and hurried across to a doorway marked plainly "Stage Door—No Loiterers!"

The door opened as he crossed the photo-electric eye on the threshold, and he came upon a hectic scene: a sweating, cigar-chewing manager upbraiding a group of voluptuous chorines.

"Listen, girls, please can't you think up a new routine? This fellow's a madman when he's drunk and he might take it in his cranium to tear the joint apart. How's about that Starshine Sequence?"

Frederix shouldered his way brusquely through the surprised throng, ignoring the angry remarks which came as his metal suit brushed bare arms and backs. No time for pardons now; seconds meant life or death—

"Hey, Mac!" he said by way of introduction. "Could you use an act?"

The irate manager surveyed the big, purposeful man inside the oxy-suit, grinned and said:

"Listen, Goldilocks, whatcha think this is—a bearded man's convention?"

"Never mind about the customers!" the engineer burst in repartee, smiling though his heart was grim. "I've a trained, talking Ganymedean ape here. I'll give you an act that'll knock 'em wild if you'll announce me now and give me a dressing room for about ten minutes. Oke?"

A system was hanging on the balance in the weighing of a few, short, seemingly lightly-spoken words—the future of many kindred races sprung from a common sun who labored now under greatest stress— And the grinning manager must have sensed the aura of seriousness and power about the unshaven man and his strange companion, for his face grew sober.

"What's the act like, pal?"

"Ever hear the *'Saga-of-Sal'?*"

"I've heard *of* it!"

"Tonight you'll hear *it!*"

Frederix's heart was beating with the power surges of a liquid-rocket's blast as he hurried into the dressing room, completely removed his helmet, splashed on fiery pseudo-pirate make-up, darkened his golden beard, and then turned his attention to the stoic robot.

Time flew with the beating of his heart. Removing the robot's system of speech, he set the disks awhirl, loosening the bolts which held the 144 common units of enunciation in a fixed order. Transcribing his reedy falsetto unto the disks, remembering some of the great poem, extemporizing with his natural flair for poetry, he recited some of the choicest lines; then locked the enunciator unit and lay the robot aside with an air of confidence and satisfaction.

Carefully he obliterated with make-up any distinguishing signs on the government suit; then hurried out into the wings, the monkey-thing scurrying before—

(The rockets are coming from Kaa, from Kaa,
Out of Kaa flashing flames in the night.)

ALL SPACEMEN have heard the "Saga-of-Sal," repeated from expedition quarters on Pluto into the English colony in Mercury's twilight zone, Sal, the throaty torch-singer from dear old Boston at the very sound of whose magic voice the maharajahs of

Mars went into ecstasy and who spurned them all to marry a blue midget from Callisto.

Conceived by some long-dead bard with the virile, full style of a Kipling, it had been handed from mouth to mouth, every minstrel singing it differently; but none of them ever had cause to sing it quite like Hunter Frederix and his futuristic concept of a vaudeville stooge did that wild night in the Spacasino while he waited, his life hanging on a thread, anticipating momentary recognition, praying for the sound of rockets out of Kaa.

The automaton scampered out in advance and a howl of laughter shook the terra cotta walls. Frederix glimpsed Manuel Onupari rising from a drink-laden table beyond the arc-lamps, a reluctant scowl on his black-jowled, evil face as he argued vehemently with a Vron who was plainly encouraging the renegade's men to take their leader to the waiting ship.

But at the sound of applause, Onupari shook himself free and sank back into his seat, exploding in drunken laughter, calling for more wine.

(Out of Kaa flashing flames in the night—)

A sigh of relief on his lips, Frederix looked down at that pink, bewhiskered face, unspeakably comical, unspeakably innocent as they swung into the Saga, holding its cues while the crowd roared, giving them full punch under the sensitive direction of the electrical life which seemed to know so much of all things.

"I will take my atomic and sweep through the stars
And chase all the girlies from Pluto to Mars;
I'm a knight with a steed which belches out flame;
I'm a whooper, by golly, Vamose is my name!

"Monk is my partner—he rides on my knee!
He flirts with them girlies, what a grand sight to see!
From Callisto to Luna, from mountain to shore
We still are a-whoopin'; may the rockets roar!"

Whereupon they swung into an animated recital of how they, privateers ranging the void, had heard Sal broadcasting from a Martian station, and, unutterably fascinated by her siren's call, landed only to be turned over to the Service since she was a Service dame, and to sit in a jail cell and watch her say I do to that Callistan blue midget in a magnificent jail house wedding for dear old publicity's sake! What a wild, uproarious yarn that was; what shouting, whistling, stomping arose in that semi-barbaric place!

And the minutes were fleeing—and the miles behind the ships plunging onward—

MAD THUNDER of applause broken by an equally mad roar. Meevo, pale, wild-eyed, bursting into the club, crying out:

"Onupari! Planes riding the beam in from Kaa—two hundred miles away! Come on, you drunken fool!" And Meevo jerked the drunken commander to his unsteady feet, slapped his face with an insane violence, threw him into the arms of some less-drunken men and rushed them and his fellow Vron out into the night.

They were coming! Coming, yes, but fifteen endless minutes away! Half that time would see Onupari's powerful ship standing out into cosmic space!

And the native impetuosity of Hunter Frederix could not fail to come. Heated thoughts surged through his brain. His hand strayed to the guns at his side and then he had flung the helmet on to his suit, clamped it down and was gone from the Spacasino like a flash. "Monk," the robot-extraordinary, tried in vain to match his madly-plunging steps.

VI

AND SO he rushed, his oxygen carefully adjusted, out through the massive main-city-lock almost on the heels of Onupari's helmeted men,

and they, for the greater part drunken and stumbling blindly along, heeded him not.

The rockets were coming from Kaa, out of Kaa flashing flames in the night! But they would be far too late! Onward he ran, his heart screaming protest against the violence of his pace, an endless mile across the desert waste.

Onupari's men were streaming up the gleaming aluminum plated ramp now, pouring into the bowels of the ship resting on the ways. Frederix drove forward, a disrupter clenched in his right hand, leaped towards the ramp, yards behind the last man.

And Meevo, thin, haughty Meevo, stood before him, recognition dawning in his wide, cruel eyes, hand reaching for a disrupter. Frederix heard the faint purring of the warming atomics. The Vron in his way! He must reach the controls, wreck them, even though his life be in forfeit!

He brought the gun up even as Meevo whipped out his.

Frederix fired first—right into that glassite helmet—red burst of flame, blood spurting out of a jugular vein severed from nothingness; the Vron's decapitated body crumpled.

But the lock crashed shut, and a man loomed within a lighted gun turret.

The atomics were hissing more loudly now, the intense wave of heat driving Frederix back. A leader flashed past him, fabricating an ionized path for the incredible bolt of lightning which crashed nearby, sucking him into the very heart of a stunning thunderclap.

He regained his feet unsteadily, tried to run on, intent on escaping the roaring atomics ere they blasted him with their dispersed fury.

He stumbled, went down, and his mad eyes saw the outdistanced robot coming towards him. A lightning leader flashed, smiting the metallic automaton squarely in the fuel compartment—*the radium compartment*—fusing the whole into a blinding, white hot, leaping electrical aura which strung itself out in a roaring, seething, zigzagging finger *which leaped backwards along that ionized pathway towards the ship!*

A tiny voice keened above that mad tumult, shrilling out of that gutted, wrecked automaton:

"We still are awhoopin'; may the rockets roar!"

Even as that plaintive, laughing voice cut across the prostrate, half-blinded man's brain, so spoke more mightily the thunder of the atomics, flinging the mighty hull up the ways into the illimitable starshine. His nerve centers revolted. The agonizing white of afterjets initially supercharged; then that excruciatingly painful splash of furious lightning intermeshed and blazing in supernal glory on the ship's side.

The very roof of the heavens seemed to cleave in twain. The universe became one crazy, all encompassing roar; the skies were a livid, screaming wave of white, brain singeing, ear bursting agony.

Frederix was blasted end over end, his bones snapping like matchwood, intolerable pain crushing in on him—

Vibration upon mad vibration. Reverberation of hell thunder. Pain—unutterable, endless voids of swimming pain—

Consciousness remained. Sound—crushing sound.

And, at length, silence.

THE MAN tried to drag his broken, throbbing, bleeding body from beneath the debris of the hangars against which he had been thrown, which had sheltered him from the highest fury of that unleashed cargo of *seedrona*, set aspark by the short circuit caused by the disrupting blast of unnatural lightning, radium transformed into flame.

Frederix looked up into the blackness and strained to see beyond it. A faint, almost ironic smile crossed his pain wracked, bleeding lips. Gone, the

minions of those who sought to subjugate a system—gone, the deadly cargo which, treated and compressed, would have destroyed the spacestations and laid the World bare to conquest.

And, Oh God! at what price to him? *What price, indeed?*

But he, what did he matter? He was only a means to the end. The plot was known now. Back on Earth, here on Mars, in all the other solarian havens of life, the Vrons of Centauri would meet defeat; for Solarians would believe him now with Del Andres by his side, Andres who knew the Vrons of Centauri for the strange, changeable, domineering creatures that they were, Andres who called him friend and in whose great heart only friendship was left—aye, they would believe him well!

When he heard the murmuring of rockets out of Kaa, he was thinking many things: of what the strange life form he had come to know by the lowly name of "Monk" had done—truly the workings of something far greater than man striving for universal betterment. He thought of the earnestness, the striving, the sense of honor and glory and all that is good.

In essence, what had it been? A consciousness born of the basic fabric of the universe, electricity however strange the form. Something come out of seemingly nowhere to aid a race in its moment of greatest blindness, of greatest need. Come to render a queer, heroic, supernal sacrifice.

And now, despite the living, shuddering pain within him, a smile twisted his lips. He was thinking of a little voice whispering a very virile tune as it went down into death. He was thinking that even something akin to a god, in its most serious workings for good, might find time to know laughter.

And he was wishing that that intelligence had not been consumed by the blessed flame of martyrdom. He was wondering what aid it might have given in those moments not far hence when the Armada would come blasting out of the void between the stars.

MESSAGE from VENUS

by R. R. WINTERBOTHAM

"We've got to get a ship through to earth, Captain," the Major said. "Can't your ship be fixed?" The Captain shook his head slowly.

THE VENUSIANS had one admirable characteristic. When they set out to do a thing, nothing could stop them. Captain Paul Bonnet had said something to this effect to Major Rogers and it made the old man so angry that he almost court-martialed the youth.

"We're going to stop them!" the major roared.

Captain Bonnet glanced up into the sky, already dark with the ballooned bodies of the Venusian bipeds. The creatures looked like huge sausages, except that there was something deadly about them.

On the approaches to Outpost 53, sweating men labored on the caissons of twelve batteries of Amorg twenty-fives, pouring atomic destruction into

a solidly packed mass of Venusians advancing through the wire entanglements.

Captain Bonnet nodded to the major. "You're right, sir!" He turned to the members of his crew who were manning an anti-rocket gun. "Did you hear that? Knock 'em out of the sky!"

The gun coughed Amorg vapor into the sky. A gaping hole appeared directly overhead where the bodies of at least a hundred Venusians were disintegrated. Before the gun could be recharged the hole disappeared, filled by more bulging Venusians.

Lieutenant Bill Riley wiped the sweat from his face with his soiled coat sleeve.

"It's like bailing a boat with a sieve!" he said.

Major Rogers looked as though he were going to have apoplexy.

"We'll get 'em," Captain Bonnet announced, winking at his lieutenant.

Lieutenant Riley grinned. There was a great deal in common between the captain and the lieutenant, besides the fact that they were both officers of the same space ship—*The Piece of Sky*—which now lay ruined on the landing field, its plates dissolved by acid poured from the sky by the Venusians.

Both officers were young and husky. Both had seen action on the Martian canals and this wasn't the first meeting they had had with Venusians.

"If they had any sense they'd know they were licked," the captain added, casting his steely blue eyes at the entanglements. The place was a grisly sight, strewn with parts of thousands of long-bodied Venusians.

But the captain knew and the lieutenant knew—perhaps even the major knew—that Outpost 53 was worth any sacrifice the Venusians were willing to make. If this post were captured, the Venusians could control their planet again. There were any number of reasons why it was best that the planet be governed by terrestrials, and not all of them were commercial. The Venusians were murderous, evil, destructive creatures who hated every other living thing in the universe.

Captain Bonnet checked his casualties. Of his crew of sixty, three were dead and twelve paralyzed by the poisoned darts the Venusians used. The other forty-five were half dead from exhaustion. Three days of fighting was about all any man could stand.

Captain Bonnet's men had been in a more or less exposed position during the first part of the battle and their casualties had been heavy while they tried to prevent *The Piece of Sky's* destruction. But probably ten percent of the fifteen hundred men who manned Outpost 53 were out of the action now, the majority of them suffering temporary paralysis from dart poison. The captain realized that the attack would continue until the Venusians captured the post.

The radio power house had been destroyed first of all. Then the space ship had been wrecked. The outpost was cut off from communication with the earth. Reinforcements who could attack the Venusians from above and disperse them would not be due for two months. If Outpost 53 lasted three weeks, it would mean fighting to the last man.

Lieutenant Riley reached into his bag between coughs of the Amorg gun. He brought out a slender bottle and pulled the cork. He pressed the bottle into Captain Bonnet's hand.

"Martian Zingo," the lieutenant said. "A friend of mine gave it to me for a little service in the Canal campaign on Mars. I've been saving it for a special occasion and it looks like this is it. Here's to our short and merry lives, Captain!"

NIGHT brought some relief, although the poisoned darts still rained on the outpost and the ground was lighted with flashes of the atom guns.

Major Rogers, his face drawn with weariness, stomped to the spacemen's battery.

"We've got to get a man through to

earth, Captain," the major said. "Can't your ship be fixed?"

The captain shook his head. "No, sir."

"Doesn't your ship carry a lifeboat?"

"It does, but you couldn't make the earth in that—and survive. The lifeboat carries just enough fuel to land on a planet. That fuel would be used on the takeoff."

"But if you got off Venus and aimed the boat toward the earth, nothing would keep it from getting there, would it?"

"No, I suppose not, sir."

"Then we've got to do it. Yes, yes, I know. It's suicide. But it's suicide not to try it. We simply must get a message through to the earth. We'll ask for volunteers."

"No need of that, Major," the captain said. "I'll make the trip."

"One man couldn't do it," broke in Lieutenant Riley. "I'm going along."

"You know what it means?" the captain asked his friend.

"Any spaceman knows what a forty-five million mile trip in a lifeboat means, you mug," the lieutenant replied. "But I'd rather die quickly in a crash landing than to face what the Venusians probably have thought up for us when they whittle us down to their size."

"By gad! You're both heroes."

"Umph!" said Captain Bonnet, who had been a hero before.

"What's that?"

"I was about to say: we'd better get started. It's getting late."

"Good! Take a detail to your ship and get the lifeboat ready. Then you and the lieutenant get some rest. I'll call you in an hour for the takeoff."

THE Piece of Sky's lifeboat was scarcely one hundred feet in length. It was powered by fourteen rocket valves, fed from detachable fuel containers, so arranged that as fast as a fuel drum was emptied it could be dropped from the rocket. The ship was streamlined from the nose to tail, but it was flattened on the bottom, so that either of two possible types of landing maneuvers could be attempted.

Attempted was the correct word, for lifeboats of space ships were never the last word in navigable machines. They were to be used only as a last resort under desperate circumstances. No lifeboat had ever been built as a machine for lengthy interplanetary travel. But the universe is foolproof to a certain extent. Any piece of matter is sure to obey the laws of the universe. Captain Bonnet supposed that if the lifeboat succeeded in taking off, and if it were put on the right orbit, it could reach the earth in time to send reinforcements back to Venus.

As Captain Paul Bonnet and Lieutenant Bill Riley took their places in the ship, Major Rogers explained that the craft had been equipped with a small parachute to be used just before the lifeboat crashed in dropping a message to authorities that Outpost 53 had been attacked and that reinforcements were needed.

"After you drop the message, you men are on your own," the major explained.

"You mean we're to try to get out of it, if we can?" asked Captain Bonnet dryly. "Humph!"

A few minutes later the lifeboat's rockets roared and the craft soared upward through Venusian clouds to deliver a message to Terra.

Captain Bonnet watched the rockets drain the fuel tank on the takeoff. His gravity gauge told him that he was going to make it. Once beyond Venus and nosed toward the earth, which was approaching conjunction, no more fuel would be needed. The ship would be seized by terrestrial gravity and brought home. There would be a period of uncomfortable warmth as the sides of the ship became red hot in the earth's atmosphere. A few moments of frantic work dropping the parachute over some populous region of the earth, and then a crash that would mean the end.

Each man had gone over the de-

tails of what he was to do. Each man had told himself that there was no end to this trip except death, yet each man hoped that in some way he could avoid the final disaster. If there were only some way a space ship could be landed without fuel!

"It's no use," Captain Bonnet said. "Up to the end of the Twentieth Century, when all problems dealing with space navigation were worked out, excepting space flight itself, all of the experts agreed that there was no practical way of landing a space ship. It wasn't until the Twenty-first Century that the spiral landing orbit was discovered and it took another century to discover the Rippler force method of landing a ship intact."

"At least the Rippler method's out," Lieutenant Riley said dryly. "We'd have to have fifty gallons of fuel to land a fourteen-valve lifeboat on its rocket jets."

"Even the spiral landing orbit would require twenty-five gallons," Captain Bonnet pointed out. "Both methods are out. We've got about two gallons of rocket fuel in the tank and we'll need most of it in the cooling system to keep us from burning up until we can drop the message."

Hours ticked swiftly away as the space ship moved closer to the earth. The craft had reached the middle of its course, where terrestrial and Venusian gravities neutralized, with speed to spare. From now on it would accelerate slowly under the pull of the earth's attraction and it could be expected to enter the earth's atmosphere at a speed greater than 200 miles a second. The entire trip from Venus to the earth would take about 72 hours. The job of decelerating from 200 miles a second to less than ten would be taken care of in the 1,000 miles of atmosphere lying above the earth. It could be accomplished with no more discomfort than a passenger in a car experiences in a sudden stop. But the last ten miles per second deceleration would mean the overcoming of the force of gravity itself.

Captain Bonnet considered the danger of the moon interfering with the ship's flight to earth. He discovered, to his relief, that the moon was out of the way, on the opposite side of the earth. At least he would not have to use precious fuel to keep the craft from landing on the moon.

He checked the cooling apparatus. It seemed in perfect working condition and should keep the two passengers from roasting alive until the ship crashed. At least this was a comfort.

Lieutenant Riley, who had been sleeping, opened his eyes.

"Say, Paul, I've an idea!"

"Yeah? Spill it."

"Why couldn't we keep the ship in an orbit outside the earth's atmosphere until it is sighted by telescope?"

"There are two pretty good reasons for that," Paul Bonnet replied. "In the first place we'll be going too fast. If we tried to get into an orbit we'd sail right out again. To become a satellite of the earth—and I suppose that's what you're thinking of—we'd have to slow ourselves down to exactly the right speed necessary to overcome the earth's gravity. That would be hard to do with the instruments on this lifeboat, even if we had the fuel necessary to brake. In the second place, if we got close enough to the earth to be seen by a telescope, our orbital speed would be too fast for any 'scope to keep us in focus. We'd be mistaken on photographs for a meteor."

"I guess we're up against it, eh Paul?"

"I've been thinking," Captain Bonnet said.

"What's this, a joke?"

"There's one plan that might work—a suicide plan. But even that might be spoiled by an accident."

"If there's a chance we ought to take it."

"The message goes overboard first," the captain said. "After that we save ourselves. I've been studying the charts and I know just where we

ought to land—that is in which hemisphere."

"Yeah? Which?"

"We're going to land somewhere in the Pacific."

"That's a nice thought. Who's going to pick up our message in the middle of the Pacific?"

"That's what gave me the idea of our suicide plan," Captain Bonnet said. "In order to drop the message over a city, we've got to float around the earth until we get near one . . . ."

Captain Bonnet began to explain his idea. The ship was going to hit the earth's atmosphere at a terrific pace. The deceleration would be pretty stiff —might be fatal—unless it were done gradually, but spacemen had learned the trick of pancaking a flatbottomed craft on top of the atmosphere, then diving; pancaking again, diving again, until the deceleration was accomplished.

This method of deceleration usually was accomplished with some use of rockets and it led to the old time spiral landing orbit. The atmosphere was the chief brake and the rockets were used to maneuver the craft into dives and pancakes. A first class cooling system was needed, of course, to carry off the heat of atmospheric friction, but the lifeboat was equipped with a cooling system and there was nothing to worry about from this source.

But the lifeboat had little fuel. Captain Bonnet, however, had flown airplanes. He knew that braking could be accomplished without fuel if the flatbottomed ship were used as a plane. He planned to use airplane tactics to slow the ship down to a speed closely approximating the escape velocity of the earth—6.9 miles a second. This would enable the ship to soar over the earth until it was over a good sized city, where the message from Outpost 53 would be dropped.

"But if we land at that speed—and gravity will see to it we don't hit much slower—we'll be buried deep in the ground. Even if we hit the ocean, the deceleration will kill us—"

"Would it? There have been records of meteors striking the ground so lightly they did little more than raise a cloud of dust."

"We're not a meteor."

"We're practically a meteor and there's one chance in a million that we can duplicate what a meteor can do, Bill. It's our only chance."

"What do you want me to do?"

ROCKET engineers in developing machines for space travel had found speed the foremost bugaboo. It was the speed a rocket had to attain to leave terrestrial gravity that balked engineers. There also was man's instinctive fear of going fast, in spite of the assurances of science that speed, in itself, was harmless. It was acceleration and deceleration that killed people.

One might travel seven miles a second indefinitely and suffer no ill effects, once he got going that rate of speed. However, one might die quickly while attaining it. Drugs enabled spacemen to withstand several gravities of acceleration or deceleration without fatal effects and there were a few of these pills aboard. But any speed change greater than nine or ten gravities would be dangerous under any conditions.

The craft neared the earth. Already the travelers could make out the dim outlines of the continental areas.

The gravity gauge registered the earth's pull strongly and Captain Bonnet calculated that they were nearing the outer limits of the atmosphere. He twisted a valve a fraction of a turn.

From a steering jet, a tiny needle of flame shot into the ether. From another jet, a second flame glowed for an instant. The space ship turned, wheeling the onrushing earth out of line with the lifeboat's prow. Now the huge, radiant ball peeked into the craft through the glass window in the floor, but the ship's direction of travel continued toward it as before.

Captain Bonnet shut off the valves,

conserving every ounce of rocket fuel that remained in the tanks. Lieutenant Riley started the cooling mechanism and for an instant the craft became uncomfortably cold.

This discomfort lasted only a few minutes, however, for the craft soon began to strike the first atoms of the atmosphere and its sides began to glow with heat. The space ship was fast becoming a meteor flashing into the atmosphere of the earth.

There was a sudden jerk. Once more Bonnet twisted the valve, nosing the streamlined craft downward slightly to allow these atoms of air to strike the sides less forcefully. There was danger of a blackout if the deceleration were too fast.

The ship dived forward and Bonnet used more precious fuel to turn it broadside again. The craft slowed, this time not so violently.

The atoms of the atmosphere were audible now as whistling screams as the ship spiraled one thousand miles above the earth.

Captain Bonnet watched the air speed indicator. For a long time it stood at twenty miles a second—the highest speed it would register. Then it began to slow: nineteen, fifteen, twelve, nine, seven miles a second.

Instead of decreasing the speed further, he nosed the craft down. The speed increased slightly, and then, like an airplane in flight, he brought the craft slowly broadside by degrees. The effect of the slow turn was to catch the atoms on the flat bottom so that the downward rush was transformed into a horizontal rush. The craft was speeding in an orbit parallel to the surface of the earth. Captain Bonnet had brought the space ship out of a tail spin.

Instantly he shut off the fuel valves, leaving the remainder of the fuel available for the cooling apparatus.

Lieutenant Riley looked wide-eyed at the hemisphere beneath the craft.

"Well, we're here and we've less than a gallon of fuel," he said. "What next?"

"Unless there's an accident, we're going to land on an ounce or two," Captain Bonnet replied. "A meteor doesn't use any fuel, but it has accidents. That tiny bit of fuel is going to keep us from having an accident—I hope."

"That fuel is mighty potent," the lieutenant admitted. "It's the most powerful explosive known. But old Terra's gravity is a pretty big thing, too."

"For every action there must be a reaction," Captain Bonnet said. "Strangely, no one ever considered this principle in respect to coming down, as well as going up."

"Gravity is action and you're the reaction in that case," the lieutenant observed.

"Not exactly. The escape velocity of the earth is gravity in reverse—if we can twist our minds around to think of it that way. We manufacture the escape velocity with our rocket fuel and use it to neutralize gravity. An object going 6.9 miles a second goes far enough around the earth in a second that the earth's curvature doesn't catch up with it, so to speak."

"I hope you're sure of your reactions, although it doesn't make a lot of difference if we get this message down."

"We're hitting the atmosphere at a speed close to the escape velocity of the earth. If we were going that speed we'd never get any closer to the surface. But we're being slowed so that we're falling—not very fast, but fast enough. Our speed *around* the earth is about 6.9 miles a second, minus a few decimals. Our speed *toward* the earth isn't very fast—I'd say a few feet a second. Our only problem now is to stop our forward speed without speeding our downward speed."

"I don't suppose you're very optimistic about it?" the lieutenant asked, hopefully.

"No," the captain admitted, "but we can try. You've seen airplanes land at

speeds of one hundred miles an hour or more. That was their speed forward. Their speed downward was measured in feet per minute. That's our problem now. We've got to land like an airplane—make a deadstick landing without crashing."

"Oh we might be able to land, but the minute we touch, some of our forward speed is going to get us into trouble. Remember, an airplane has wheels."

Captain Bonnet pointed to a small globe painted with a map of the world. His finger touched a dot in the South Pacific near the Antarctic continent at 60 degrees south latitude and 120 degrees west longitude.

"That's Dougherty Island," he said. "Between that island and San Francisco are 6,300 miles of empty Pacific ocean. We're going to try to land near Dougherty Island at a speed so fast we'll barely touch the surface of the water. But as we touch the water, the frictional heat of the sides of our space ship will transform the water instantly into steam. The steam will cushion our ship against shock and decelerate us rapidly—but not too rapidly for endurance. The stop will be rough, but we can take it. We ought to be able to stop in 6,300 miles."

"Whew! A steam landing!"

CAPTAIN BONNET kept his hands on the control, ready to use a few drops of precious fuel to keep the craft in its spiral parallel to the surface of the earth. The earth seemed to float upward slowly to meet the space ship.

The interior of the craft grew uncomfortably hot, but the cooling system worked.

A vast expanse of white appeared directly below the craft. It was the South Polar ice cap.

"We're over James Ellsworth Land," the captain said, checking his position. "That's about twenty-three degrees east of the longitude of Dougherty Island. That's lucky."

"Lucky?" said the lieutenant.

"We can circle the earth once, drop our message over some city and get back on the right longitude," the captain explained. "It'll take us about an hour and a half at our present speed to make the circumnavigation. In that time the earth will turn twenty-two and one-half degrees beneath us."

The Pacific ocean flashed beneath the craft. The ship struck the continent on the coast of Mexico and skirted above eastern Texas. Over Kansas City, Captain Bonnet jerked a lever to release the message of the beleaguered Venusian garrison.

The lieutenant watched it fall slowly down toward the ground.

Then he groaned.

"We've failed!" he said. "The parachute dropped in the Missouri river! The last chance to save the garrison is lost!"

Captain Bonnet turned to his companion. "It isn't the last chance—if our landing works!"

The craft soared northward into Canada, passing some distance west of Hudson Bay. It crossed the Arctic sea, reached Siberia and then zoomed southward, flying dangerously close to the tall peaks of the Himalayas. Each minute saw it moving closer to the earth.

The craft shot across the Indian Ocean and entered the Antarctic again. The Antarctic continent was reached near Douglas Island and it crossed Enderby and Kemp lands toward the pole.

The metal monster was scarcely two thousand feet high as it soared over the South Pole. The loss of the natural elevation of the polar plateau left the ship about the same distance above the surface of the earth as it approached the ocean again.

Captain Bonnet used a few more ounces of fuel to keep the craft in its course, headed always toward the horizon, which at 1,600 feet seemed fifty miles away.

Down the craft sank, inch by inch, toward the sea. Suddenly Lieutenant Riley shouted and pointed:

"Dougherty Island! Over there!"

A black speck rose out of the Pacific dead ahead.

THE two men already had slipped into their emergency landing harness to protect themselves from the deceleration that was bound to come. They had swallowed pills to protect themselves from the gravitational pressure and now they felt the drug taking hold of their systems.

The ship seemed to be sailing parallel to the surface of the sea. The tops of the waves reached up and touched the bottom of the craft, and evaporated in a hiss of steam.

Gracefully, like a huge dirigible airship, the lifeboat dipped down. It shuddered as the disturbed air roared like thunder around it. There was a tremendous drag and a loud explosion as the ship touched the water.

Both men pitched forward in their harness.

Captain Bonnet felt the world growing black around him. With superhuman effort he shook off the threatened blackout and sent the last drop of fuel into the lower jets to hold the ship one second more above the waves.

There was a terrific jar. Tons and tons of pressure exerted itself against the ship and on the men inside. But nothing cracked.

Outside the window, vision was obscured by clouds of swirling vapor. The craft bounded forward in gigantic, hundred-mile leaps, like a rock skipping across the surface of a huge pond.

Lieutenant Riley hung limply in his harness, a stream of blood trickling from his nose. Slowly he opened his eyes.

"We're alive!" he gasped.

Then he fainted again.

The craft slowed down. A startled fishing craft off the Central American coast almost capsized in the wash of the monster from the skies.

Ahead of them land reared its head above the horizon. Captain Bonnet wondered if the ship would stop in time, but he did not realize how quickly the craft was coming to a standstill. He turned the rudders and steered for shore. A cry came from Lieutenant Riley.

It was the Golden Gate.

A PATROL boat met them in the harbor as the space ship, floating in boiling water, came to a stop.

Captain Bonnet opened the locks and climbed out on the top of the craft. He wore an asbestos space suit to protect himself from the heat of the sides.

"Have you a wireless aboard?" he called to the patrol.

"Of course, captain!" came the reply from the patrol boat, as the rescuers saw the insignia of rank on Bonnet's clothing.

"Send a message to the nearest interplanetary garrison that reinforcements are needed at Outpost 53 on Venus. Lieutenant Riley and myself just came from there—the situation is desperate . . . ."

"You don't mean you came all the way from Venus in a lifeboat?"

"If you're going to waste time asking questions, let us come aboard," Captain Bonnet said. "But get that message in the air at once!"

Lieutenant Riley followed the captain through the locks into the patrol boat. He lifted his hand and showed a bottle to the captain.

"Look what a close shave we had," he said. "This bottle of Martian Zingo was in the lockers all the way from Venus and neither of us suspected it. Lord, if we'd crashed we'd never have been able to sample it!"

The SPACEAN

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FLASH ★ ★ ★

War in the Binaries has reached full force, and even the disintegrator fleet is not equal to the situation. Over two thousand rocket ships were secretly produced with every modern weapon, and the battle is raging.

The decommissioned heavy fleet, which has been stored on Mars, will be recommissioned and the space patrol is asking for volunteers.

Until the heavy fleet can reach the Binaries the patrol can only keep the trouble from spreading farther. The two planets will be wrecked completely, and no city left untouched.

So far the cause of the trouble is unknown, but is suspected to have originated in hijacking of contraband products. It was well known that nectorus was being used by inhabitants of both globes.

FLASH ★ ★ ★

Space Liner X Q 45 crashed into patrol cutter M V 126 in Mars circuit. 26 fatalities resulted, and although investigation will be made the trouble is quite plain. X Q 45 was two points off course and showed every sign of amateur handling.

Officers and crewmen from both ships are being held solitary in confinement until trial by the high interplanetary court. This is the worst disaster in three years.

FLASH ★ ★ ★

Patrol Cutter M V 9 reported strange explosion in rocket fuel tanks. Only scant news reached Lunar station 3 before power died out. Ship is in desperate need of help with all rear sections blown away. Rescue ship M V Q and hospital ship M V B are approaching last known location.

FLASH ★ ★ ★

Patrol cutter M V 16 approaching Earth under forced flight. Nothing has been known of her whereabouts for seven months, but it appears to have been an important secret mission.

FLASH ★ ★ ★

M. C. Thomas, Earth author, has had blast license revoked for six months. Space cutter M V 173 discovered that too much GeGe juice (in the pilot) caused the ship to display strange behavior.

FLASH ★ ★ ★

Space Liner X Q 36 reports strange fever sweeping passengers and crew. Isolation has proved futile, and they stand by for medical inspection in space.

ORDERS

Admiral P. C. Barnum taking over eastern fleet immediately. Admiral O. O. Boon retiring with full honors.

Commodore A. L. Seton from Mars station 10 to Jupiter 17.

Captain Bert Jones of Venus 3 relieved from duty by Lt. A. C. Moin. Jones to receive new appointment after earth furlough.

Lt. C. T. Brown from Jupiter 1 to Lunar 3.

ARRIVALS

Space Liner X Q 12 with two hundred and ten workmen from the Martian mines. They were on a three year shift.

Patrol cutter M V 90 from an investigation of the strange light formation on the Saturn route.

Medical ship M V Y from carrying supplies to several outposts.

DEPARTURES

Space liner X Q 5 for Jupiter, with 204 tons of asphaltum and 19 passengers.

Space liner X Q 22 for Mars, with 98 tons of Felspar for lining moisture machines.

Space patrol cutter M V 81 for Binaries with 108 extra men. They will supplement the crews of the heavy fleet.

TWENTY YEARS AGO IN THE SPACEWAYS

The great space terminal was dedicated at Rocketville, Maine, U. S. A., Earth. Facilities for handling fifty ships with every comfort for stop-over passengers, were installed. The hotel accommodates 6000 with menus for every race The rooms have special pressure regulators as well as humidifiers, and can be adjusted to create a synthetic duplication of the climate on any planet.

Theaters, stores and offices line the great arcade from the hotel to the terminal buildings proper. Beneath the mile-long passage a small shuttle train operates, for those who do not wish to walk or are not physically able.

The hangars hold thirty ships, besides the outside space for fifty, and the shops can care for ten more.

The earth is proud of her achievements, and it is hoped other planets will follow with equally luxurious terminals.

FORTY YEARS AGO IN THE SPACEWAYS

The Jupiter special has just dropped into port, and everyone is wild with joy. Three representatives from Jupiter came with the exploring party, to further goodwill between the planets. The party was met with suspicion at first, but this soon disappeared, and the natives of the giant planet showed every courtesy.

From plans of the exploration ship, a smaller model is being built in Anav, Jupiter, as they are very anxious to visit the Earth. There is no question but that great trade can be developed between the two globes, to the benefit of both peoples. Strange minerals and seeds of strange plants are on board, and will soon supplement our own varieties.

The statistics of population and distance on the huge sphere are almost beyond comprehension, and the people of Earth will have to be educated to such magnitude before it can be understood. To the men from Jupiter the Earth is nothing but a little ball, that has been developed in every section. Although their own race dates back much farther than man of Earth, there are vast sections of the planet that have never been explored.

The wanderlust and conquering spirit of the Earthmen will probably change that within a few years, as we could never be content to think there was an unknown part of the planetary system where life might exist.

A new ship is being developed by the General Rocket Company which they claim to far surpass anything that has ever moved. Lower fuel consumption, greater traveling radius, and more interior space are only a few of the claims. It is either the work of a good publicity agent, or we will see something radical.

FIFTY YEARS AGO

The whole world burned with excitement! Rocket flight had been proven a success, and a hundred companies were being organized to manufacture rocket ships. The patent offices of every country were flooded with new inventions, from entire ships to simple instruments. Rules were rushed through that nothing would be accepted without being accompanied by a working model.

The stock markets have been crazy for over a month. Every type of stock that might be affected by rocket travel went shooting to undreamed of heights. Holdings of every other type of travel fell to new lows. Slowly people began to think soberly again, and settled into the same channels of life; they realized that time would pass before any great effect would come from rocket travel.

Although thousands of inventions were worthless, many things were developed which spelled future success between the planets, and solid companies began to buy them to use in manufacture.

The government of the U.S.A. set aside a fund of one hundred thousand dollars, to be given as a prize for the most successful ship developed within five years. Other governments followed, until it gave great impetus to inventors and designers. The first rocket ship was set aside as a museum, and opened for public inspection. It created a feeling of safety, to view a ship which had carried men millions of miles from the earth and brought them back safely.

NEW PROJECTS

December, 2,008. The mining operations on Jupiter are going forward slowly. The Zero mountains hold every known danger to human life, but the men are not discouraged. They report three fatalities, but it has not dampened their spirits. The deposits are even richer than have been reported and they have even located a small deposit of trionite, with its fabulous value.

Venus has begun construction of the central government city. The plans are completed and the first ground broken. This will be the foremost metropolis in the universe, with every modern appliance known to science. All construction will be of the crystal stone, from their polar mines, with beaming of transparent steelite. This stone absorbs light and discharges it slowly. The entire city will be lighted by the emanations from the structures, and will be known as the city of eternal light.

One section of the city is to be constructed for Earthmen, with the climate of our own globe re-created to perfection. Even plants and trees from our own landscape are being transplanted to the central park, where all the earth dwellings face it.

The new monorail line between Elbo Lub and Mut Sero on Jupiter is carrying regular service, The schedule has already been increased from the rush of business, and there is talk of running branches into Pol Moro and Rit Guto. The crew of engineers are being kept at full salary indefinitely, and their contracts may be renewed for another two year period.

Mars has asked for specifications and costs of a monorail line from Waterport to Canalville, from the Earth company. Surveyors are covering the territory now.

An attempt is being made to handle the ice-stone of Saturn. The commercial possibilities of this mineral are vast, and we certainly hope they succeed in finding a safe way of shipping.

HONOR ROLL

This month the list is rather heavy, due to the fatal accident between cutter M V 126 and Liner X Q 45. We will omit the list of passengers, as every earth paper has carried the names. But we must mention first officer Moran of the cutter, who gave his life in rescuing a passenger from the burning after cabin of the liner. Miss McDougall has requested that we give him all honor for putting his own space suit on her, and dying in the heat himself.

John Talkot, chief engineer of the liner lost his life in the crash, and every one who has ever met the man will feel a twinge in his heart at the passing of so likable a human.

Jupiter mining expedition reports the death of three members, from an unknown disease. It appears to be spread by a small rodent which bites at the slightest provocation.

George Horton, who has been seen in every space port of any size. Few men in service have missed his acquaintance.

Tom Brinkley, a newcomer, faced the mining expedition without having any former space experience.

Jeff Jones, another old timer, with an ample pension to live at ease. But the wanderlust and craving for adventure pulled him into the most dangerous undertakings in many years.

Commander P. O. Lawrence passed on suddenly at Mars station two. Every man who has ever served with Lawrence remembers his stern discipline, yet complete fairness. I considered him one of our greatest examples of a true officer in every sense of the word. He was as hard and strict with himself as with any other man, and was not afraid to dirty his hands. We salute you, Commander.

SCHEDULES

Three new ships are being added to the Saturn service. These have been sadly needed, and we hope it eliminates overcrowding. Every comfort should be provided on this long journey, and these ships seem to have them. The accomodations are luxurious, and recreational quarters ample even for a long voyage. The crews are to be drawn by lot from the waiting list, and we wish them every luck.

Two of the older type Q ships are to be overhauled and turned into straight cargo vessels for Mars. These will be added to the present service, with a capacity of 450 tons each. This should speed up the delivery of Martian materials, which have been almost eight months behind in delivery.

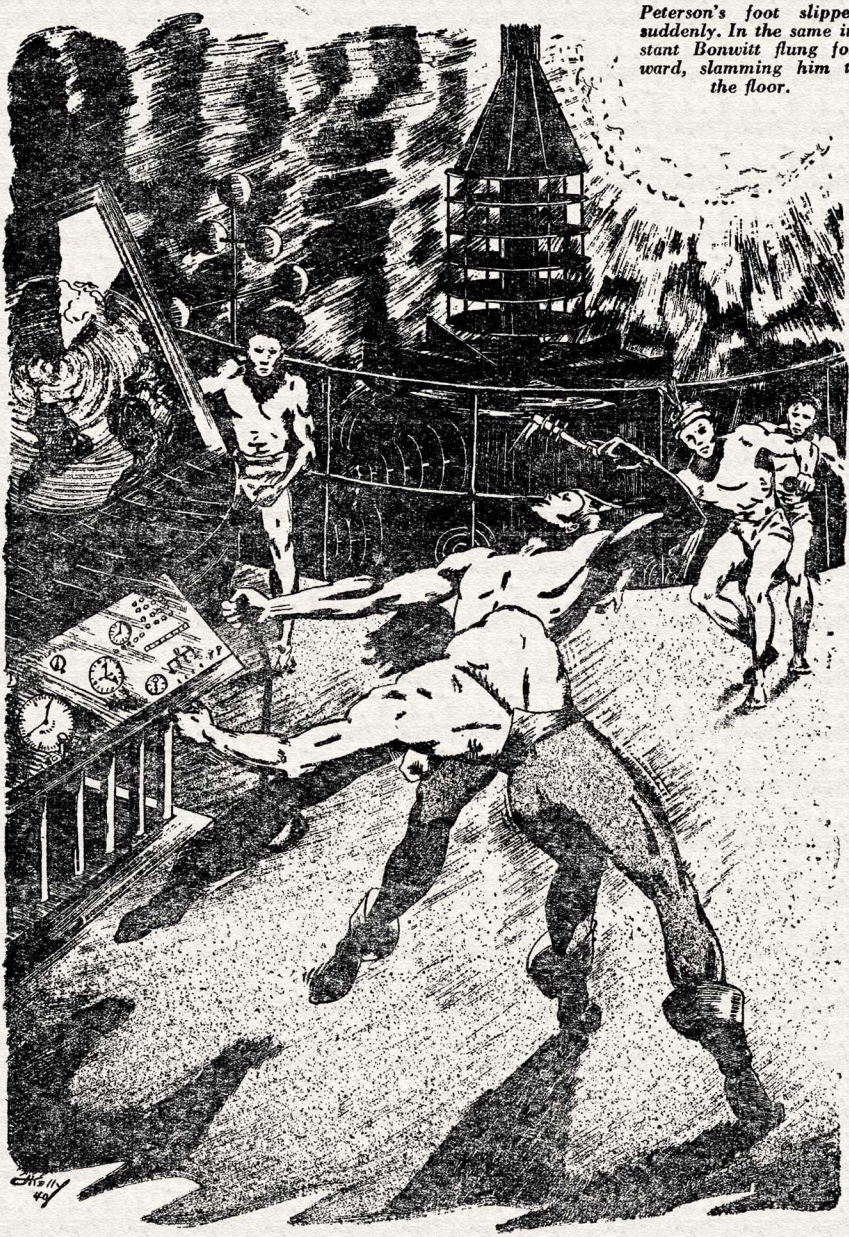
A new type P Q ship is to be put into Venusian service for testing. This will cut down traveling time by one half, and we hope that all expectations will be fulfilled by reality. The accommodations will not be quite as fine, and the quarters somewhat cramped, but to anyone in a hurry this will mean very little. Already the first three trips are booked to capacity.

Shortly the giant X Q F freight ship will be ready to start service to Jupiter. This ship will carry eighteen hundred tons of pay load. The passenger accommodations will be limited, and the travel slower than other ships, as it was designed mainly for heavy freight use. Captain C. C. Pill is the lucky man to draw the command. Watch your fuel tanks, Captain.

A new straight service between Mars and Jupiter will be inaugurated this month, with six ships scheduled for immediate operation. A considerable quantity of freight is already waiting at Waterport, Mars, and more at Elbo Lub, Jupiter.

LUNAR STATION

by HARL VINCENT



Peterson's foot slipped suddenly. In the same instant Bonwitt flung forward, slamming him to the floor.

A Story of the "Other Side" of the Moon by a master of science-fiction

BILL BONWITT, the young chief engineer at the mercury mines that bored into the surface of Earth's moon at the crater Tycho, knew something was wrong. His hobnailed boots beat a swift tattoo on the metal steps as he quick-footed down to the radio room.

"Crane!" he yelled to the operator. "Have you felt it?"

His friend grinned up from the ethertype machine. There came a quivering of the floor, then a prolonged but diminishing vibration. "I felt it, sure. That was the transport, blasting away from Tycho, is all. What's wrong with you—jitters?"

"Nuts, Crane; it wasn't the ship. *We're* moving; the moon's on a rampage. Earth's gone cockeyed overhead. I've seen it, felt it."

"Wha-a-at!" Crane's grin froze. He slanted his sorrel-topped head. Damned if I don't think you've got something there," he conceded after a moment. "I feel it, too; sort of a swing and sway."

The operator attacked his keyboard. Tape chattered through the transmitter wildly. "Asking New York to check with Mount Palomar," he explained soberly. Val Crane's freckles emerged from their camouflage as his cheeks paled. The moon had gone haywire.

"Come up above," urged Bonwitt. "In the dome you can see—"

"Right," Crane approved, switching off his transmitter as the tape snipped out, his message completed.

The berylumin steps resounded again as two pairs of heavy Lunar boots clattered upward. Black velvet of the heavens loomed above the blacker braces of the crystal dome breaking the scene into an intricate network. Earth, a huge ball overhead, was swinging across space, when it should have been stationary.

"Cripes!" swore Crane. "What the—"

Luna quaked mightily and Earth slowly swung back to normal with a snap that jarred their insides almost loose.

Stunned, breathless, they ducked as the *Atomic I* blazed away from the base of Tycho's rim, her twin jets spouting trails of blazing magnificence in a double arcing trail earthward. A dazzling sight under ordinary circumstances, inconsequential now.

A furious chattering of the ethertype below sent them to the room of the radio with more echoing thumpings.

Crane grabbed the tape, reading aloud as it fluttered through his trembling fingers. "Mount Palomar reports Luna shifted three and one half degrees eastward from normal by unaccountable rotation on her axis, returning suddenly to original position. More later from here. Keep us advised of any further developments there. Atomic, N. Y."

"Three and a half degrees!" gasped Bonwitt. "Sixty-six surface miles in as many seconds."

Sounds of distress wafted up from still further down in the workings. A metallic crash. Shouts. Bonwitt started down toward the machine shop as Crane hunched once more over his ticker.

A new drill press, not yet bolted down, had toppled and pinned one of the mechanics to the floor. The man was unconscious; his fellow workers were heaving sweatily to free him. Peterson, the new super of the mines, looked on, bellowing, purpled. He leered at Bill Bonwitt.

"What the hell happened?" he demanded. "Where were you?"

Bonwitt flared up; he didn't like Peterson. "I'm off duty," he snapped. "Besides, nothing could be done. All

that happened is the moon shifted a little on its axis and came back."

"I'll say it shifted! A mile of Tycho's rim caved in just past our workings. And you in the dome!" A sneer twisted the super's thin lips. He was looking for trouble.

Bonwitt bristled anew but curbed his wrath, shrugging it all off.

"No damage, was there?" he inquired mildly. "No air leaks?" He moved nonchalantly to where they were helping the victim of the accident.

Peterson followed, watching as they pulled the man out and laid him on a bench. Bonwitt examined the injured man swiftly.

"No broken bones," he proclaimed tersely. "Take him to Doc Tonge. He'll fix him up in a jif."

The fellow, tawny of skin, a runt of unguessable age and origin, gasped and opened his eyes. They fixed, glass-hard, on Peterson.

"Ficora!" he shrieked. "Jombalo!" He slipped again into coma.

Bonwitt wheeled but Peterson had gone. Queer! Andy Pauchek was the victim's name on the payroll. A mystery to the rest in the place. No friends; apparently no antecedents. But it was sure he had known the new super before and held something against him. Hated him.

Bonwitt climbed the stair to consult with Crane.

THE ethertype told them little they did not know. A few Lunar crags and spires had toppled; crater rims had crumpled. But Earth astronomers had no explanation and were themselves mystified. New York headquarters of Atomic Power didn't care as long as their workings weren't wrecked. So that was that. Crane was disgusted.

Bonwitt told him about Peterson.

"Screwy," the ethertype man agreed. "Couple of times he's wanted to sneak out messages in private code. 'Can't do; regulations,' says I." Bonwitt chuckled mirthlessly. "Where'd he want to ethertype?"

"Another odd thing; I don't know."

"What do you mean, you don't know? No address?"

"Just an off-wave call number. X2273—not listed." Crane yawned.

"The crook!" exploded the young Chief. "Got to snag him."

"I've been trying to. Thought you'd get wise soon, Bill."

Bonwitt frowned. "No copies of his messages?"

"Naturally not." Crane lowered his voice. "He got them through."

Amazed, the engineer asked: "How?"

"Gates." Gates was the relief operator at the ethertype.

"Lord! Maybe you're right."

"Sh-h!" Crane warned. "Gates is due any minute."

"So what's any of this to do with Luna going haywire?" asked Bill thoughtfully. "If I thought—"

"Let's talk about it tomorrow," whispered Crane as footsteps neared.

Gates came in, sleepy-eyed, sullen. He ignored them both.

"Going to turn in," Crane winked at Bonwitt. "Sleepy. By."

"Me, too," grinned the engineer.

But he went up to the dome and mulled things over for hours.

BONWITT couldn't connect the moon's eccentric behavior with Peterson's. But something was up. If personal, okay; if against Atomic Power, something else again. Looking out first over the moon's broken desolate surface, then up at the bright orb of Earth, the engineer tried to rationalize things.

It couldn't be against Atomic. Mercury is something you just can't steal. It's heavy. Atomic is the only big market for it. You can't make big-time power on Earth without mercury, and Atomic has the monopoly. You have to have a fleet of space ships to transport it—and a market.

No; something bigger was involved; something simpler.

Peterson. What was he up to? He had long been a trusted man in various departments of Atomic. Where did Gates fit? The engineer began thinking over his own ten years with the Company.

Three years on Luna. Rotten. But you have to mine mercury for the terrestrial power plants. The moon was the only place. Lucky for Earth, in 2012, when mercury deposits petered out in Rhodesia, the first rocket to the moon found that Luna's rays were mostly of purest hydrargarum. Pure metallic mercury, frozen solid in the long Lunar night, liquid in the equally long day.

And, fortunate for Atomic Power, World Government had granted them exclusive rights to its mining.

But you couldn't fit Peterson into any of this. What could he do to the immensely influential Atomic Corporation? Or to Luna? Bill Bonwitt gave it up and went to bed. It was just midnight (Lunar) and only fourteen more days until sunup. Dozing off comfortably, Bonwitt wished he could sleep that long.

THE ETHERTYPE man awakened him a few hours later. "Wake up, Chief," he husked, shaking, his teeth a-chatter.

Blinking, Bonwitt sat up. "What the hell? What time is it?"

He was climbing into his clothes in a mental hangover of dreams.

"Six. It'd be daylight back home. That mechanic, Pauchek, is dead. Knife in his throat. Peterson's gone. So's Gates."

Now Bonwitt was thoroughly awake. "So!" he grunted, tying his last lace. "We go hunting."

"Right." Crane looked out at the bleak lunar landscape through Bonwitt's dome. Earthlit, that landscape. Cold. Airless.

Bonwitt shivered, looking over at Peterson's dome across the long transverse passage of the workings. "Where the hell are they?" he asked.

Crane said suddenly: "Look, Chief. See what I see? Two shadows out by the crater wall? Moving."

"I do—so help me! Space suits, both of them. What—?"

The earthlight on Luna, thirteen times that of moonlight on the earth, showed up the men clearly. One was carrying a tripod. This he set up in a moment, swung a tube on its tip skyward—earthward. The tube began spouting vivid white flame in spurts.

"Code!" shouted Crane. "Continental. But in those five-letter combinations. They're signalling e a s t e r n Asia!"

"Come on," husked Bonwitt. "We're going to search Peterson's hangout." They scudded to the other dome.

CRANE stood guard while Bonwitt searched with a flash. Outside, the signalling continued interminably. The engineer found nothing.

"They're starting back," Crane warned.

But they weren't heading here; those space-suited figures sped in the direction of the air-locked hangars of the small lunar ships.

"After them!" gritted Bonwitt. "This is the pay-off."

He and Crane whirlwinded through refinery and undersurface tubes to the hangar. Got there just as the inner seal was opening. They crouched in the shadow of a local ship. A space-suited figure parked the signalling instrument and yanked off its flexglass helmet. Gates, Peterson, too, removed his helmet.

"Now for the other side," rasped the super, diving toward one of the smooth-hulled local ships. "This the one?"

"Yes. She's all set."

"Good." Peterson climbed through the entrance port.

Both men were inside and the port closed behind them.

"Come on, Crane," whispered the engineer.

They took the ship that had hidden them in its shadows. Bonwitt knew these little skimmers. Their control

was simple, their gravity propulsion just the ticket here where the down-pull was only a sixth of Terra's.

"Damn!" growled Bill. "They've five minutes' start. We have to wait till they're through the lock."

Crane said confidently: "We'll snatch 'em."

The other ship taxied to the airlock and was quickly inside. The inner door swung home. The wait seemed interminable.

Then the inner door swung back. Bonwitt juggled the magnetic remote control. They were inside. Through. And, in a moment, on the airless surface of Luna. Above, high over Tycho's vast wall, was the gleaming, torpedo-shaped hull of the super's ship. Bill went hot after it, more than ever puzzled as to what was going on.

The other side, Peterson had said. That would mean the opposite side of Luna—never seen from Earth.

DIRECTLY toward Luna's south pole and flying high, went Peterson's ship. Bonwitt drove after him. At this speed they'd soon pass the terminator and be in sunlight.

"No sense to any of it," Crane was saying. "Nothing much different on the other side than this side. What can they do around here?"

"So says me," agreed Bonwitt. "Anyway—a hope—we'll learn."

"There's the terminator ahead," chirped Crane. "Sun glasses!"

Dark lenses were quickly donned. Tall peaks ahead burst into blazing pinpoints, their blinding splendor deepening the shadows beyond the on-rushing terminator to Stygian inkiness. Dazzling white crawled down the nearing spires and suddenly the sun's corona smote them like a blow with its glory. Abruptly they were in vivid sunlight.

Peterson's ship still sped on before them. One hour; two; three.

Crane chuckled: "Hell to pay if N.Y. is trying to raise Gates."

"He's through," Bonwitt returned easily. "Fired; I'll bet."

"Me, too. But, sa-ay! Look at that!" Crane flung up his arms against a glare that blazed suddenly through the forward ports.

Directly ahead was a broad flat crater that shimmered in the sun's unobscured rays like a gigantic mirror of polished silver.

"Mercury!" gasped Bonwitt. "A lake of mercury ten miles across. No one's ever reported *that.*"

"I'll bet Peterson knew about it. Look, he's circling."

It was so. The engineer flung his little ship off toward the east to avoid detection. They speeded out of the sun's reflection from that lake of mercury. Its unrippled surface rose rapidly off starboard and was blotted out by the crater wall that enclosed it.

Then the leading ship had landed. Bonwitt maneuvered to land in the shadow of a huge boulder. Clambering into their space suits, they jumped the twelve feet to the powdery footing underneath. As easily as they'd have dropped two feet in earth gravity.

Space-suited likewise, Peterson and Gates ducked into the dark opening of a cavern mouth. Bonwitt and Crane sneaked after them. Inside the cave entrance was instant, utter blackness.

"Crane, where are you?" the engineer asked softly. For reply there came a crash as of the pinnacle of Proclus toppling on his helmet and a swirling burst of stars such as had never graced the firmament.

After that, Bonwitt slipped into blackness.

HE awoke with splitting head and a red film before his eyes. Two blurred figures were bending over him. He examined an egg-sized bump on his head with languidly exploring fingers. His helmet was off. The figures were those of Crane and Peterson. Damn! Bonwitt sat up jerkily and the effort set his head swimming and throbbing.

The super was grinning his sardonic grin; Crane was grimacing a warning. "They've got us, old man,"

he said. "Might as well make the best of it. Here, let me help you up."

With his aid, the engineer rose up and stood groggily swaying. Peterson, legs wide, bristly brows close, sneered at the big Earthman.

"What'd you hit me with, a tractor? Or was it a meteor that fell?" grunted Bonwitt, gingerly fingering the lump on his head.

Peterson's sneer relaxed. "Now you're using sense," he approved. "If you'da come up fighting it'da been just too bad for you."

The engineer spied a curiously shaped weapon in Peterson's belt. Entirely unfamiliar but looking mighty dangerous with its ugly flaring snout and the cooling discs along its stubby barrel.

"All right," said the super. "Your side-kick'll tell you more about things here. Play ball and you're okay. We may even find jobs for the two of you. But no monkey business."

The man turned on his heel and disappeared through the arched door. Bonwitt saw they were in a circular chamber lined with bluish metal. His gray eyes questioned Crane.

"They jumped me and tied me in a knot," the ethertype man explained. "Gates slammed you down, the rat!"

"How long was I out?"

"An hour or so. And you won't believe what you see here. Can you walk now?"

Bonwitt took an experimental step. "Sure."

"Come on then." Crane started for the doorway.

"We're not locked up? Not guarded?"

"No, but prisoners all the same. In the damndest place. Wait."

They came out on a balcony that limned a seemingly bottomless pit with a huge vertical shaft that dropped centrally from high above and vanished in the depths below.

"What in hell is it?" demanded Bonwitt.

"You haven't seen anything yet." Crane moved to the cage of a lift.

"Cripes! An elevator on the moon!" None of it made sense to Bill Bonwitt.

"We sure stumbled into something, Chief," agreed Crane.

As they dropped sickeningly in the cage, the engineer saw that the controls of the automatic elevator were of craftsmanship like none he had ever seen.

CRANE said: "I don't understand it, either. They didn't tell me much, but kept me with them till Gates had landed below. I saw enough to scare the devil out of me, though."

"Why do you suppose they didn't knock us off like they did Andy Pauchek?" wondered Bonwitt.

"They want us to join up with them. At least Peterson does. Gates would cut our throats in a minute."

"M-mm. He's tough. Let's see; he came on the job a month before Peterson, didn't he?"

"Right, Chief. And they were thick as thieves from the start."

"Don't we ever reach the bottom?" asked Bonwitt impatiently.

"It's a long way down but we're nearly there." Crane puckered his sandy brows. "Nobody can make cables that long," he opined.

Bonwitt examined the controls again. "It's a gravity lift," he decided. "Nothing like it on Earth. Suppose Peterson's found an underground civilization here?"

The ethertype man grinned. "I knew you'd get it. Peterson told me or I'd never have guessed. Until I saw the damn creatures."

"You did see them?"

"Hundreds. They're queer—like Pauchek."

"So-o. That explains a lot. Peterson's been here before, often. I still don't get it about Pauchek, though."

The lift slowed down and stopped. Crane led the way out onto a second balcony, a gigantic sweeping curve of it.

They were in a vast hollowed-out space. An inner world within the

moon! Damply warm and redolent of life. Its vastness stretched off into the distance, beyond sight. Most amazing was its source of light, an enormous green-white globe that loomed in the near distance. A cold but luminous sun within the moon!

"It's real," chuckled Crane, watching Bonwitt.

Below them was a wider balcony, a ledge on which were ordered rows of great machines with naked little brown men scurrying in their midst.

To the right was the great grandad of all of those machines, a huge drum-like affair with tapered helices at crazy angles and with the big steel shaft they'd seen up above projecting from its vertical upper bearing and vanishing through the bore in the rock overhead.

"Lord!" gasped Bonwitt. "A motor! What can it drive?"

"You'll soon learn," said an oily voice at his shoulder.

The engineer wheeled to stare into Peterson's close-set, glittering eyes. Gates, saturnine, contemptuous, was with him.

"YOU go to Don Peel right away," the super told Bonwitt. "Crane goes with Gates. To see our ethertype."

"But—" Crane started to object.

"You'll go with Gates." Peterson fingered his strange weapon.

The two ethertype operators disappeared into a passage mouth.

"Who's Don Peel?" asked Bonwitt.

"The king—Gosak, they call him—a simpleton whom I've taught a little English. He's in the palm of my hand, though I handle him with gloves. I want you to play up to him."

"Suppose I don't. Suppose I warn him?"

"You won't." Peterson carelessly sighted his curious weapon on a rock ledge in the passageway. The thing bucked to a screaming hiss that belched from its snout. No more than that, but the rock spurted incandescence and puffed out of existence.

"No, you won't shoot your mouth off, Bonwitt."

"What's the idea?" growled the engineer. "What're you up to?"

"All in good time, my boy. Here we are; remember what I said."

They entered a small, softly lighted room. Two wizened, breech-clouted men bowed to the super and he jabbered unintelligible words. An inner door opened and the two Earthmen went through.

"Bonji, Don Peel. Bonji, Gosak," the super mouthed, spreading his pudgy hands and salaaming before a turbaned brown man squatted in the center of a waist-high circular table that surrounded him.

"Bonji," this one replied gravely. "This new helper?"

"Yes, Don, this is Bonwitt. Crane's with Gates."

The little brown man looked out keenly from under overhanging brows, eyes gleaming like a cobra's. "You sure we can trust?"

Peterson nodded with assurance.

Don Peel bared momentarily a mouthful of yellow fangs between lips that writhed hideously. Bonwitt's stomach went sick.

"Good; you fix." The Gosak dismissed them with a scrawny hand.

"HAD to do that," the erstwhile super explained in the outer passage, "to keep him happy. Or his men'd be taking pot shots at you."

"That would be nice. They probably will anyway."

"No, no. Everything's hunky-dory now, so long as you co-operate. We go to my hangout now and I'll give you the dope."

So cocksure was the man that Bonwitt's ire rose dangerously. He controlled himself with an effort. He'd have to find out what was what, pretend compliance with any plan, and—wait.

Peterson's hangout, as he had termed it, was a drafting room and office combined. The desk and drawing table were of curious Lunar construc-

tion. There were a few chairs and a filing cabinet. Maps and drawings on the walls. Maps of Earth and Luna; drawings of queer machines and structures. One was a cross-section of the moon as Bonwitt was beginning to know it existed. The core, the inner sun, was not central, he saw.

"Look, Bill." Peterson poked a thick finger at this drawing. "Here's where we are; four hundred miles under the crater called Nemesis."

"Four hundred—" Bonwitt gaped, seeing the vertical shaft on the drawing, piercing its way upward through tunnel and many bearings to the surface, "—impossible!"

"So I thought in the beginning. But much is possible here. That shaft, for instance. The Selenites have its weight almost completely nullified with anti-gravity forces. They know something, the devils."

"But the sun, or whatever it is, isn't pictured central. In fact, it seems to contact one side of the moon's central cavity."

"Naturally. That's why the same face of Luna is always towards Earth; it's on the heavy side, of course. Here, sit down, Bill."

Peterson indicated a chair, which Bonwitt took. "And," continued the ex-super, "that sun, as you call it and as it properly is, can be shifted from normal position. That's what was done last night; that's why Luna shifted on her axis. A test. I knew, of course, but pretended ignorance back on the other side. Now you're in it, I can tell you.

"The brown men are native to the moon but not to our solar system. Their ancestors inhabited the body's surface when it had an atmosphere and was warm in the light of a distant sun. They burrowed when they learned their planet was to be hurled into space by a cataclysm which was to break up its solar system. And when, in the distant past, their world was captured by ours as a satellite, they had to remain beneath the surface. They burrowed deeper, found this inner realm, this world within a world. The inner sun then was still quite hot; it yet holds nearly enough heat for their comfort and sustenance.

"Through countless ages, this race has been dissatisfied. They wanted to live outside as did their forbears, but could only go to the surface in spacesuits. They began planning a migration to Earth. The huge motor, the shaft, the crater, are the results. The means."

"To migrate?" Bonwitt was incredulous.

"Yes."

"Peaceful, or warlike, this migration?"

"They plan peace if possible, war if necessary."

"And you—where do you fit in? Are you one of these guys who wants to save our world?"

"Stop it; stop it—until you know. You see, the mercury-filled crater above is to become a great mirror for reflecting sunlight earthward. Along the resultant light beam the Selenites plan to travel in cars which are propelled in concentrated photon streams—"

"*Wait* a minute," the engineer interrupted. "The crater faces away from Earth."

Peterson grinned anew. "Now it does, yes. But the moon will be turned around until it faces Earth."

"Turned a-*round!*"

"Just that. That's the why of last night's test. The sun inside here is to be shifted by projected forces until the center of gravity of the moon's total mass is at the proper focus. Then the shell turns over until the crater Gates called Nemesis is in the right position. By now the motor spins the mercury until centrifugal force reverses the natural convexity and the ten mile vat of mercury becomes a big concave mirror.

"The reflected light beam can be narrowed down to any desired size by changing the concavity—altering the motor speed. Just by shifting Luna's inner sun."

"Why," gasped Bonwitt, "if all the

sun's heat over a ten mile diameter mirror were focussed on a spot say one mile in diameter on our Earth, one hundred times normal sun energy would be concentrated in this area. Anything would be instantly consumed."

"You've hit the nail on the head," said Peterson. "*One* nail. That's Gates's nail, which I intend to pull out. But the Lunarians plan only to make a plane mirror of the mercury crater, which would not overheat anything on Earth but only provide a lane through which their photon cars can pass. They believe they can effect a peaceful colonization."

"What do you mean, Gates's nail?" Bonwitt's lips set grimly.

"World conquest! Worse—revenge. He intends to blast all big cities to ruin, then resume the dictatorship that was once his father's."

"His father's?" Memory came to the young engineer of history. Establishment of the World Government in 1975. Exiling a man who had set himself up as World Dictator. Yes, his name had been Gates. He had died in Siberia. And *this* Gates was the son—explaining the signalling to Earth. A party of adherents waited there for a millenium or something. But *you* helped with his signals," Bonwitt accused.

"I did," grinned the older man, "to keep this screwball's gang together where I can blast *them* out of existence as soon as I get Gates. Gates discovered inner Luna and, the fool, told me about it. Played right into my hands."

Bonwitt shuddered. Here was a double-crosser of the first water. "How do you plan to upset the beans and where do you profit yourself?" he asked.

"I'll kill off the Selenites—there's only a million or so—with a supersonic generator Gates developed. Their brains are susceptible to a certain vibration rate; they'll die like flies. And Gates won't be here to interfere. There'll be no more Selenites; *I'll* dictate to Earth. I'll blast some forests and a couple of villages to show them I can do it. Perfect, isn't it?"

The engineer stared. Peterson was a madman, a wholesale killer at heart—worse. "What would be your terms?" Bonwitt asked steadily.

"Not harsh. I don't want to be a dictator nor to destroy cities. I hate politics and war both. But I'll control Earth just the same—with wealth and power. I'll demand personal title to the moon and to Atomic's two space ships. To the larger ship for distant planet exploration now under construction as well. Also a billion dollars in gold delivered to me here on Luna. With these advantages, I can do anything I want to. Care to join me or not?"

Mad, totally mad, this scheme of Peterson's. But just mad enough to come near succeeding unless he were stopped. The world would, in panic, concede anything if ever he should get as far as turning over the moon and burning forests and villages. For that matter, his madness might then flare up to the point of wreaking wholesale destruction as Gates proposed and intended. Bonwitt would have to play for time.

"Sure, I'll join up," he lied. "Who wouldn't?"

PETERSON smiled paternally. "Right; who wouldn't? And once I get control, see how many more will join up. Beats working for Atomic, doesn't it?"

Bonwitt nodded dully. Fantastic as the thing was, the engineer recognized the danger to Crane and himself. The world could take care of itself. But the Selenites? Here were Gates and Peterson both plotting their destruction. For all Bonwitt knew, Gates might be planning the same thing against Peterson. If either won out it would be bad for a certain engineer and an ethertype man. Maybe—

"I'd like to see your ethertype myself," he told Peterson. "It's the one you used to communicate with Peel from the workings, isn't it?"

"Huh? How'd you know that?" The super tensed suspiciously, then relaxed. "Oh, Crane guessed, I suppose. Sure, you can see it. Follow me."

When they reached the ethertype room, it was to see Gates, wild of eye and disheveled of clothing, standing over Crane with one of the odd pistols in his hand. Crane's head was missing —blasted away. With a screech of pure animal fury, Bonwitt dived at the killer. Off guard, the big ethertype man went down and his pistol clattered into a corner. But he was up in a flash and the engineer was in for a battle.

He ducked too late and took a right to his temple that set him spinning and seeing stars. A left cross spun him back and, by enraging him, cleared his head. He clinched to get breath, then flung the big radio man off and drove him against the table. Gates staggered and hung on under a rain of body blows, rallied to come back with a left and a right that both jolted Bonwitt's jaw. Then he was tearing at the engineer's eyes with clawed fingers, bearing him to the floor.

So it was to be that kind of fighting! Bonwitt heaved up and got a full Nelson on his wriggling foe that nearly snapped his spine. He downed Gates, panting, cursing between his teeth. He could see Crane's poor headless body sprawled there. The sight robbed him of all knowledge of what he was doing and he did not return to normal until the voice of Peterson halted him. Only then did he realize that he had been banging Gates's head against the metal floor with all the force of a pounding sledge.

"He's dead," gloated Peterson. "Save your strength."

Bonwitt saw that it was true. His antagonist's skull was a thing squashed, unrecognizable. Sick at the stomach, he reeled to his feet.

Peterson stood regarding him with a cryptic smile, a pistol in either hand, his own and Gates's. "Good work," he approved. "Saved me trouble. But we'll have to get rid of the bodies. Have to tell Peel I've sent the two to the workings temporarily."

He eyed the panting engineer sharply and was apparently satisfied, for he thrust the two pistols in his belt. But he wasn't taking any chances with the powerful and alert Bonwitt; he'd been quick to snatch that second pistol out of reach during the fight.

THE succeeding days were nightmares of uncertainty to Bonwitt. Under Peterson's eye constantly, no way of getting the upper hand over the man occurred to him. And, could he have done that, he'd still have the Selenites to account to. Besides, even if he could remove Peterson and get himself away, there was little time left in which to do it. It was self-preservation now.

The big geared down motor was already starting to churn the mercury in the crater above into rotation. Its starting torque must be terrific to get that huge mass of metal in motion. Even to think of so enormous a disc, liquid or solid, in rotation was staggering; the speed must be not in revolutions per minute but a fraction of one turn in that terrestrial measure of time. For, even at one revolution per minute, the peripheral speed of the mass would be 31.416 miles a minute. Not only an impossible figure but far in excess of that needed.

Time fled on wings. Bonwitt did his best to locate the supersonic wave generator. If he could find this and warn Peel he might circumvent Peterson and perhaps earn from the brown men a gratitude that would pave the way for Earth's acceptance of them as colonists.

The more he contacted them the more he liked the little brown folk and the more he sympathized with their wish to get to the good green Earth. Essentially harmless, they

were most admirable in their manner of living and considerate in their relations one to the other.

Undoubtedly, New York had long since known of the absence of four important men from the Lunar workings. By now, quite likely, they had sent over one of the transports to learn what was wrong. But nothing could be done from there; they didn't even know of inner Luna.

Bonwitt's nerves drew tautly near the breaking point. Peterson was waiting until the last minute to loose his supersonic vibrations on the unsuspecting brown folk. He'd have to wait till the moon had turned over and the beam of reflected sunlight was directed earthward. For the huge machines necessary to these important preliminaries needed many men in their operation. After that, these men could be dispensed with. One man could operate the final controls; one could blast out an entire city if he wished; one could operate the ether-type and make terms. Two were better; perhaps that was why Bonwitt was still alive.

All too quickly came the day. Huge machines hummed and groaned. The great gelid sun began to roll slowly over the inner surface of the satellite. The outer shell of the moon started rotating. Luna was turning over. The great mirror of liquid metal above was revolving at precisely the speed to produce a plane surface, astronomically plane.

Peel was at the final control with Peterson beside him, watching the viewing plate. Bonwitt was there, too. Peel's customary two guards. . . The engineer hadn't had time to find the supersonic wave generator. How could Peterson get away to activate it? Bill's eyes dropped accidentally to the man's feet, one of which was edging toward the base of the control pedestal. A hidden button was there; this wholesale murder was to be accomplished by remote control!

On the vision plate, Earth swung into view. The hitherto unseen side of the moon was facing it. What a furore must be upsetting both amateur and professional astronomers at home! Only a thin crescent was Earth now, with a vast dim area lighted only by moonlight from here.

Soon there'd be a brilliant circle up there, a circle ten miles in diameter, sharp against the near-blackness. And, if Peterson won, it would close in gradually until there would be a searing, blazing speck consuming everything within its one mile circle. Not if Bonwitt could stop it. The super's foot, he saw, was nearing the secret button.

The sense of swaying motion ceased; the moon once more was still, ominously so. Earth rushed forward in the viewplate as the magnification of the radio telescope was multiplied. Peel depressed a lever and, in slightly more than a second of time, there flashed a circle of sunlight that enclosed nighttime New York City and its environs. What a panic this must be starting! Peterson's foot moved suddenly. In the same instant, Bonwitt flung himself upon him, slamming him to the floor.

"Peel! Peel!" he yelped, fighting to keep the maniac's hands from his pistols. "He'll kill you all. Believe me, Peel!"

Then, amazingly, there was the screaming hiss of a lunar weapon. Peterson's head exploded almost in his face with brilliant pyrotechnics. Peel had killed the man and was standing there grinning in most friendly manner, pistol holstered, waiting for the engineer to rise.

"Thanks, good friend," Peel was saying. "We knew he traitor but not find machine. Pauchek learn some but not know all. *You* fix."

That explained the incident of the unfortunate machinist. Bonwitt could only goggle at the Gosak of inner Luna as he rose to face him.

"You fix," repeated the little brown ruler. "You keep my people safe. Now we ready to talk your people. We go help they. They help we. Not?"

Living murder tore into his body with the force of a projectile from the darkness.

THE TWILIGHT PEOPLE

by FRANK EDWARD ARNOLD

THE world was old that day when two men hurried from the last observatory to announce its approaching end. Vastly old and incredibly changed, scarred and battered by a million catastrophes, it had survived internal disruptions and threats from the void with the same amazing vitality with which its children, the human race, had done. Without accident the planet was good to last for millions of years to come. But the accident had happened.

"Atlan, are you sure, are you certain, that the collision is unavoidable?" asked the taller man of his companion.

"We Astronomers are always certain," said Atlan, a little stiffly. "Our figures are checked and verified. Yeo, old friend, this calamity is certain. Believe me, I am as sorry as you are."

"There is no possibility of a mistake?"

"We Astronomers have made no mistakes for a million years." Atlan was on his dignity. Only an old friend like Yeo could even presume to ask such a question.

"Then there is no hope. Admire the Twilight Land while you may, Atlan. You know better than I how much longer we shall live to do so."

They had topped a low rise in their hurried stride, bringing them to the rest of the Upper Atlantic valley and within sight of their native City of Armadyne, last home of humanity on the frozen surface of the earth.

The gentle peace of the Twilight Landscape closed over them and held them as it always did. The eternal lives absorbed in the pursuits of the mind, with yet a quiet courage that coud face death as calmly as eternal life.

One feature alone changed the scene which man had known for millions of years, one feature that now sent Atlan and Yeo hurrying in trepidation back to Armadyne.

"I am afraid, Atlan," murmured Yeo, as they paused on the rise to contemplate the terrifying scene in the sky. "I believe the Twilight People might even survive a collision of worlds, so strong is our sense of survival, yet with that menace over our heads my faith is shaken. I almost begin to think that we are too small and too helpless in the face of such forces."

The world was old; vastly old, and incredibly changed; when the accident happened.

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glow of the pale-red sun lay softly over the dying forest of fern and lichen, remnants of the ancient Polar jungles, over the low hills, rusty with iron oxides, flanking the river that flowed to the south, over the still, hushed, almost cloudless air of twilight. Little or no organic life stirred there, though the atmosphere of the region seemed quietly alive with a myriad elements that fought for their existence.

Nothing ever changed or moved out there. The very sun in the sky was changeless, save for its slow revolution around the Polar zone. Ages had slowed down the rotation of the earth till day and night followed each other at intervals which were once called fortnights. Only the fierce glow of the Day-world circled the Twilight belt, ever chasing the grim shadow of the Night Continent on the opposite horizon; and in that peaceful zone where the sun never rose nor set the Twilight People, remote descendants of the human race, lived their uneventful

"The world has seen comets before," replied the other, "and yet it has come out intact every time. But I admit this is the first comet known to have any measurable mass and density."

That strange new comet, sprung from a little star that had approached within two lightyears of the sun and then burst, hung across the twilight land and made that peaceful landscape a scene of roaring death. It lay outspread across the sky, a pale, shimmering green cloud of light, trailing five long tails in its fiery wake. A vast, doubleheaded arrow of destruction; five flaming swords in a cosmic fist, brandished on a curtain of faint-seen stars; an apparition that sent the Night-beasts yowling in terror to their dens, that struck awe into the hearts of the great-grandchildren of men.

"Terrible," Atlan murmured, "yet still I think we shall survive."

They made their rapid way down the long incline of the valley toward

the river. Armadyne reared its proud and graceful height on the further shore in the distance, white walls gleaming softly under the red sun. No shapeless agglomeration of buildings was Armadyne. The city was a single tower rising from the plain, between low hills, to the height of nearly a mile. A dynamic ideal of a city, executed with consummate power, it was the last survivor of the ancient forest of man-made colossi that once flowered over the whole surface of the planet. Shapely and magnificent, it epitomized everything creative that the Twilight People loved and honored; and Yeo, nominal ruler of Armadyne and the whole of the remaining human race, felt his heart constrict at the thought of catastrophe threatening this wonderful creation and all it stood for.

They reached the great viaduct over the Atlantic River, a great way that ran straight as an arrow across the river and rolled with a flourish to the foot of Armadyne. The viaduct was usually empty, but with the approach of their Counsellor and First Astronomer the people had come out in their thousands to greet them. They congregated in an orderly, multicolored unit at the foot of an heroic statue of Osman, founder and first Counsellor of Armadyne. Yeo's wife Helia was at the head of them.

"What news, Yeo?" came Helia's flutelike voice over the river, raised to broadcast pitch.

"The worst," called back Yeo in the same penetrating tone. "It is the end of Armadyne, end of the Twilight People, end of you and I."

A deep and silent sigh of sympathy permeated the massed minds of the Twilight People. Though these people were so highly evolved that they could no longer oe called human, the same primal emotions moved them all.

Love and loyalty had not been banished from the world with the evolution of the mind. On the contrary, these qualities had been refined and developed. The announcement of impending doom sent a telepathic current of faith, hope and courage through the minds of them all. Friendly hands gripped those of Yeo and Atlan as they passed into the crowd, which opened to receive and surround them, to turn and march in orderly but informal ranks back to the city.

The Council of Armadyne met in session one hour later. Its hundred members had received the news telepathically in advance and were all at high mental pitch to hear and consider the facts of the case and decide a course of action on the spot. The arched vault of the Council Chamber, bathed in soft light from invisible sources, was the sole scene of activity in Armadyne that moment. The whole of the Twilight People was present at the session either by telepathy or over the communicator machines. Without preamble Atlan rose to speak.

"The erratic course of the comet has now stabilized, and it will not collide with the earth," he said. "Instead, it will disrupt the gravitation of our planetary system. The mass of the comet will exert a tractive effect upon the moon which the earth will resist. Soon we shall witness a cosmic duel, a duel between two worlds for possession of a third, a rapid and violent duel in which the comet, attempting to drag the moon from its orbit, will be resisted by the earth, that will cling fiercely to its satellite, and with its superior mass the earth will win. But it will win at a terrible cost. When finally wrenched from the grip of the invader the moon will rebound like a steel ball hurled at the walls of Armadyne—straight into the body of the victorious earth. That is the catastrophe we face, my friends, a collision between the earth and the moon. It will occur after two revolutions of the earth, and the facts and figures of it are irrefutable."

The telepathic currents vibrated and revibrated as Atlan resumed his seat. They finally sorted themselves

out when the Officer of the Upper Levels, the district at the very summit of the tower-city, rose to address Yeo, who sat motionless in the Counsellor's Chair at the top of the chamber.

"Since the end of the planet is plainly in sight, may I propose to the Counsellor that we immediately adopt one of the alternative plans for the preservation of the race from just such catastrophes which were drawn up a thousand years ago?" he demanded.

"Only one such plan exists, and that impracticable," answered Yeo, "the ultimate collision of the earth and moon, due to the gradual slowing of orbital speeds through the age, would not normally occur for millions of years to come. The plan which was once drawn up for the migration of the race to other worlds depended on recovering the lost secrets of interplanetary travel, a recovery which still may take many hundreds of years. But with the collision occurring within less than a year because of the intervention of the comet, this plan is out of the question."

"I would like to make a suggestion," declared the Communications Officer, who supervised the telepathic and mechanical concourse of the City.

"Let us hear it."

"Many of my junior officers and experimenters have attempted lately to get into touch with the almost legendary land of Subterrania, deep in the body of the earth, where certain races of men are said to have migrated eons ago. Sure enough they found that Subterrania is a real world, and the Subterranians a real people, scientific as are ourselves. There is friendly intercourse taking place between us now. If we informed the Subterranians of our impending calamity I have no doubt they would willingly offer us shelter in the depths of their underground world."

There was a mental ripple of excitement. Yeo's rather melancholy features lightened a little, but then clouded again.

"It would be a noble gesture of defiance, but I doubt if even Subterrania is deep enough to shelter us from such a collision. What is your opinion, Atlan?"

"There is a bare chance of survival. The two worlds will grind each other to powder, but the superior mass of the earth may save it from utter disintegration and leave great masses of material floating free in space. If we choose the right place for shelter we may live to see the aftermath."

"It is settled. Gothmium, instruct all your junior communicators to redouble the conversations with Subterrania. The Subterranians face destruction as much as we do, and they are our fellow men. If the human race is to be destroyed, even in the depths of the earth, at least we shall face death together. The session is concluded, my friends."

Yeo hurried to join Helia in their apartment in the Upper Level, right in the pinnacle of the city. They spoke no words for a while, for their minds were in mutual sympathy and no word was needed. They linked arms fondly, gazed out from the balcony over the Twilight Land they loved so well.

"We have known all this since our youth," murmured Yeo, "and our fathers, even our remote ancestors, knew and loved it too What an end the stars have planned for it. What a tragedy that it should end at all."

Helia's graceful head sank back on his huge shoulder. She smiled.

"Life has been glorious Yeo. Tragedy or no, it has been worth the living, for the human race and for you and I. We can face the end without fear. Can't we?"

He made no reply. But he looked long into her eyes, and when at last he smiled it was a smile clear and happy and entirely without trace of his former weary melancholy.

II

THE sun had circled twice about the Twilight Land before the arrangements with the Subterranians were completed. That strange under-

ground people, to whom the surface world had for centuries been a legend just as was their world to the Twilight People, had greeted the messages of the upper world with joy and news of the coming catastrophe with sympathy. They declared that in Subterrania there was room and to spare for all humanity and the men of the surface were more than welcome to share it.

The shafts leading from the surface to the center of the earth had long since been disused. No travelling Subterranian had come within a hundred miles of the surface within living memory, but the tunnels were still known and accurately charted; and the nearest to the Twilight Land broke surface many leagues down the valley of Atlantic River, not far north of the ancient and long-forgotten British Isles. The Communicators of Subterrania gave pictures on the vision screens of a great metal dome in the hollow of two mountains high above the Atlantic, a dome which Gothmium recognized immediately as the one which had been an eternal mystery to those few Twilight men who travelled at odd times as far south. It would be easy to find the dome, easy to sink rapidly from there into the depths of the earth in the huge machines which the Subterranians promised to bring for transport; but between the dome and the Twilight Land lay league upon league of terrible journeying, through strange jungles that lay quiescent under the murderous heat of day but rose to voracious life at set of the blazing sun; through extremes of heat and cold that would tax to the utmost even the powerful constitutions of the Twilight Men, over miles of petrified rock and giant glaciers that lay where once the vast Atlantic Ocean, now shrunken with the general drying-up of the world's seas to a mere river, had rolled in stormy majesty. The journey, which must be undertaken on foot, since the aircraft of the sedentary people were too small and too few for wholesale transport, would strain their endurance to the limit.

Yeo felt justified, when fully conversant with these grim facts, in calling a final Council session for the whole of the city, to offer the Twilight People the alternative of facing these hazards to reach the possible security of Subterrania or of remaining to face the end in Armadyne. The response was immediate and unanimous—Subterrania for all, regardless of all dangers on the way, and assured life for all after the collision or if need be, death in company with their brothers below the earth. No sooner was the decision confirmed than Gothmium signalled to his communication officers who, with the instinct for drama which characterized the Twilight People at such moments, switched every communication channel on to the open sky above Armadyne. Every eye was rivetted immediately by the baleful glare of the green, five-tailed comet stretched across the twilight sky, fearsome in its appearance, unholy in its portent. A mental wave sprang at once from mind to mind, a vibration of sheer courage so spontaneous that it could be described only as a cheer; the cheer of a courageous race defying the elemental furies.

In the whirlwind days of action that followed, Yeo proved that years of uneventful existence had dimmed nothing of his dynamic energy. He was here, there and everywhere he was needed, advising, approving, rejecting, organising and directing. In so self-reliant a people such one-man control was not normally necessary, but in a crisis like this, where people were confronted by an emergency unprecedented, immediate and accurate direction was vital. Yeo gave it. Long before the sun had made another circuit of the Twilight Land the last men above the earth were ready for the exodus, stocked with nutrition-concentrates and armed with ray-weapons exhumed from an ancient arsenal, for defense against hostile life in the Atlantic valley.

They arrayed themselves for the last time in the great squares at the foot of the city. Fifty compact groups of five thousand, each group drawn from its own level of the city and commanded by its officer of the Level. A brave array. A magnificent array of magnificent people, a people who ranged from sturdy youth to vigorous age, a people who knew to the full the meaning of freedom yet ordered themselves with the discipline of soldiers. Yeo cast a proud eye over that gaily-coloured army, over the broad fan-formation of aircraft which the Transport Squadron commanded for reconnaissance, felt a thrill of exultation course through him. He shook a fist of defiance at the sinister apparition in the skies, then turned on his heel and strode for the viaduct, Helia at his side. Behind him song welled up from a quarter of a million superb throats, and the Twilight People set out with resolute step toward the sun, out of the land of twilight into the land of day.

Yeo had chosen the time of departure well. The fortnight-long day of the world was just commencing over the Atlantic valley down to the south, out at the twilight zone in the broad equatorial belt which experienced the rising and setting of the sun. It was many hours of travel, two days in the old way of reckoning, before the twilight army marched out of their native land across the border into the great gorges of the upper Atlantic. In that period, Yeo well knew, his people would grow sufficiently accustomed to the rigours of mountain travel to be ready for the still greater perils of the journey by night. That they were well equipped to face perils and the terrible extremes of heat and cold in the equatorial belt he knew also. It has been said that the Twilight People were not human. They were more than human. Their huge and highly developed brains had huge and powerful physiques to maintain them. Their skins, smooth, fine-grained, hard, almost horny, resisted heat or cold equally well and were strong enough to resist extremes of physical violence.

Their lack of experience in these matters might prove a handicap, but Yeo felt confident that if Nature intended to operate the age-old* law of the survival of the fittest, the Twilight People would prove themselves to the utmost. He flung his fine head up, smiled proudly, and Helia beside him, having caught the current of his thoughts, smiled with him.

"Satisfied with us?" she asked lightly.

"Perfectly. With you beside me and the people behind me I am ready to face anything."

The sun was well up and the thin air was already heated to an uncomfortable degree under its red glare when the twilight army reached the first broad slopes of the true Atlantic valley. Here Yeo paused on a summit, while the mass of the expedition composed itself for a rest period, and surveyed the immensity of the scene before him, scene of the real odyssey of the Twilight People.

They stood on the summit of a vast chain of mountains which eased back into the gigantic plateau of what had once been the American continent. The flanks of the mountains rolled gently down and ever down to the south, where the great plains lost themselves in mist long before they rose again to the opposite heights of ancient Europe. Between them Atlantic River flowed broad and strong, down the length of a world till it lost itself in the little Antarctic Sea. Yeo felt a strange tang in his nostrils as he contemplated that mighty vista, a tang which he did not recognize, but which older races would have called sea air. He heard steps behind him. Atlan, Gothmium and Sulpine, the Transport Officer, had come to join their master and friend. For a while they did not speak, but savoured the scene mutely as the warm breeze rasped their skins.

"Can you believe," murmured Yeo

at last, "that we stand on what was once the shores of a mighty ocean? That these slopes were submerged by waters so vast that no man ever plumbed them?"

"Yes," said Gothmium. "It is in the records. And now the ocean and all other oceans are gone, as are nearly all forms of life on the earth. This is a dying planet, my friends."

"Quiet, you croaker!" rejoined Atlan good-humouredly. "The oceans have passed and the earth may pass, but life will last as long as the cosmos itself."

"Perhaps. But our days, I think, are numbered. Look."

He pointed across to the rough-hewn peaks in the distance, to the horizon beyond, to where a new phenomenon entered the weird scene of the dying earth.

Another mountain had risen amid those summits, a strange mountain unlike any other on earth, for it was not of earth. A white dome, scarred and pitted by a thousand eruptions, it peeped over the shoulders of the ancient continent like a huge and menacing eye.

"The moon," cried Atlan. "One more circuit of the earth and then it will fall. We have no time to lose, Yeo."

"The people must have their rest. Since we must retreat we'll retreat in good order. Rest yourselves also, my friend."

The march was resumed. Yeo telepathised advice to his army to cease their songs until the easier stretches of the ocean bed were reached, so that physical resources could be reserved for the arduous descent. The army stopped. It was a vast and silent concourse that poured steadily over the brow of the plateau, striding over rock and boulder, stumbling now and again but rising to press on, but every mind vibrated alike in sympathetic harmony. Well was it said that telepathy had been one of the greatest of human benefits. No song was really needed, save as an exercise in magnificent sound. The quiet air resounded to the tramp of ironshod feet on age-old rock.

The aerial formations which Sulpine had sent ahead to chart the road to the Subterranian tunnel were soon observed returning in the distance. The leader of the Squadron speeded ahead of the others and landed on a flat patch.

Towing his little gravity-controlling airship behind him as a boy tows a kite, he made hurriedly for the group of Counsellors around Yeo at the head. Sulpine was among them and he greeted his officer, who saluted and produced a sheaf of documents.

"Here is the complete chart of the course, recorded and photographed," he said, and while Sulpine made a swift examination of the papers he turned to Yeo.

"From our present position, sir, the road is fairly easy going for the first few miles, then you get down amid the real peaks and precipices. I have never seen anything like them in my life. I succeeded in finding a long and dangerous pass which leads by many waterfalls to the very bed of the old-time ocean, but it is very circuitous and in parts so narrow that I wonder if you will get across it. If you succeed you will have to face the jungles which line the river bank. Fortunately they are not too thick and the river flows fairly straight. The tunnel is easy to find. It stands between two peaks above the ruins of the old city of Selmahar. After that—well, it is all in your hands."

Here Gothmium intervened, having been approached by one of his own men.

"News from the Subterranians, Yeo," he said. "The transport machines are ready and they leave at once for the surface, which they will reach long before we get to the tunnel."

"Splendid. Sulpine, send your squadrons ahead with ray weapons and explosive bombs to blast any serious obstacles in our path. As for us—forward!"

Marching. Hours of marching under

a withering sun, while the speeding moon rose in the sky like a pallid skull tinged from the sun with a shade of blood. Upright carriage of stalwart bodies, rhythmic swing of powerful limbs. Lungs of wondrous evolution drew rich floods of oxygen from the thin atmosphere.

Sturdy skins threw back the rays of the sun, so powerful in the thin air that ancient races would have been overwhelmed. The ceaseless tramp of half a million feet. The crash and thunder of bombs, echoing through an air that had not heard such detonations for ages, as the Transport Squadron blasted great walls of rock from the path of the marching people. Over rock and boulder, over stretches of rough ice, over path and pass the Twilight Army rolled like a living avalanche.

The first three thousand feet of descent were not too difficult. The gradient, stretching as it did for many miles, was smooth and low. Beyond here the real descent began, as Yeo perceived when he and his three colleagues in the van found a great cliff gradually rearing itself on their right while on the further side of them the ground fell away till lost in the distance. The really mountainous stretch was reached. The broad plain narrowed gradually to steep declivity, and the declivity gradually became a path.

The broad formations of the marching groups thinned out in orderly fashion until the great army marched no more than three or four abreast. Hour followed hour before that mighty concourse was sufficiently narrowed to pass at its regular rapid stride again. The vast ramparts reared up like curtains on their right, aged, dust-covered curtains, scarred and lined with streaks of rust; to the left, not far from the outer lines, the precipice fell in a sheer drop to a depth unfathomable.

Hour followed hour. The sun had passed its zenith and was moving to the west, but the end of the slow and difficult descent was nowhere in sight. Rest periods were held at necessary intervals, yet soon most of the twilight men were drawing on their second reserves of energy; and they needed to. The path was narrower, in parts precipitous, so that it seemed miraculous that none of the army were lost over the sides. But on they marched. Past cave and craig, past monolith and waterfall, over natural arches and bridges, down and ever down.

No casualties occurred until the army reached the stupendous fall of waters where the broad Atlantic River hurls its volume over two thousand feet of precipice into the very bed of the ancient ocean after which it was named. Yeo was the first to sight this awe-inspiring spectacle. S t r i d i n g ahead with Helia beside him and the three officers following, he came to the corner peak where the canyon of a tributary river opened up a mile down-river from the fall. Even at this distance the thunder of waters annihilated the human voice, and Yeo had to convey his awe by telepathy. Sulpine and Gothmium joined them, and for a moment the four stood rapt in contemplation as the main bulk of the first division of the army drew up. They were interrupted by Atlan.

"We have the canyon to cross, and no means of doing so," he thought.

"I will consult with the engineers," was Yeo's answering thought.

The path had broadened out here and rolled round to the right, forming a broad ledge between the sheer bluff of the peak and the canyon of the smaller river. There was space enough here for the army to dispose itself for rest until the engineers had thrown a span across the narrow canyon. Normally the job of throwing a bridge over this little crag would have been brief and easy. But the bridge must be broad, space was restricted and time was limited. Fine wires that were strong as giant steel girders were unreeled from men's pockets and thrown across; wonderful liquid cements were sprayed over

them hardening, thickening and broadening until a roadway lay where empty space was before. A marvellous roadway; but hastily constructed.

Onward tramped the twilight army. A rhythmic beat of step, stirring to hear, but dangerous to the not-too-dependable foundations of the little bridge. The first five thousand passed, the second, the twentieth, fortieth and forty-sixth. The forty-seventh were halfway over when the little bridge succumbed to the fatally monotonous vibrations and collapsed into the depths.

III

NEARLY one thousand men and women fell without scream or cry to their destruction with the bridge. The foremost and hindmost of the group crossing sprang to shelter just in time while the others went to their sudden death with the superhuman lack of fear or fright of their race. Nearly a thousand invaluable lives lost, and more than ten thousand left on the other side of the canyon. As the news was telepathically communicated to Yeo far away in the lead he was appalled.

"Return and reconstruct the bridge," was his immediate command to the engineers, but his thoughts were on his appalling negligence. They were interrupted by an urgent telepathic message from the leader of a marooned division beyond the canyon.

"Don't send back the engineers, Yeo," he implored, "'time presses, and it would take too long to reconstruct the bridge. We are agreed to return to Armadyne and face the end there. Don't wait for us—push on to Subterrania."

"We cannot leave you behind. There is time enough," thought Yeo.

"There is no time to lose. Look at the moon."

"Yes," said Atlan at Yeo's side, "look at the moon!"

It was larger—frighteningly so! It had come closer to the earth by many thousand miles and was now many times larger than normal. The craters and mountains were as plain to the naked eye as the mountains about the marching men, and the reddish tinge reflected from the sun made the once-beautiful beacon of night a thing of horror. Yeo's disturbed emotions were plunged into chaos at the sight. Atlan urged him on, Gothmium and Helia plied him.

"We must save the majority, but it is terrible to leave the others," he cried, his mind torn between the two duties.

"Leave us, Yeo, and long may you survive," ran thought from the marooned men, "we are returning to Armadyne at once. Our wishes are with you."

"Goodbye, friends," cried Helia, as Yeo still hesitated, "we shall all meet again in ages to come." Seeing that Yeo's mind was too stunned by shock of the catastrophe for him to make decisions, she took his arm gently and led him, unresisting, forward, with Atlan at his other side. They said nothing, but conveyed a sympathetic flow of thought through each other's minds.

"An elementary principle," cried Yeo aloud, "too elementary for my inattentive mind. The rhythmic vibrations of marching feet can undermine a bridge. Soldiers in ancient times would regularly change their step. But I never thought of it, and killed a thousand of my people."

"Forget that, and think of saving the others," urged Helia gently.

Downward. Ever downward. The pass broadened out again to a wide and easy incline. The atmosphere was somewhat thicker down here, nearer as it was to the bed of the ocean, yet it was far thinner than the air of millions of years before. The density of atmosphere meant little or nothing to the marvellously evolved lungs of the Twilight People, but the heat was increasing and causing an imperceptible but nevertheless effective drain

upon their energies. With the passing of hours the bloated moon had sunk and now the red sun was sinking slowly in its turn in the west, leaving no sunset coruscations in the colourless sky; and with it the spirit of Yeo was sinking too. The tragedy at the canyon still preyed upon his mind and his thoughts were not lightened by the coming of terrible night. The incline grew now into a great sloping plain and the end of the descent was in sight, for the drab green of the Atlantic jungles flanking the mile-broad river now lay spread out below, but there was little enough time to reach the easier lower levels before the fall of night. Yeo had braced himself for the ordeal of the jungles, but with his mental resistance so lowered he felt himself dreading it. Before the Twilight People had had adequate rest on the plain the night beasts would be prowling.

"The plains at last," cried Atlan cheerfully, as the slopes eased out and thick scrub began to ooze from the rocky, barren soil. It was a cheering sight to the tired army under the circumstances, but the vast bed of ocean was no scene of beauty. Grey scrub evolved from ancient lichens spread away to the right, ending on the other side at the banks of the river and melting ahead into the grey-green drab of the forests. Little or no wind stirred the almost lifeless limbs of those growths, but the jungles, though dying, were far from dead. Life pulsed invisibly in the unholy depths, waiting for the fall of night to spring into voracious movements; and by the time the last division of the army reached the plain the sun had vanished in the distance and grey night deepened rapidly into black.

The tired army struck camp in silence, only their flowing thoughts conveying intelligence and conversation. No tents or shelters were necessary to protect their hardy bodies. They composed themselves for rest on the rocky earth as comfortably as on the downiest couches, in great circular formations for compactness and to assist the men taking up the unaccustomed duty of keeping guard, giving them the smallest possible front to patrol. Tired as he was himself, Yeo insisted on doing his share of guard duty with others of the first division, against the urgings of Helia, which he gently but firmly overruled.

Silence sank with overwhelming night. Alone with his thoughts and with a task to concentrate upon, Yeo felt his spirits rise a little. Useless to brood on a tragedy now past; the hardships of the descent were as nothing to the danger of the jungles ahead, and the Twilight People needed their Counsellor to be at the peak of his condition if he was to bring them through safely. Unconsciously he straightened his huge body, speeded his long, easy stride around the encampment, exchanged a friendly thought with a passing sentry. A warm, faint breeze smote his nostrils, precursor of one of those torrid hurricanes that sometimes swept the night continent from the sun-heated air of the day world.

He paused for a moment on a knoll just beyond the encampment, gazed ahead to the jungle depths, barely visible to his intensely keen eyes in the abysmal dark. Miles of this lay before them, miles of peril—

"And miles of battle!" came a cheerful thought into his unguarded mind. He turned, to recognise the dim form of Atlan beside him.

"Forgive me invading the privacy of your thought, but it was open to the world and I believe you need company as much as I do."

"You are right, Atlan. I thought you were resting, but never mind. What chance do you think we have of surviving?"

"As good a chance as anything. We may or we may not, but even if the worst happens the human race will carry on. Nothing can defeat it, I tell you. If we are destroyed, millions of our fellow men still live on the worlds of other stars."

"Yes, if the old legends are true."

"They are true, Yeo. I have seen it in the records. For thousands of years in ancient days whole races migrated to the distant stars, and their descendants live there still. I know it, Yeo, I know it."

"I believe you," Yeo smiled. "Even so, I think it would be a tragedy if life on the earth were to end. Something would be lost to the Universe that it could never have again."

"We shall come through." Atlan gripped his friend's arm warmly. "Life is as virile as ever. Look—I can see it manifested now!"

His thought-currents guided Yeo's in the direction indicated. Far ahead in the night's black a phenomenon was evident. Light was there, faint, greenish light in little distant clouds, moving and shifting oddly.

"Light-flies," murmured Yeo. "The last surviving insects. They and the night beasts prey on each other, but I could wish the night beasts were as harmless."

"I know nothing of zoology. What are the night beasts?"

"The last species to be evolved on earth. Unicellular organisms which have evolved for thirty million years, specks of protoplasmic life which have grown to rival in size the multicellular animals and insects that went before them. They have reached their peak now, but they are nothing more than mere blind appetites come to life. We shall see plenty of them soon."

"Very likely. But first we must have rest. Come, it is time the guards were changed."

Nothing loth, Yeo followed his friend to the shelter of the encampment, while the second shift took over the guard, and settled his weary body to rest. Hours later the Twilight Army rose, literally like giants refreshed, and marched on into the jungles, into the night.

Night. Night vast and limitless, extending to the infinity of space. Night like the walls of a yawning abyss, that rose and rose and never ended. Night alive with a stirring, rustling, invisible horde, moving and flittering on every side, softly, but with the swift ferocity of menace. Rustling and flittering that suggested fangs and claws, menace that suggested ravening appetites. Strong and compact in the frightful depths the twilight army strode like a unit that defied all challenge. In the van Yeo unholstered his ray weapon and sent a telepathic command down the line for everyone to be ready for attack. He fingered the delicate controls of the destructive little instrument in his hand, assured of its readiness. His senses, normally superhuman, scanned the night world around him with unbelievable concentration, seeking a clue to the probable direction of the coming attack from the horrid bedlam of sound in the brush. Every brain tingled with a fearsome yet joyous anticipation. Once the dull senses of the night beasts located the army, battle was a foregone conclusion.

"Yeo, you are getting ahead of us," thought Helia, "take care, I beg you."

"There is nothing to fear," thought back Yeo soothingly, "I am armed—"

Living murder tore into his body with the force of a projectile, rolled him backwards almost helpless. Something tore at his body. Something ripped at his throat. Something sought blindly and vainly to leash his powerful arms before the raging bolt of his weapon blasted the thing to a steamy vapour. He heard Helia give way to primitive impulse and scream in terror as she sensed the peril of her mate, felt her strong arm haul him to his feet, then calm again and determined they stood shoulder to shoulder, Atlan, Sulpine and Gothmium beside them, and faced the oncoming hordes of night. Down the line of the army the unexpected swiftness of attack had taken many by surprise, bowling men down and tearing them with a myriad fangs, whirling, slashing, eating, engulfing. The night flared red with pulverising heat as ray after ray spread extermination far and

wide, clearing scattered ranks of the things and setting up a curtain of destruction before and around the army.

"Are they thinning yet?" demanded Yeo anxiously, as the five of them plied their weapons with murderous efficiency.

"They'll never thin, until we have slaughtered them," cried Atlan exultantly. Not content with a mere screen of heat, he was picking off the monsters one by one, as their shadowy forms came within his keen sight. Of a sudden, a great flare of light seemed to explode in the sky some way beyond the fiery curtain of the rays. Yeo looked up amazed, to be enlightened by a cry from Sulpine.

"My Transport men! I called them telepathically from miles ahead and they have come back to lighten our way through the jungle."

"Good work! Forward, all of you!"

Onward strode the twilight army into voracious night, fighting as it went. The night beasts could no longer pass the flaming barrier, but with the senseless fury of their kind they still plunged forward to their destruction, still blindly seeking prey which was all their dulled instincts understood.

Methodically the Transport Squadron sowed their flares, lighting up mile after mile of the jungle road with blazing white light. Under that fierce concentration the abysmal night became as noonday, and for the first time in their long lives the twilight men perceived in all their horror the legendary monsters of the night continent.

Serpents. Nightmare apparitions of gelatinous flesh that hardened on the instant to steel-cable sinew and muscle. Serpentine forms of protoplasm that ripped and tore with tentacular pseudopods as they streaked like lightning through the air, frightful jaws agape for prey. Serpents that were neither reptile, animal nor insect, but giant amoebae evolved to formidable size and appalling activity. Fast as the searing bolts of the twilight army melted them down or tore them to shreds, so did they increase and multiply amid their destruction. In the front line Atlan was picking them off like a marksman, yet for every one of the beastly things exploded to nothing another was merely hit a glancing blow that divided it in two, each half coming on like the first one and growing visibly as they came. The blazing curtain around the army saved it from direct attack, but it was costly in ammunition.

"How long do you think we can hold them off, Yeo?" demanded Atlan.

"I cannot imagine. We came prepared for this with abundant firepower, but I doubt if our reserves will last until sunrise. After that—" he did not finish his words but poured volleys of whiteheat into the ravening jaws before him. Atlan redoubled his efforts, then suddenly flung down his weapon with a cry of rage that was echoed by Gothmium.

"The last shot! We are finished, Yeo."

"We are never finished. Look, man, look ahead!"

In the near distance a pallid green cloud of light was rising, advancing and spreading like a prairie fire. Rapidly it drew nearer; huge writhing things were visible in its mist, and from it issued an angry whine.

Within seconds the shining things reached the outer ranks of the night beasts, stormed and overwhelmed them. The whining noise rose to a high-pitched scream that echoed above the roar of inhuman battle. Straining men caught glimpses of greenglowing insectile forms, large as the night beasts themselves.

"The light-flies!" cried Yeo, exultantly, "our natural allies. We win, Atlan, we win. Forward, but use your ammunition sparingly."

The attack on the outer lines of the army lost some of its whirlwind force. Through the brainless instincts of the night beasts stole a sense of the presence of their hereditary enemies. A second of hesitation, then lightning reaction hurled them back to meet the

subtle ferocity of the light-flies with an insensate fury. Far and wide the hideous combat raged, spreading and gradually falling behind the rapidly advancing army. Overhead the Transport Squadron, perceiving the tide of battle, relaxed their efforts and conserved their supply of flares, dropping one every mile or so to keep the jungle road illuminated and locate other herds of night beasts that might be roving. Three hours march brought the van of the army within reach of a stretch of open plain where beasts were few and far between. The army had come through the first area of jungle without serious damage, but the attack had cost them several hundred men and women dead and a few thousand injured. The dead were necessarily left behind, for most of them were already devoured, and the injured were carried without attention, trusting to the surgery of their extraordinary glands to save their lives.

On the open plain again, Yeo insisted on a brief period of rest, against the urgings of Atlan and Gothmium. Time was precious, he admitted, but life was even more so, and the battered army relaxed gratefully for a spell. Ahead another stretch of jungle must be negotiated before the tunnel at Selmahar was reached. For a while utter silence ruled the night continent, till a gleam rose in the sky.

IV

"DAWN already?" murmured Yeo. "Impossible. It is not due for another hundred hours."

The dull, reddish gleam rose higher over the barren plain. The leaden sky lightened faintly but perceptibly. Over the edge of the world a long, low arc of dull light became evident. The army surveyed it, perplexed.

"No, this is not dawn," cried Atlan suddenly, "this is moonrise, and such a moonrise as the world has never seen. Quickly, Yeo, get the army marching. Seconds mean life now."

Action. No haste or nervous speed but calculated rapidity as the world's last army rose to its feet and obeyed the literal order of March or Die. Hours more of marching on refreshed and seemingly tireless limbs, while the low arc grew to a high one, grew to mountainous proportions, till half the gigantically swollen mass of the moon bulged over the horizon. Its rise was almost visible, certainly it was perceptible after minute intervals; and ever it grew larger—nearer!

Wind rose, hot like a breath of the ancient sirocco, attaining gale velocity. Scarcely a mile from the army came the dull roar of rising waters. A few miles ahead the jungle road brought them closer to the flooded banks of Atlantic River, swelling under tidal stress to a thundering torrent. Great waves hurled themselves outwards over the jungle, drawing nearer to the hastening army. A rapid order from Sulpine, broadcast to the Transport Squadron, brought a steady and calculated rain of bombs into the jungle, blasting a new road through the wastes at a safer distance from the river. Rough though it was, it served its purpose, and judicious use of the ray weapons smoothed it to a reasonable surface and cleared away what the bombs did not destroy. Steadily the army drew away from the peril of the rising river; and ever the vast moon grew vaster.

It filled half the sky. It hovered up there, a perceptible globe, gigantic and terrifying in the sable night. Its every feature, its every mountain and crater and plain, was now visible and distinct.

The torrid wind grew fiercer. From gale velocity it rose to a tempest, from a tempest to a hurricane. It raged through the shuddering forests, lashing the weary trees, tearing them from their roots, hurling them far over the tops of the jungle to the river. It took the army almost full on its right flank; men roped themselves together with fine steel wire, gripped shoulders of the men ahead and braced themselves against being

dragged from their course. Mercifully the hurricane was more with them than against them, but it was far more a hindrance than a help, and had not the sturdier growths of the jungle offered a degree of shelter they would have been compelled to lie and wait—not for the hurricane to end, but the world.

White fire streaked through the upper air. In slender streams at first, it grew in volume till the sky was one fiery cataract of meteors. As hours passed the silent storm became audible, became a distant rumbling, a chorus of savage warcries as moon-fragments hurled themselves with barbarian rage at the helpless body of the earth; and the moon grew steadily larger and still more terrible.

"There are more mountains ahead," came Sulpine's thought into Yeo's mind, "the Transport men have landed there. They will offer some shelter from this accursed wind, at least. Beyond that is the second plain and the hills of Selmahar."

"The last stretch!" came back Yeo's exultant thought.

"A message from Selmahar from one of your men, Sulpine," came Gothmium's thought a few minutes later. "The Subterranians have reached the surface and are waiting for us in their machines. A few have ventured out, but they suffer so severely from vertigo that they must stay in shelter."

"Good news," called Yeo, in a broadcast thought, "redouble your efforts, my friends! We shall be in Subterrania directly after dawn."

The next range of mountains loomed ahead. Low as they were compared to the gigantic slopes leading down to the ocean bed, they offered no small obstacle to the hastening, wearying army. The first divisions hauled themselves painfully up the rise, on to the broad pass which the Transport Squadron had indicated, all plainly visible now in the glaring light of meteor fire. In the near distance explosions were heard, where the bigger meteors had penetrated the thin atmosphere to crash with thunderous concussion on the surface. The air was filled with roaring and thunder. And the moon—

The Twilight People were courageous; literally without the emotion of fear, but the enormous body now directly over their heads infected them with an altogether strange and unaccustomed feeling, a wild vertigo, an appalling light-headedness as men suffer when poised on the edge of an horrific abyss, ready to fall. They struggled on and ever upward, fighting against their tiring limbs, against the pressure of the raging wind, against the awful sensations experienced with a single glance at the apparition overhead. Yeo, Sulpine and Gothmium kept their heads deliberately averted. Helia, in the shelter of Yeo's huge right arm, sobbed a little and let her head sink to his chest. Atlan alone, hardened somewhat to the cosmic depths, allowed his eyes to stray upward; and he saw the beginning of the end.

A world hung upside down in the sky. A world of vast white plains and beetling cliffs, jagged and fantastic in outline, all pointing downward and teetering into collapse. Great gashes suddenly ripped up the crazy surface for hundreds of miles and the mountains began to shake themselves loose. Corresponding to the world above, the world underfoot was quivering and rumbling too. Mountains shook and tottered. The plain behind the army shook like a carpet and erupted columns of fire, engulfing the last two divisions, which had not reached the mountain passes. Two worlds were in collision, smashing each other to pieces.

"Too late!" cried Yeo in anguish, "Goodbye, my friends, this is the end."

"We are not dead yet," shouted Atlan. "Find caves, shelter—anything!"

One after another the mountains of the moon shook loose, fell in masses of blazing white. Death rained from the skies and vomited from the body

of the earth. Clinging with primal ferocity to that last instinct for organization and discipline which maintained them, the Twilight People plunged down a mountain pass which had not yet opened to disgorge a flaming interior. Further down a series of low caves stretched for miles.

"Into them!" came Atlan's mental shout. "These mountains are of iron and the caves are natural hollows. There is the barest chance—"

"We shall be crushed under them," cried Yeo.

"Goodbye, Yeo," murmured Helia from the depths of his arms. "We have lived gloriously together and we can die happily."

His arms tightened about her pain-wracked form. He looked up, glared defiantly at the raging world without. Then thunder of frightful volume burst before him, agony tore through his brain and he lost consciousness.

The world was very hushed and still when Yeo lifted aching eyes to the open sky and realized that life still pulsed invincible in his body. No thunder split the air now, no deafening uproar tortured the senses. A little breeze whispered through the rugged walls of the caves. Their iron structure was intact. Looking around, Yeo saw others moving, sluggishly at first and still in pain. Helia stirred in his arms. A faint moan escaped her lips, but she was alive and unhurt. Yeo laid her gently down, then strode out of the cave to survey the world.

The long dawn was rising in the east. By its light Yeo perceived the fantastic tumbled mass of the world around him. Where mountains once lifted their heights were now broad mounds of earth and rubble. Where once the jungles spread their masses new mountains flung up amazing formations, interspersed with strange new meteoric mountains from beyond the earth. Yeo looked up, wondering, for the moon.

No moon was there. No vast and menacing globe, no silvery beacon of night. But over the grey vault of dawn stretched a shimmering band, a mighty band of light that spanned the earth from one horizon to the other. It moved oddly and perplexingly, this great white rainbow shaded with red, and it cast a soft light over the jagged peaks and tumbled ruins of earth. Yeo stared for a while in wonder.

"The earth has saved us," cried Atlan's exultant voice from the mouth of a nearby cave. He was at the head of a wondering group issuing from the interior "I can see what happened now. The great mass of the earth rent the smaller world to fragments by sheer tidal force; and there is our moon! A circle of rocks and cosmic particles, a lunar ring, like the three rings that encircle the planet Saturn. Did ever the world see a sight so glorious?"

One answer alone was adequate to express the overflowing emotions of the earth's last men—a burst of song so joyous, so triumphant, so afire with gratitude for life and the glory of living that it rang from world to world like a great thunder of cheering. More men streamed out of the caves to join the cheers.

The battered peaks of the neighboring mountain range echoed and re-echoed to the spontaneous demonstrations of grateful humanity. Old men and young, leaders and followers, poured out their feelings in unbounded volume. Only Yeo, leader and Counsellor of them all, was too occupied to rejoice with the others, for Helia still lay unconscious in the cave. But as he lifted her, her eyelids fluttered.

There were steps behind him. Gothmium and two of his officers entered.

"Another call from the Subterranians," he announced, smiling good-humoredly, "they say that there have been slight tremors down in the earth, and they want to know if the cataclysm has started yet."

Yeo laughed.

"Tell them that catastrophe has been postponed for millions of years. Time enough for them to help us build a new world together."

The beast reared violently, but Michel clung to its back. Only one idea obsessed him—to bend, break—

THE WAY BACK

The Story of a Vagabond of Space Who Found Himself in the Far Galaxies.

by SAM MOSKOWITZ

MICHEL DRAWERS crumpled the enormous star-map in his big hairy arms and let it drop from listless fingers. It floated slowly to the ground, scarcely claimed by the infinitesimal gravity of the tiny sky-rock.

Hopelessly he gazed aloft, searching, with an air of finality the immense sweep of the cosmos for some familiar sign—a well known constellation, perhaps, that might be utilized as a sign post of space.

Unrewarded, he eased himself off a hard, metallic projection he had been seated upon and turned back toward his petite little star-ship—appropriately and affectionately known as "Star-Struck."

He had to face cold, inevitable reality. He was lost—lost amid the stark immensity of unfamiliar worlds. Ahead of him lay a long and hopeless search. He must sweep across the void from zone to zone. Exploring the most colossal work of all nature for some clue that might solve this puzzle and show him the way back—the way back home.

And he smirked as he thought of applying the term "home" to Tellus. A home was something only successful people could boast of in this day and age. Misfit youth could not expect such comfort. Himself, and thousands like him, unable to fit into the scheme of civilization currently preponderant upon Earth must take the only course open to them. Must be vanguards of a new frontier—the greatest frontier.

Sick with nostalgia and ineffable longing, they must brave the dangers, the rigors of outer space—blast trillions of miles past the solar system on a metal steed that laughed at the limited speeds of light. That roared and romped past universe after island universe. And always the delicate Roxitometer clicked along—searching with tireless, machine-like efficiency for traces of Roxite on the many worlds passed.

Roxite? That was the fuel that made these star-ships possible. The substance whose elemental atoms could be split with tremendous fury to release an inconceivable flood of power—controlled power—controlled by the comparatively tiny Roxite engines which curbed these terrible energies and directed them into the proper channels of usefulness.

Centuries ago men had searched for gold. Now gold was merely another metal. Today, men searched for Roxite—a few ounces of which commanded fabulous prices from the great interplanetary corporations on Earth.

And as gold had eluded the best efforts of most men in past years, so Roxite eluded all but the luckiest prospectors today. There was plenty of Roxite in the universe. But most of it was buried deep within the cores of tremendous suns. Suns that had a surface temperature that made the hottest things on Earth seem like a bitter arctic blast by comparison.

The thing that counted on Earth these days was brains. Everyone had ample opportunity to develop what brain power they had. The finest schools and universities boasting the most advanced and elaborately presented programs of education ever known were free to the multitudes. But of what value was an ultra fine

education when everyone else had one, too? It still settled back to basic ingenuity and natural inborn intelligence when it came to the man who got ahead and the man who stayed behind.

Five hundred years ago, possessing his present knowledge he might have been one of the world's greatest men. Today he was just one of millions of others, all of whom could do the same things he could—and some of them could do better.

What an incomparable paradox he presented. Physically he was more than a match for ninety-nine per cent of all Earth men. His great height and weight, his brutal strength —those thick hairy arms of his could crush the average man in a few minutes. Gigantic muscles didn't count any more. Of what use sixteen inch biceps when the frailest child could operate the buttons necessary to perform most of the menial duties of life?

Men like him were pushed by invisible, relentless pressures into the only thing open for them. To operate one of these tiny star-ships and comb the universe for more Roxite—to keep the interplanetary liners blasting.

Roxite. He had found some. Enough to keep his ship operating as it plunged past millions of starry universes. But not enough to bring back to Earth and collect any sizeable sum.

But he couldn't stand this life any longer. The inexpressible loneliness of space. Inconceivable light years from the world that bore him. Six years alone in such vastness was too much for any man.

Six years of heartrending disappointments as he searched tirelessly for the precious Roxite—and found only a little.

But this was the end. He was going to make a last desperate attempt to find his way back. Back to a cold, hostile, unfriendly civilization that might, out of charity, provide some lowly position for him—let him work enough to stay alive.

Still, that was better than this. At least he could look up into the blue ceiling of the sky. Tread over green carpeted fields. Eat real, substantial, solid food and see other people.

Yes, of a poor choice that alternative was the best.

But here he was bitter again. Deluging himself with waves of self-pity. The fault was not entirely with Earth and the way of life on Earth. He was equally to blame. He was a throwback. A throw-back to the days when men pushed back new frontiers, blazed new trails for civilization to follow. When brawn had been the equal, if not the superior of brains. But this was a new world. It was built for the many, not the few. Simply because there was a few thousand of misfits among a population of millions was no creditable reason for revamping an entire way of life to the satisfaction of a minor group of disgruntled men. No, progress was relentless, inevitable. The old must bow before the new, and the world must fight on toward its distant dream of tomorrow.

Funny how a man could become so completely lost. But he had plenty of time to look for the right avenue back to his world. Plenty of time, patience, fuel and food. And he would find it—though it take him the rest of his life.

So Michel Drawers roared away from a tiny, lonely little rock in a strange distant universe, and, with his seemingly inexhaustible patience explored the sky ways for the section of the milky way in which his solar system might be located.

And as the months passed his homesickness grew and grew and reached unbearable proportions. A subconscious chant repeated itself and reiterated in pounding rhythms within his brain. He must find a way back, a way back, a way back, a way back, a way back. God! he couldn't stand this any longer. Where was the way back? Merciful heavens, how much more of this torture could he endure without going mad? And the distant pin-points of light mocked him with cold ferocity. Gloated with aloof disdain. Laughed

at his fruitless efforts to escape their mighty trap.

But the soul of the frontiersman, the conqueror, burnt on. Michel Drawers did not go mad. He simply went on and on and on. Searching, seeking the way back.

Then, when it seemed that interminable eons had fled past he was awakened from a sleeping period by the piercing, raucous scream of the Roxitometer, pleading to him to arise and investigate its latest discoveries before they flashed past and it was too late.

In a mad lunge he pulled the space bar all the way back. The forward tubes blasted violently—the ship drew to a theoretical stop. Poised motionless amidst the splendor of a trillion stars.

Working frantically Michel Drawers made the proper connections. He might find a valuable deposit of Roxite yet. Perhaps there would be something to take back to Earth after all. Perhaps all was not yet hopeless. He might still be rich when he got back —if he got back.

The powerful little rockets streamed blazing glory again and the little silvery projectile was drawn by the magic of the Roxitometer, down the path of Roxite radiations to some still unknown world from where it emanated.

And gradually Drawers began to realize that they were heading for a beautiful little globe more than sixty million miles from a medium sized sun. And he prepared to enter the atmosphere of this world—and let the powers of the Roxitometer lead him to the location of the Roxite deposit. He muttered a silent prayer that it might not be located too deeply in the bowels of the planet.

Now he was holding tight as the "Star-Struck" streamed through the atmosphere of the planet. The landscape began to lay itself out before him. He could make out soft blue forests of alien vegetation—golden streams of unknown liquids. At two thousand feet he halted the ship's descent. Momentarily he allowed it to float above the terrain of this strange world. Drinking in its wonders with curious eyes.

He had been drawn to many worlds before by the insistent clangings of the Roxitometer—but never had he witnessed a world of such unutterable beauty and color. Barely a discordant note in the entire scheme of things. Even the winds blew softly, gently, against the hull of his ship. Prompted by an unfathomable urge he tested the atmosphere of the planet. Oxygen and Nitrogen proved present in appreciable quantities—but there was also another—and unknown gas of undetermined qualities.

He wondered if it were breathable. It had been so long, so very long since he had known anything other than the metallic smell of synthetic air. With gladness he would trade half of his possessions for a few great lungfulls of pure, fresh, untainted air.

Then it was that Michel Drawers performed a suicidical act. He opened the inner and outer locks of his ship simultaneously and allowed the atmosphere of this unfamiliar world to pour in and mingle with that of the ship. He breathed in deeply, heavily. Lungful after lungful. Nothing happened. The new air had a certain, pleasant perfumed quality—perhaps a characteristic of the new gas. If it were fatally poisonous, at least it was not immediately so.

Forgotten were thoughts of Roxite and riches. Forgotten was his heartbreaking longing for Earth. Only one instinct possessed him. A desire to set foot upon real soil again. To tread agily forward—to breath in natural air—to view natural, though alien sights. To see streams of liquids bubble past.

He settled the "Star-Struck" with unprecedented clumsiness down upon the surface of the world—saved from a bad shock by the light gravitational pull of the planet.

Then, with the demeanor of a

school-boy released for summer vacation, his huge frame trod lightly from the ship, and he ambled grotesquely amidst an almost fragile world.

With ecstatic delight he plucked brilliant, sweet smelling blossoms; plunged his face recklessly into the golden liquid that tumbled in miniature falls down a short sloping hill; marveled at the coolness, the exhilaration of it—and in the midst of this madness the idea struck him that this gleaming liquid was the aqua pura of this world. It took the place of water, in fact it seemed to have every attribute of water except for its golden color, and the few drops that had trickled between his lips left a pure, clean, sweet taste that could be described only by comparing it to the palate of a man, three days on the desert without a drink, suddenly being presented with a tall, cool glass of water.

It was becoming more and more noticeable that the color motive of this world was not so much green as it was golden.

And he wandered on. Far, far from the ship he strayed. As if possessed by a strange, uncontrollable mania he laughed and cried by turns. Sometimes he ran, sometimes he walked. Often he leaped incredible distances into the air—floating softly down—his two hundred and fifteen pound bulk landing with only the slightest jar.

And as suddenly as this crazy thing had come upon him it passed. He stood stock sober; the awful realization of the inconceivable risks he had run swelling his brain like a painful hangover.

That he was alive and apparently in good health was a miracle. The worlds where a native of Earth might cavort with reckless abandon and utter disregard for existing conditions were few and far between. Swift doom often descended upon those who made light of other worldly conditions.

Now he saw in every brilliant blossom a lurking death of hideous proportions. He examined their expansive golden-yellow blossoms with critical care. Many of the plants were predominantly blue. Blue and gold. Here flowers with tall, slender, graceful stalks moved gracefully to and fro in the soft breeze. There, gigantic blue planets towered far above his head, with stalks the thickness of trunks and blossoms the circumference of a water-wheel but, throughout, the idea of fragility persisted. And with it a gnawing doubt as to their innocent nature. It seemed more and more that the strange gas that permeated the air had its source here in those blossoms which grew in such abundance, with groves the thickness of forests, and a multiplicity that replaced trees, on this world at least.

He stumbled on, his hand wiping again and again at his face as if to scrape away a golden liquid which was no longer there.

He even breathed with fearful deliberateness—wracking his brain for all he knew and had heard of the effects and varieties of fatal gases.

But the luck of the gods was with him. No untoward symptoms appeared and as he made his way back to the ship his fears began to dissipate one by one and a new sense of reasonableness replace them.

Into the clearing he trod—and then recoiled with amazement. Before him stood a human figure! A small man, perfectly, beautifully proportioned, radiating a golden aureole and crowned by curly, yellow locks of hair. He seemed fragile, incredibly delicate, yet he bore himself with buoyant ease, a result of the lighter gravitational pull of the planet, and in his eyes sparkled whirling motes of color that lent to him an air of impeachable intelligence.

Michel Drawers advanced slowly toward the man. His towering bulk looming massively with strikingly primitive and brutal aspect in comparison to the statuesque lines and angelic beauty of this native son.

"Who? Who are you?" Michel Drawers questioned, his loud, rough voice almost artificial in an obvious attempt at impossible gentleness.

The aura of golden light seemed to thicken about the form of the little man.

Softly, Drawers thought he heard: "I, strange one, am Persum, dweller in the city of Saeve. In all my years I have never known a man like you. From whence do you come?"

Drawers was rigid, surprise-struck. He had heard or thought he heard words as clear, as plain as words could be—*yet he had seen no lips move,* knew that no sound, other than his own voice had pierced the air.

"Telepathy," he uttered in awe. "Mental telepathy."

"Telepathy? Telepathy?" an unspoken voice returned. "We have no such word in our language. What is its meaning?"

"To communicate without sound—by thought."

A look of comprehension dawned upon the golden man's features.

"Ah, yes. Here, in my city, all men speak by thought—that is the purpose of this radiance which surrounds me—to help pick up and to transmit thoughts. Apparently your race is not so gifted. I wondered why you writhed your lips peculiarly when you questioned me! Your brain must be a very powerful one indeed to transmit thoughts without any natural aid."

Drawers laughed inwardly at the unexpected compliment. Men had often told him that he possessed a marvelous physique, but no one had ever attempted to hint that his brain was other then passably mediocre, even poor. And here, the most intelligent little man he had ever met—not over five feet tall—a man with the power to transmit thoughts telepathically—an achievement that practically no earthman could boast, had told him that he was unusually gifted in a mental sort of a way. It was funny, ironic.

Suddenly Drawers became almost timid in the presence of this superb little creature. There was almost a god-like quality about him. An innate goodness, kindness, that could be taken for granted.

"Would you care to partake of our hospitality?" came an inviting thought.

The invitation brought a gasp of amazement to Michel Drawers' lips, and also a trace of suspicion.

This little man before him, who, common sense said must be feeling uneasy, to put it mildly, in the presence of a stranger of hitherto unknown size and undetermined strength—someone who was as different in make-up and physique from his as night is from day—still had been able to suppress his fears sufficiently to extend a cordial invitation.

"Oh—. I can stay on the ship," Drawers replied, his mind sparring for additional time to clear its confusion.

"My people would be very interested in meeting you," the golden man replied.

Still, Drawers hung back with obvious reluctance. This man was small, but it wasn't size that counted, as experience had taught him—it was brains—and this alien had those in super abundance. How was he to know the creature's motives? Perhaps they might overcome him with some strange ray, and use him for some diabolical experiment.

Even as the thoughts surged through his mind, a trace of a smile seemed to flicker across the golden man's features.

As if he had read his thoughts the golden man challenged.

"Certainly you are not afraid to accompany me? I should be the one to fear, not you. One of those great arms that hang at your side could overpower me in an instant. You have nothing to fear."

Mental argument was an achievement Michel Drawers had never been particularly adept in. He found his fears being chided, and his own sub-

sconscious mind seemed to tell him there was no danger, still—.

Michel stepped slowly forward to accompany the golden man, his hands tapping his hips for the butts of his low-voltage guns and finding only the empty holsters. *He had left them in the ship!*

Without further thought the golden man turned and strode gracefully from the clearing. Michel Drawers lumbered self-consciously along behind, tripping occasionally over vine-like foilage—and with the light of curiosity growing ever brighter within him.

Through thick growths of blue plants they trailed. Across chuckling streams of bubbling, brilliant liquids; through fields thick with yellow blossoms, and overhead a golden sun hung resplendent in the sky as if to match the make up of the planet.

Drawers' attention was suddenly distracted by one of the most unusual plants he had yet seen. This one was golden as were the others but had long, regular veins of blue running like a well formed design up the outside of the blossom. Instinctively he sniffed at it. As he did so he felt his new found companion plucking at his sleeve. He paid no notice, preferring to again smell the beautiful blossom. The fragrance affected him like a heady, aromatic perfume. Entirely different from any scent he had ever known before.

Persum finally distracted his attention by mental urging.

"Come away, that plant is deadly. I cannot understand why you have not been already overcome."

Drawers turned back to Persum in curiosity. "This plant deadly? Why it has a delightful fragrance. The most pleasing I've ever smelled."

It was obvious that Persum was disconcerted.

"I do not understand it. A small whiff of the odor exuded by that plant is enough to render any of my race unconscious. A few minutes under its influence often brings death. You are the first man I have ever known who has been able to inhale its gases without succumbing. This is most curious. I must inform others of my race."

They walked on, Persum, shaking his head in bewilderment.

Drawers began to realize that this plant, although affecting him only to the extent that a pleasant perfume affects an individual, could be deadly to the golden people. From Persum's description of its effects it acted almost like an anesthetic—a few breaths induced temporary unconsciousness, but if released to its influence for more then a few minutes it resulted in death.

Abruptly a lovely city of golden towers and soaring minarets appeared resplendently before them—a city of incarnate beauty and craftsmanship—a city that might have been designed by a master draftsman—with an eye to blending harmoniously to the surrounding color scheme.

Drawers stopped for a moment to take in the wonder of it.

"You like it?" Persum queried.

"It's great!" Drawers rumbled enthusiastically.

"We take delight in the development of our cities," Persum continued. "There are seven cities, all constructed along the lines of this one. These seven cities contain the total populations of our people; about one hundred thousand people to a city. They are built with great care. The smaller buildings form the general limits of the city, and then we construct the buildings taller toward the center of the city. They are all unlike in structure for we try to give each and every one a distinct artistic touch. We do not believe in building row after monotonous row of dwellings that are of value for efficiency alone. The human pride and joy in beauty amply compensates us for any loss in efficiency."

Drawers did not reply. He was gazing in astonishment at the long curved walks that stretched between the taller buildings. Some of them must have been two hundred feet from the

ground, with no noticeable railing for safety, and they were hardly more than three feet in width. Dozens of the golden people at this very moment could be seen moving leisurely across these shaky bridges, seeming to take no notice of the great chasm that yawned beneath. Even as Drawers watched, one of the golden people lost his balance, weaved erratically about for a moment, then started to fall.

Drawers closed his eyes to shut out the horror of the scene. Then he slowly opened them and gaped with astonishment to see a little golden man floating casually down to the ground, and alighting with scarcely a jar. Then he understood! The gravitational pull of this world was not very exacting. Few falls could be fatal here. The golden people had little to fear on that score.

Then a gigantic wall of auspicious strength and thickness bordering the city caught Drawers' eye. It seemed to inject a discordant note.

Questioningly Drawers turned to the golden man and asked. "What is the reason for that enormous wall?"

A sad, haunted look entered the expressive eyes of the little man. For a moment he did not answer, then replied.

"Perhaps, in your land you have no Griffs."

"Griffs? What are Griffs?"

As they walked the little man explained.

"Long ago, there were no violent forms of life on this planet. There were no cities with thick walls about them, and the people of our race lived luxuriously, cradled in the gentle arms of nature. Our home was wherever we happened to be at the time. Art and knowledge flourished and our people were content. Then, one day, an earthquake of violent proportions rocked the land. Great rifts were torn in the ground. And from subterranean caverns, of which we had no knowledge, emerged terrible monsters who lived on flesh and preyed upon my people unceasingly.

"We have never had strife of any kind on this world. Weapons have always been unknown. There was no way we knew to fight back. In desperation we built great walls around the cities to keep these great monsters away. Only when the sun is at its height do we dare emerge and gather food or wander through the forests we love so much. Sun hurts the Griffs' eyes and they prefer to do their hunting at night or on cloudy days.

"Gradually the Griffs have been dying out for lack of food. They are carnivorous and have systematically eliminated most of the lower animal life from our world. My race, except for occasional mishaps have been virtually beyond their reach. There are only a few of them left now, but they prowl perpetually about the walls of the city searching for an opportunity to enter and wreak havoc, or to catch some one of my race as they pass a particularly gloomy spot in the forest."

Michel Drawers thought over what the little man had said. He thought too, of the sub-atomic blast used for blasting aside obstacles in search of Roxite. It would not be the first time it had been used as a weapon—a most terrible weapon of destruction.

However, for the moment he deemed it best not to mention this to Persum, as the little man so quaintly named himself. Perhaps these Griffs were not so easily destroyed. And then again to destroy them might be a fatal error. He remembered how in ages past men had wantonly destroyed the once-numerous mountain lions in reckless numbers, and then had the wild deer, which had been the mountain lion's natural prey, multiply so that they left no grass for the cattle who should have benefited through the death of the mountain lions.

Then, too there was the problem of Australia, where an apparently innocuous rodent, the rabbit, had multiplied into a national menace, once there was no natural enemy to check them. He must learn more.

They stopped before a great golden gate. Persum lifted a small reed to his lips and blew. From it there issued, a long, sweet, piercing whistle. Slowly the gates rolled smoothly open, fitting right into the thick walls beside them.

Without hesitation Persum walked through the opening. Michel Drawers held back for a moment, blinded by a chance ray of sun-light that bounced off the gleaming sides of one of the buildings.

Then, he too entered, and the gates, as if by their own volition, closed behind him.

He was in another world now. Gone was all harshness and crudity. Here there was only beauty and color and gold. Buildings in peerless symmetry dug their way through the low hanging clouds to unknown heights. Spell-binding displays of corruscating lights played in rhythms through curious designs of crystals. Later Drawers learned that this corresponded to music—by sight instead of ear.

Self-consciously he ambled along the spotless streets behind Persum—streets which seemed to be paved with pure gold. He tried not to notice the open stares given him by the city's inhabitants. He realized that they did not mean to be impolite. It was simply that a man of his bulk was unique in this civilization.

More and more as they proceeded he began to take cognizance of the complete absence of transportation of any sort. Everyone here walked. Of course, the slighter gravitational pull made walking considerably less strenuous, but still, that didn't account for the various groups of golden men he had passed, laboriously pulling great blocks of stone by man power alone—when a small wheeled vehicle, or even one beast of burden would have lightened the load immeasurably.

He stopped in utter perplexity though, when he saw a group of golden men attempting to lift an enormous stone block into place by the sheer strength of their bodies. They seemed totally ignorant of the enormous saving in strength and labor that might have been enacted by the building of a simple pulley arrangement.

It was becoming increasingly evident that this race's knowledge of even the most fundamental laws of mechanics was practically nil.

But as if in compensation, he noted too, that these people seemed to get along with each other without the slightest friction. Nothing seemed sufficient to arouse anger. He wondered if they were incapable of the emotion.

The people moved about the streets tending entirely to their own business. There were no doors to any of the dwellings—simply arched openings. Numerous valuable objects such as painstakingly carved chairs, and richly sculptured busts, were present in front of many of the homes. Yet they remained untouched.

Nowhere, so far, had he seen even one person who might have passed as a peace officer. The golden people seemed to need no enforcement to maintain the effective carrying out of whatever laws they were governed by. Each and every one of them seemed to take it for granted that he must do what was required as a duty to himself as well as to the community and that's all there was to it.

Persum had stopped in front of a grand edifice of such beauty and brilliance that it faded into insignificance the surrounding buildings, fine as they were.

He followed Persum into the building. Through upward sloping halls that wound around and around up into the vitals of the building and served in lieu of stairways, and into a glistening hall of gold and crystal. The hall was partially filled with others of the golden people.

Drawers watched in bewilderment as Persum approached the group of little people—apparently officials of the city—and without opening his lips

informed them of all that had transpired.

And now others of Persum's strange race came forward to greet him. Drawers marveled at the perfection of these golden people. At the unsurpassed, delicate beauty and construction of their forms; the charm and adorableness of their women. Here indeed was a tiny race of perfection, soul-satisfying to the extreme.

One of the welcoming party bowed low before him.

"We are pleased to have this opportunity to show you our hospitality," the man said. "My name is Garanjor, humble Raciv of my people."

Drawers gulped impulsively. The highest official of the land was out to greet him. Him, a nobody from Earth who had landed here by accident, in search of Roxite. Perhaps this was some form of a joke? He scrutinized the faces about him. All were serious to the extreme. An air of serenity seemed to pervade. Drawers drew from his brain all he remembered of the proper etiquette for such occasions. Six years in a space-ship—it was easy to forget.

"I am honored," was all he could think of.

Nervously he juggled a small meter, for the determining of the purity of Roxite, in his hands.

One of the golden people took note of the instrument, and turned to the others with an unmistakable air of excitement. In an instant the entire assembly was crowded about him examining the meter with feverish interest.

One asked: "This metal—have you any more of it?"

"Why that's nothing very much," Drawers replied. "That's only common iron. The ground is filthy with this back on Earth. Why do you ask?"

Persum mentally replied to the question.

"Here, in this city, Ronir, which is what you call Iron is the rarest of all metals. We use it only in the construction of vital instruments and tools. All other uses, because of its extreme scarcity, are forbidden."

"Well, you can have all I have on the ship, if you want it," Drawers offered generously. "It's nothing more than trimmings on the inside of the ship. Iron and steel haven't been of much value since the invention of much superior alloys which have an infinitely greater resistance to heat and cold."

"We would be glad to give you anything you request for this metal," the Raciv offered. "There have been numerous occasions when the possession of a little larger supply of Ronir might have relieved much suffering."

"In that case, why don't you just consider it my contribution to the advancement of science and let it go at that?"

"I'm afraid you do not understand," Persum clarified. "Our race will not accept anything of this sort without first arranging a fair exchange."

Michel Drawers realized that he must be careful not to offend these people due to his ignorance of their laws. He made an admirable stab at diplomacy.

"Suppose you give me something that you believe would be a fair exchange."

The golden people drew away a moment and conversed telepathically among themselves.

Then the Raciv walked toward Drawers. There was a resigned expression upon his features. He threw back his shoulders and looked Drawers straight in the eye.

"I am prepared to turn my leadership over to you in exchange!" came his startling thoughts. The other golden people looked solemn.

Drawers drew back aghast. *Just how precious were these small amounts of iron that he had offered these people, if they were willing to entrust him with their entire government in return.*

Persum must have read his thoughts for he again explained.

"At the base of the skull of every

new born babe of our race there lies a dormant gland. What use this gland once had we do not know. Through thousands of years of disuse it has atrophied, and the slightest mental exertion causes its inflammation. In almost every case the pressure exerted upon the brain by this swollen gland has resulted in death.

"At one time hundreds died daily from this dread malady. We tried to operate, but our metals were all too soft to be sharpened to a keen edge, and used for operation. Eventually we discovered Ronir. Minute deposits of this invaluable metal came to light at various times. We melted the crude ore and fashioned it into the vital instruments we needed. Now we operate upon a baby immediately after birth and remove this gland so that it cannot do any harm. The operation is a comparatively simple one. We have mastered various balms that will heal the incision within a few hours. However, we have been unable to discover new deposits of this valuable metal for many centuries now—due, largely to the menace of the Griffs.

"The instruments we fashioned many centuries ago are almost all worn out. It is estimated that if a new supply of Ronir is not obtained soon, within the next generation or so, our tools will be useless, and then—"

The inference was obvious. Michel Drawers realized that he was in a mighty uncomfortable position. For once his brain found a suitable solution.

He faced the Raciv. "I accept your Racivship with thanks."

The Raciv handed Michel Drawers an elongated prism of crystal, through which played curious designs of ever-changing color.

"Please accept this as a sign of your position," Garanjor asked.

Drawers received the colorful prism, then quickly stated, "As Raciv, I do not feel capable of performing the duties required of me in this new capacity. For that reason I hereby return the great honor entrusted to me to its original possessor."

Quickly he handed the prism back to Garanjor.

There was a murmur of thought. Apparently the golden people were deeply moved by this noble gesture.

Michel Drawers gave them no time to reconsider. He emptied his pockets of all the iron and steel objects he carried. There was the meter, a steel measuring rule, and several handy implements he happened to have with him.

While divesting himself of these objects he took opportunity to examine the golden people more carefully.

The men were attired only in what seemed to be a glorified pair of trunks —although a few of them wore a crepe-like cloak. Their entire bodies were of a deep golden hue as was their hair. The pronounced aura about each of them, he decided, must be due to the peculiar, unknown gas in the atmosphere. In some way it must affect the radiations thrown off by the body and make them visible to the naked eye.

The women were beautiful, that's all there was to it. They had all the same characteristics of the men. Their dress was a satiny, tight-fitting garment that reminded one, more than anything else, of a bathing suit done over for evening wear. Their hair was arranged in such a manner as to give the impression of additional height.

Both men and women were approximately the same height—about five feet—but built entirely in proportion.

Further observations were interrupted. The people about him suddenly assumed masks of great concern. One little man left the party. Through one of the windows he could be seen dashing off in the direction of the great wall. Drawers stood puzzled.

Persum turned to him.

"Some of our people have just sent a message of distress. They have been accosted by several Griffs and are in serious danger. We don't know what

we can do, though," he ended hopelessly.

"Where is all this taking place?" Drawers inquired with an unsuccessful attempt to appear calm.

Persum gestured for him to follow.

Back to the gate they swiftly retraced their steps. The gates were slightly ajar. A hundred yards over to the right Drawers could see two of the golden people—one a woman, perched precariously in the branches of a gigantic fern.

At the base of the fern were two tremendous beasts. Each must have been at least eight feet long. They stood on four bony legs—their bodies big and broad and shaggy as a grizzly bear, which animal they resembled more than anything else, excepting for their incongruously thin legs and grotesquely large mouths. Mouths almost two thirds the size of an alligator and fiercely reinforced by large, yellow fangs.

The beasts were tearing away at the foot of the fern. It began to shake and shiver and lean heavily to one side. It was obvious that inevitably they would weaken the trunk so that it would give way and drop the two little people to a hideous death below.

Drawers thought fast. Who was he anyway? Virtually an outcast from Earth. Unwanted and unnecessary. Here, for the first time in his life, someone had treated him as though he were a leader. They pretended, at least, that he was an honored guest. His bulkiness, his crudeness had been discreetly overlooked. Possibly, if he tried, he could distract the attention of those man-eating beasts long enough for the golden people to run to safety behind the walls of the city. He would try. It would be his token of thanks for all their kindness.

Without a word of his intentions he swiftly pushed himself through the opening in the gate. His earthly muscles covered prodigious distances at each stride across the terrain of this lighter planet. He shouted once, a sort of half-hearted battle cry. The beasts wheeled about at the sound and snarled viciously.

Drawers slowed up. He was within ten yards of them now. For an instant he sparred for position. Then he flung himself forward at the nearest of the two creatures with all of his earthly speed and bulk. He crashed head on, and surprisingly enough, the animal fell back on its haunches with a sort of dazed expression.

Drawers' powerful arms arched about the creature's neck. His tremendous biceps bulged. Slowly, terribly, he tightened his grip. Applied more and more pressure.

The Second Griff had been running around and around in circles. It seemed undecided, whether to attack or await the outcome of this struggle.

The Griff beneath him panted in agony. Madly it thrashed about, flinging him from side to side, but he held on like grim death. Bending its neck back, back. And suddenly, when it seemed that his strength was ebbing and that this creature would never give in, he was rewarded by a loud snap, and the beast's head hung grotesquely from his hands.

He let go and the entire body slumped limply to the ground.

Again he sparred with the other animal, but this one beat him to the attack, catapulting itself straight through the air at him. Drawers sidestepped the charge, and then his right fist descended with crushing force alongside of the Griff's ribs. There was a cracking noise as its ribs stove in like papier-mache.

It was squealing terrifiedly, and now Drawers knew his own power and illimitable strength. These Griffs, big and brutal, were hardly a match for him. Born to resist a gravity of more than twice that of his planet his bones were heavier, more compact. His muscles harder, his speed dazzling.

Again and again he came to grips with the Griff. Once its bestial fangs closed upon his shoulders and he just about tore away, his skin ripped and

bleeding. His own breath was coming in great choking gasps, and his legs seemed to sag from the effort, but around and around the Griff he danced, his fists smashing a crescendo pitch of hate and power and destruction. And at every blow he could feel something give. Could hear the wind go whistling out of the weakening Griff. Could sense its great, untamed strength dissipating ounce by ounce.

Then he closed in for the kill. In a fever of fury he crashed his two big fists in bludgeoning hate to the Griff's head. It tottered to the ground—dazed. He leaped upon its back and grabbed for its head. Instinctively it eluded him and almost threw him from his perch. He grabbed a fistful of fur and retained his position. In a fit of inspiration, he began pounding sledge-hammer blows on the thing's back. His arms worked in a sort of savage rhythm, descending and rising in a blur of speed and power. And as he pounded away it seemed that this thing would never die; things were growing hazy . . . he was tired, oh, so tired . . . he was barely conscious of striking and from far, far in the distance his blows echoed back a tirade of destruction.

"What are you beating at, friend?" came a distant voice.

Drawers stopped suddenly.

"There is nothing but a mass of bleeding pulp beneath you."

Drawers started to get off the Griff's back. He staggered erratically. The world began to turn around and round, around and round.

Someone was leading him. He followed blindly. The next he knew he was lying back amid a mass of billowy perfumed cushions. Someone was forcing a sweet, golden liquid between his lips. He drank greedily, some of the liquid spilling down his shirt. He wiped his lips with his hand and settled back, relaxed.

Through half-closed eyelids he peered out at the small golden people. Then, in a tired, happy sort of a voice, rumbled, "I guess those two weren't hurt."

Persum, good old Persum, was standing there. Two radiant beings stood beside him.

"They are very grateful," stated Persum by proxy. "They wish to thank you personally."

"Aw, 'twas nothing."

"Nothing!" came an excited thought wave. "Nothing to kill single-handed and weaponless two of the most terrifying beasts this planet has ever known? Nothing to risk your life to save two alien people whom you did not even know? You are a hero! A great hero! And we are deeply grateful to you."

Now the woman came timidly toward him. Drawers breathed heavily with appreciation. A thing of exquisite, unutterable delight. A living poem of brilliance and charm. The most adorable, fascinating, of all the golden people he had met so far.

She barely topped the five foot mark. She was dressed in a little bathing-suit-like affair that had two bright stripes running up the front, and two small points extending down from the hips. Her eyes were flaked with tiny gold motes of color and seemed filled to overflowing with tender compassion.

Michel Drawers couldn't help noticing the feminine, unassumed grace of her movements, the smooth, round contours of her face, her soft, perfectly proportioned curves. The glory-sheen of her hair that was arched up a few inches at the brow, and then allowed to fall in glistening strands down and around her shoulders.

Here were beauty and goodness incarnate.

Without further consideration Drawers knew he was falling hopelessly in love. Knew it in the maddening fashion that only a man who yearns for the admittedly impossible can know.

"Thank you," she was thinking. And then, "Oh, how *can* I ever thank

you enough? You were so brave, so fine, so strong, so daring."

"Ah—it was nothing. I mean—" Drawers knew he was speaking tripe. Common everyday, ordinary tripe, but he couldn't think in the presence of this dazzling little creature. All his senses, except his pounding heartbeat, seemed locked in a state of suspended animation.

Then he was tired—more tired than he thought anyone could ever be. He tried to sustain himself, but his words lisped off, and nature demanded that he rest. He fell back upon the radiant pillows, asleep before his head had indented its form upon their softness.

So he couldn't have seen, as Persum did, the soft, lingering caress that the golden girl bestowed upon his brow before she hastily retired from the room.

The ensuing days were happy ones for Michel Drawers. He was entertained royally by the elite of the golden people. The dazzling little woman he had rescued, along with Persum, were always at his side, acting as a sort of self-appointed escort service. They showed him their great city, strangely devoid of any mechanical devices or any utilization of natural laws.

He was introduced to the nation's leading thinkers who expounded learnedly upon almost incomprehensible theories. He was shown the ideal, simple, quiet life led by most of the populace and noted without being told the general tone of happiness, good will, and the utter lack of crime of any sort.

The complete and utter lack of sensible equipment convinced him more than ever that he should and could repay in some ways the unusual kindness bestowed upon him.

It was heart warming to watch the jubilation upon the faces of the workers as he arranged a simple pulley for them, and showed them how their lifting could be done with comparative ease. He shuddered to think of the work that must have gone into building some of those high, glistening towers, with the utilization of only crude man-power.

He watched the eyes of the scientific men pop with incredulity as he showed them the principle of the wheel. They were chagrined that they could have overlooked so simple a principle, but Drawers knew that the discovery of the wheel on Earth had been nothing but a lucky accident. If man had not discovered it by accident, it might never have been known at all. Then, too, he began to understand the utter lack of mechanical equipment. The wheel was one of the fundamental and most vital of parts in all moving machinery. Without the wheel, it would be difficult to construct a usable pulley, or a feasible vehicle.

There was another thing he accomplished. He constructed the first wagon these people had ever seen. They viewed it with insatiable curiosity.

But the sight of the golden men happily pulling their loads through the streets on wagons irked him. These people were not made for hard physical labor. It took a heavy toll. He questioned Persum as to the absence of beasts of burden.

Persum thought a moment and then said, "There has never been anything but very small animals on our planet as far as we know. Nothing we might use for beasts of burden. Anyway," he concluded, "why should the animals perform our tasks for us? Why place any poor beast in bondage?"

"And why not?" asked Drawers. "It would be poetic justice to place the Griffs in bondage and force them to pull your wagons for you."

"The Griffs!" thought Persum with a note of astonishment. "Surely you are joking. Who could subdue those savage beasts so that they would labor peaceably? And even then, who would care to drive them and tend to them? It would be sheer suicide."

Drawers ignored the last statement. "Have you some strong rope that I might use?" he asked. "Some tough

vegetable fiber—perhaps the material you use for pulling those blocks through the street."

"Why certainly," Persum replied. "You are welcome to all you need."

"Thank you," said Drawers. "I have a crazy sort of an idea."

That evening Michel paced back and forth in the small, luxuriously furnished apartment the little people had provided for him. It had three square sides and one open. There were apertures for light, but no glass or any other material in them. Neither was there anything other than a drape to serve as a door.

The temperature on this world was ideal. It stayed perpetually between seventy and eighty-five, hardly ever varying above or below these figures as rated on the Fahrenheit scale. Therefore there was no necessity of window panes to keep out the cold. Even without a door there was infinitely more privacy in these apartments than any man had ever known on Earth. The golden men never entered without first telepathizing their intentions in advance. Nor did anyone ever gaze into another's apartment or home. These people strictly maintained the ideal that a man's home is his castle.

His mind was surging with many thoughts. These Griffs, if he remembered correctly, though fiercely armed, had showed definite evidences of cowardice. He remembered the way they squealed when hurt. Their furious attempts to escape when soundly beaten. There was a possibility they could be trained. By force, if need be, but surely it would not hurt to try.

Then, too, those strange blossoms that acted as an anesthetic upon the golden people—perhaps they might act similarly upon the Griffs? It was a theory worth investigating.

The next morning he left the city, a long coil of hemplike rope around his arm. He found a group of the flowers he was looking for after a brief search, and quickly snapped a number of the largest blossoms at the stems. Their odor lent charm to the beauty of the scenery he passed. It struck him that these flowers were the very personification of the adage "one man's meat is another man's poison."

As though they knew he was searching for them, the Griffs seemed to elude him. The day wore on and the sun began to set and still he had found no Griffs. He began to wonder if the people of the golden city would be worried as to his whereabouts.

But as the long fingers of evening began to stretch gray paths across the sky, he was startled out of his thoughts by a fierce squealing. He turned rapidly, and there, emerging from an almost unnoticed cavelike formation was a red-eyed Griff, its teeth gnashing angrily.

Quickly Drawers formed the rope into a lasso. He gave it a few quick turns around his head and let fly at the Griff. The noose settled around the charging animal's neck. With a flick of his wrist Drawers tightened the noose, then, utilizing all of his strength, pulled the rope with a jerk to the right. The Griff choked and stumbled momentarily. In a twinkling of an eye Drawers was drowning the beast with the blossoms from the flowers he was carrying. The animal began to cough. It made an attempt to rise, and then settled back. It was panting now. Now its eyelids were closing and its breathing becoming harder and harder.

Drawers kicked the creature in the ribs. It did not respond.

Drawers removed the blossoms from the animal's nostrils. Then he took his rope and securely tied up its great jaws. With the happy whistle of a boy released from school, he made his way back to the city of Saeve, dragging the great beast behind him.

He almost laughed aloud as he saw the perplexity of the guards at the gate of the wall. They seemed uncertain whether to run as fast as they could or maintain their posts in shivering fright. At all costs they re-

fused to allow Drawers to drag the beast into the city.

After some persuasion Drawers got them to contact Persum and arrange to have a wagon delivered outside the city.

During the interim the Griff began to revive. Finally it staggered weakly to its feet, a sick look in its eyes. At the sight of Drawers it bristled menacingly.

Drawers nonchalantly gave the animal a powerful kick in the ribs that sent it crashing to the ground.

It gained its feet again, and fumed with rage at its inability to use its well-tied jaws.

But Drawers did not let this bit of temperament deter him. He whacked the creature across the back with his fist. It sank to the ground again. A look of fear began to enter its eyes.

Within the next fifteen minutes Michel Drawers gave the animal the beating of his life. When he was through he untied the fastenings from around the creature's jaws, and waited, his fist held menacingly. The golden guards watching from the gate were stricken by the tenseness of the situation. For a moment the Griff looked at Drawers—*then it cringed before him!*

During the next week thousands crammed the streets to watch a fierce-looking Griff, generation-old enemy of their race, proceeding docilely along the streets of the city, pulling enormous quantities of stone and other supplies with no sign of rebellion. Its once terrible teeth had been blunted and replaced by flat-headed golden caps. A little golden man sat unafraid upon its back directing it with deft prods of his feet. Man had again displayed his superiority over other forms of life.

Everywhere Michel Drawers went he was hailed with enthusiasm by the golden people. They gave elaborate balls in his honor—and watched with fascination as he disposed of helping after helping of the multiple-types of tasty vegetables and exotic-flavored fruits which formed the bulk of their diet.

But in all truth Michel Drawers paid much more attention to the fascinating little golden woman who seemed perpetually at his side. "Trajores," she said was her name. And he escorted her proudly to the numerous balls and dinners; performed her every whim with celerity.

He remembered the look of joy on her face when he presented her with a simple bracelet, inset with colorful crystals that he had shaped for her with his own hands out of the malleable gold that could be found in such abundance.

He remembered, too, how all the other women crowded about her, examining the new creation, the first of its type in the city of Saeve, and how the next day, hammers rang merrily as self-appointed goldsmiths catered to the whims of the eternal feminine and its desire to emulate any new style or fashion.

Thus, unwittingly, Drawers had made Trajores the first stylist in the world of the golden people. And it pleased him to watch her thrill with pride as she watched the other women, and even some of the men, imitate the first necklace he had made for her, out of a few colored crystals and a wirelike string of gold.

He took advantage of every opportunity to be near her, accompanying her on long walks through the forest when the sun was high in the sky; satisfying her curiosity as to the manners and ways of life on Earth.

He enjoyed those hours in her presence and was thankful for the opportunity—but his long unfamiliarity with women often caused him to ask Persum to accompany him, and the three would stride merrily through the forest, exchanging views on various subjects.

To his astonishment, Michel Drawers awoke one day to find that a faint but undeniable glow came from his body. The strange gas in the atmosphere was beginning to affect the

radiations of his body, too! Other unusual incidents lately had been the sudden regrowth of teeth long since pulled, the disappearance of several warts from his fingers. The gas, whatever it was, had beneficial effects.

But he did not comprehend the full effect of his change until one day while walking with Persum and Trajores he sensed Trajores thinking. "Were there any other girls that you left on Earth before you came here?"

"No," he replied. "I'm afraid that I never was very popular with the ladies."

A look of amazement crossed Trajores' features.

"You read my thoughts!" she accused. "I had not directed the question mentally toward you!"

Then she turned and ran back toward the city.

Michel Drawers gazed after her in perplexity, then turned with a puzzled frown to Persum.

Persum shook his head in the manner of a man who thinks, "Well, here's something else that's got to be attended to."

"It is against our custom to attempt to read the thoughts of another person," he explained. "If we did, no one would have any privacy. But I will explain to Trajores your ignorance of our laws and extend an apology by proxy. I'm sure she will forgive you. She was momentarily embarrassed. Her thoughts were of a somewhat personal nature."

But Michel Drawers hardly listened. It was incredible but true that in some manner the golden emanations that now radiated from his body enabled his mind to read thoughts!

As the days progressed, Michel Drawers became more and more impressed by the utopian way in which this society of golden people was maintained. No man was assigned any work. It was up to the individual to make himself as useful as he possibly could whenever his services were required. His leisure time was left to himself.

Drawers had seen how these golden people had volunteered for heavy physical labor even before his introduction of the labor-saving pulley wheel, wagon and beast of burden, and the manner in which they had performed, without complaining, this toilsome labor. He had seen how other men were willing to spend hours over hot forges shaping trinkets for the gratification of any women who happened to ask for them.

These people seemed to sense when their services were required and were always willing to do what was desired.

The women seemed willing to perform almost any of the regular household duties of cooking, sweeping, remodeling and washing at any time. It seemed to make little difference if they had to assume the extra burden of cooking and washing and cleaning for any of the golden men who were still unmarried or were so unfortunate as to have suffered the loss of their mates. They performed these tasks cheerfully, as their contribution to the welfare of the community.

All essentials were provided free, as were available luxuries. All worked under an eminently successful cooperative plan that did away with all of the ills of complicated economic systems.

The Raciv was really nothing more than a coordinator of the various scientists and constructors, helping to lay out the plans for the proper performance of their experiments and buildings, coping with any problem that might arise.

This race had many bewildering aspects. Drawers had listened, only half comprehending, to their learned men outline a gigantic theory of the universe and its reason for being, a theory that seemed flawlessly logical to his untrained mind. He had watched the golden men take over the manufacture of wheels, wagons, pulleys and trinkets he had introduced and improve upon them at a great rate. He had seen daring members of this deli-

cate golden race emulate his action in capturing a Griff with astounding preciseness. Their adaptability, their gift of learning and improving upon new ideas seemed infinite. But their inability to grasp and utilize the simplest ideas on their own initiative was confounding. There was some quality lacking in their make-up that seemed to prohibit this. Why this was so he did not know. Perhaps it was the result of thousands of centuries of living easily in the forests, working and creating in the mind alone, that, through the ages had made the creative urge in them dormant. It was the only logical explanation to be found.

But once set upon the proper path that long dead ability might, by degrees, begin to restore itself, and then there would be no limit to the greatness this simple civilization might attain.

He had gotten probably his greatest kick in introducing amusements for the children. For two weeks he had labored, with several of the golden men assigned to him, in one of the larger working rooms in the city. By the end of that time he had constructed the very first Merry-Go-Round this world had ever known!

It was crude compared to what the amusement parks now had on Earth, but to these people it was an object of fabulous wonder.

He had simply constructed a large wheel, attached a few hand supports to it and mounted it on one of the wagons. The Merry-Go-Round was turned by a crude but effective crank, and this unique, whirling, breathless motion proved a source of infinite delight to the children of the city. The Merry-Go-Round was constantly on the go, and dozens of golden men crowded about, examining its manufacture, and returning home and plotting their own.

The most unusual aspect of this innovation was that the older people took to it as well as did the youngsters. The Merry-Go-Round and later the swing became a regular household addition.

These simple pleasure devices became the national amusements. It was becoming a common thing to have an open square one day, and the next find it clogged with a vast array of swings and Merry-Go-Rounds, with the golden people, young and old, partaking wholeheartedly in this new pleasure.

If it had been left to the children to judge, these new amusements were the finest things he had introduced so far; and Michel Drawers could not help realizing how limited these people's pleasures had been in the past.

It was a great day, too, when he escorted the Raciv and several of the more important men of state back to the "Star-Struck." They entered the ship and the lock closed behind them. Then with a blast of rockets the ship had rifled its way through the clouds.

The Raciv and his officials had gazed in wonder through the ports as the ship rose thousands of feet into the air. Strangely enough they displayed no visible signs of fear (possibly the fact that there was little danger in falling on this world obviated that fear) but nevertheless the novelty of the experience did not escape them.

One of the little men directed his course. They were riding a wave of telepathic radiations, as spaceships follow a radio beam into port. And the occasion was destined to be a memorable one—one of great consequence. *For the first time in centuries the peoples of two cities were to meet one another!*

Contact between the cities had always been maintained thanks to the development of long range telepathy. Thus they were similar in culture, development and habits, but inter-city relations had been impossible due to the long distance between cities and the dread danger of being devoured by Griffs en route.

It was soul-inspiring to witness the embraces, the thoughts of tearful thankfulness, as the golden people saw their first opportunity in hun-

dreds of years to be reunited in fact as well as spirit.

The second city's greatest sculptor, the finest the city of Malopa had ever known, fashioned a golden image of Michel Drawers, which was placed in one of the largest squares. The ensuing weeks were ones of great celebration.

Drawers would never forget the looks on the faces of the returning party as they rocketed back to Saeve. He knew they would never forget what he had done for them; that they envisaged a greater world of tomorrow, where the seven cities were united in a common bond of understanding and continued progress.

Even the original object of his voyage, the obtaining of Roxite, was consummated. One morning, accompanied by many of the nation's leading scientists, he strode to his star-ship, patted it affectionately and then withdrew the great atom blaster. A few minutes of calculating with the Roxitometer and he located the exact position of the deposit of Roxite.

The little people watched in awe as he held the powerful blast firmly in his two capable hands and guided its probings down into the bowels of the planet. After many hours of prodigious labor he had drawn enough Roxite from the cavity to sustain him comfortably for the rest of his natural life back on Earth.

He thought often of Earth now. For though this planet was very beautiful, a peculiar sort of a homesickness plagued him, and he longed more and more to return and view again the world of his birth.

He was strolling through one of the gorgeous forest paths with Trajores one day when the urge to confide in her finally beat down his barrier of timidity. He stopped her with a touch of his hand and told her.

"I have been very happy here with your people."

"I am so glad," she replied mentally.

That made what he wanted to say extremely difficult. His throat suddenly congested, though he knew that it was only a nervous muscular reaction.

"Trajores," he said, gruffly, sadly, "I've been thinking of returning to my own planet, Earth. I have enough Roxite to insure a reasonable status of existence. I wish I might stay longer. . . ."

Trajores stood immobile. She seemed to be thinking. Strangely enough a queer battle of emotions mirrored itself in her delicate features. Drawers felt vaguely uncomfortable alone with her. He wondered where Persum had wandered to. He had started out, as usual, with them, but somehow had drifted away, leaving him alone with Trajores.

"Michel Drawers," came an urgent thought.

Drawers riveted his attention upon the radiant woman.

"I wish you would stay here with me always. I know you would be very happy. I, I," two great golden tears rolled down her well-molded cheeks, and impulsively she flung herself into his big arms, and for the first time since his arrival he heard one of these little people give vent to a sound. It was a sob—and it came from Trajores.

Drawers stood puzzled. Instinctively he scratched his rough skull.

"Why. Why?" seemed all he could say.

"Why, you fool," came a probing voice, "don't you realize she loves you!"

Persum was standing a few feet away, his features rigid in stern sincerity.

"Love, me? Me, Michel Drawers? Why, I am not handsome. I am ugly. I am not beautiful like your race. I am big and rough and hairy. How can she love a man like me? I could not even communicate by mental telepathy before I came here. I am just a man from another civilization, away because there was no place for me. How can she love me?"

There was mute appeal in Drawers' voice. He didn't know that he was cry-

ing like a child. He didn't know that he had unconsciously fallen to his knees. He didn't know anything except that Persum had said that this beautiful, adorable, heavenly little creature loved him. Him, Michel Drawers, a big, clumsy oaf, without even a proper knowledge of manners or psychology.

And as from the distance—clear as a bell—lovely as the strummings of a harpischord it came to him.

"Michel Drawers, I love you for what you are. For your innate goodness of soul. For your humble deserving modesty. For your mighty strength. I love you for your bigness, for your naturalness and for something else—some indefinable spark that has made our lives as one, that has caused you to search me out across the inconceivable immensity of a thousand universes. That is all I know, and one other thing. I can never leave you. If you go, I go with you."

If you can imagine the emotions of a man unjustly sentenced and finally released from prison after six years of hell; if you can imagine what it would mean to have each of your faults become instead an additional virtue. If you can imagine the joy of having all of your fondest dreams came true—then, and only then, may you comprehend for one fleeting instant, the pounding chaos, the indescribable joy, the interminable relief that permeated Michel Drawers' being at that moment.

Those two hairy arms that had pounded the most savage and horrible beasts this world had ever known into bleeding pulp slipped tenderly, reverently about the exquisite form of Trajores. And as Persum slipped discreetly away, lips closed upon lips in the manner of lovers immemorial. And the gods of fate laughed at the importance two nothings in the mighty scheme of things attached to an equally undefinable nothing called love.

Now Michel Drawers lived in perpetual delirium. A delirium of unreasoning delight. He readied his "Star-Struck" for a voyage into space and a renewal of his search to find the way back—the way back with everything worthwhile to take with him.

And he barely acknowledged the farewells of a fine people, so intense was his desire to leave.

There was a sort of solemn rigidity in their farewell attitude. A brooding, soft, strange sorrow, and they seemed to wonder, too, to wish as well, thoughts they dared not express. To see their great dream for the reuniting of the cities come crashing down; to view their momentary gains as a hollow mockery in the years to come.

All this Michel Drawers did not notice. He waved one big arm and with the other pulled back the starting lever. His great frame pressed back in agony at the terrible acceleration of the takeoff. And then he was free—free again of binding gravitation; free to search the space-ways with the woman he loved beside him; free to return to a world that had discarded him, to be again a respected citizen.

And then he saw Trajores, her lovely form inert, a trickle of golden blood issuing from her mouth, and he was overcome with remorse at his own thoughtlessness. With fear and trepidation he raised her head and pressed a vial of revivifying liquid to her lips. She sighed softly and mustered a feeble smile.

"It is all right," she appeared to murmur. "Go on."

Michel Drawers stepped back to the controls. There was an air of resolute determination about him. His enormous fingers manipulated the proper switches with unbelievable skill and speed. The petite little "Star-Struck" swerved on her course and turned in a semicircle that encompassed millions of miles.

Michel Drawers' mind was comprehending things he had never fully realized before. Trajores must never be taken to Earth. She must be returned to her own world with its kinder gravitation and its lovable golden

people. To take her to Earth would be to doom her to a life of indescribable suffering.

And, too, what would he be on Earth? They would grant him permission to marry, to settle down and live his life a useless cog in society, simply because he had been fortunate enough to return with a large supply of the precious Roxite, not because of what he, himself, was or had been.

But with the golden people he was not simply a useless hulk of a man. He was Michel Drawers, the man who had introduced the most startling innovations the golden people had known in thousands of years! A man who could hold his head high and look another person squarely in the face. The only man who might rid the planet of the dread Griffs and restore a beleaguered people to their rightful heritage.

Back in the golden city of Saeve no thought of his mental inferiority was entertained. All treated him with respect. It was a world where for the first time in his life he had found some measure of happiness, and possibly there might also be contentment.

The shimmering world began to take form beneath them.

Trajores moved and thought, "Michel, that is not the way back."

And Michel Drawers smiled within himself and answered joyously.

"Yes, Trajores, that *is* the way back —the only way for you and me."

A trend towards decreasing body growth

♦ ♦ ♦

Professor Clarence A. Mills of the University of Cincinnati has carried on a very interesting series of studies bearing on the effect of atmospheric pressures, and climates, on body growths. He has indicated the tendency to diseases to reflect the climates in which men live, showing that the body chemistry which controls the production of heat, and of heat loss through the skin, plays a leading role.

But of extreme interest is his forecast that growth is on the verge of reversal. For many years there has been a tendency for boys to be taller than their fathers, daughters to be taller than their mothers. The age of maturity in girls has been going down, showing a speeding up of the growth processes. Now, according to Dr. Mills, the trend will be in the opposite direction, due to the almost unseasonal warmth which has gripped the earth since 1929. The weather is coming to be accepted as a major influence dominating man's existence.

IN TUNE with the INFINITE

by ORLIN TREMAINE

DID you ever watch the sunrise in Texas when the air was clear on a summer morning? First there's a broad red streak on the horizon. Then it's wider, deeper, higher in the middle—and it extends as you watch, bigger and bigger. You can SEE it move upward, outward. It becomes an arc of red, and the arc deepens. You stand fascinated as the arc grows before your eyes into a huge red ball that seems as if it would blank out the sky.

A breath of heat penetrates the cool morning air of the plains that stretch out and away beyond horizons so vast that Europeans cannot comprehend them.

You see the red ball lift itself away from the horizon into the morning sky, and you feel small, microscopically small, before the vast glory of creation.

Fifteen minutes, twenty, you stand lost in contemplation of something so big, so inestimably vast, that the tiny bickerings of a workaday world are trivial. Then, suddenly, the fire has turned to dazzling gold, and the same sun beats down with a pitiless glare which has been dramatized in adventure fiction year after year. You shake your head and turn away to go about the tasks of your little life, to live your little day.

But you can't forget and your life is bigger for the experience. For in those brief minutes you experienced the spirit of Science-Fiction. For one little interval in time you were a part of something bigger than train schedules and time-clocks. Whether you knew it or not, you were momentarily, in tune with the infinite.

And we who comprehend and love the spirit of Science Fiction, once we have had a moment like that, never forget it. Our thoughts reach out into the greater magnitudes of time and space. We have no time to spend on the puerile insignificances of misanthropic dogmas or disturbing heresies which uselessly disturb the creepers of a workaday world.

Scientifiction is big; bigger than all the nations and peoples of the earth. It has pointed the way to the present in the past. Now it will point the way of the future. Littleness of mind has no place in it—yet there is room for everyone and everything that is big enough to look beyond the far horizons into a world for which the present one is only the primitive forebear.

You and I have taken many trips together, enjoyed many adventures into the unknown. We're on our way to do it again, in a bigger vaster ship than the scientifiction of the past has dreamed about. We're gathering momentum now for a speed at which the COMET will expand until its outermost dimensions will trail a dazzling coma across the starlit sky like a new sun—the kind of a sun that rises on a clear summer morning in Texas!

The creature was standing, wings swiftly vibrating, enveloped in a pale, bluish radiance.

THE VIBRATION WASPS

Enormous, they were—like Jupiter—
and unutterably terrifying to Joan—

by FRANK BELKNAP LONG

CHAPTER I

OUT IN SPACE

I WAS out in space with Joan for the sixth time. It might as well have been the eighth or tenth. It went on and on. Every time I rebelled Joan would shrug and murmur: "All right, Richard. I'll go it alone then."

Joan was a little chit of a girl with spun gold hair and eyes that misted when I spoke of Pluto and Uranus, and glowed like live coals when we were out in space together.

Joan had about the worst case of exploritis in medical history. To explain her I had to take to theory. Simply to test out whether she could survive and reach maturity in an environment which was hostile to human mutants, Nature had inserted in her make-up every reckless ingredient imaginable. Luckily she had survived long enough to fall in love with sober and restraining me. We supplemented each other, and as I was ten years her senior my obligations had been clear-cut from the start.

We were heading for Ganymede this time, the largest satellite of vast, mist-enshrouded Jupiter. Our slender space vessel was thrumming steadily through the dark interplanetary gulfs, its triple atomotors roaring. I knew that Joan would have *preferred* to penetrate the turbulent red mists of Ganymede's immense primary, and that only my settled conviction that Jupiter was a molten world restrained her.

We had talked it over for months, weighing the opinions of Earth's foremost astronomers. No "watcher of the night skies" could tell us very much about Jupiter. The year 1973 had seen the exploration of the moon, and in 1986 the crews of three atomotor-propelled space vessels had landed on Mars and Venus, only to make the disappointing discovery that neither planet had ever sustained life.

By 2002 three of the outer planets had come within the orbit of human exploration. There were Earth colonies on all of the Jovian moons now, with the exception of Ganymede. Eight exploring expeditions had set out for that huge and mysterious satellite, only to disappear without leaving a trace.

I turned from a quartz port brimming with star-flecked blackness to gaze on my reckless, nineteen-year-old bride. Joan was so strong-willed and competent that it was difficult for me to realize she was scarcely more than a child. A veteran of the skyways, you'd have thought her, with her slim hands steady on the controls, her steely eyes probing space.

"The more conservative astronomers have always been right," I said. "We knew almost as much about the moon back in the eighteenth century as we do now. We get daily weather reports from Tycho now, and there are fifty-six Earth colonies beneath the lunar Apennines. But the astronomers knew that the moon was a sterile, crater-pitted world a hundred years ago. They knew that there was no life or oxygen beneath its brittle stars generations before the first space vessel left Earth.

"The astronomers said that Venus was a bleak, mist-enshrouded world that couldn't sustain life and they were right. They were right about

Mars. Oh, sure, a few idle dreamers thought there might be life on Mars. But the more conservative astronomers stood pat, and denied that the seasonal changes could be ascribed to a low order of vegetative life. It's a far cry from mere soil discoloration caused by melting polar ice caps to the miracle of pulsing life. The first vessel to reach Mars proved the astronomers right. Now a few crack-brained theorists are trying to convince us that Jupiter may be a solid, cool world."

Joan turned, and frowned at me. "You're letting a few clouds scare you, Richard," she said. "No man on Earth knows what's under the mist envelope of Jupiter."

"A few clouds," I retorted. "You know darned well that Jupiter's gaseous envelope is forty thousand miles thick—a seething cauldron of heavy gases and pressure drifts rotating at variance with the planet's crust."

"But Ganymede is mist-enshrouded too," scoffed Joan. "We're hurtling into *that* cauldron at the risk of our necks. Why not Jupiter instead?"

"The law of averages," I said, "seasoned with a little common sense. Eight vessels went through Ganymede's ghost shroud into oblivion. There have been twenty-six attempts to conquer Jupiter. A little world cools and solidifies much more rapidly than a big world. You ought to know that."

"But Ganymede isn't so little. You're forgetting it's the biggest satellite in the solar system."

"But still little—smaller than Mars. Chances are it has a solid crust, like Callisto, Io, and Europa."

There was a faint, rustling sound behind us. Joan and I swung about simultaneously, startled by what was obviously a space-code infraction. A silvery-haired, wiry little man was emerging through the beryllium steel door of the pilot chamber, his face set in grim lines. I am not a disciplinarian, but my nerves at that moment were strained to the breaking point. "What are you doing here, Dawson," I rapped, staring at him in indignation. "We didn't send for you."

"Sorry, sir," the little man apologized. "I couldn't get you on the visiplate. It's gone dead, sir,"

Joan drew in her breath sharply. "You mean there's something wrong with the cold current?"

Dawson nodded. "Nearly every instrument on the ship has gone dead, sir. Gravity-stabilizers, direction gauges, even the intership communication coils."

Joan leapt to her feet. "It must be the stupendous gravity tug of Jupiter," she exclaimed. "Hadley warned us it might impede the molecular flow of our cold force currents the instant we passed Ganymede's orbit."

Exultation shone in her gaze. I stared at her, aghast. She was actually rejoicing that the Smithsonian physicist had predicted our destruction.

Knowing that vessels were continually traveling to Io and Callisto despite their nearness to the greatest disturbing body in the Solar System I had assumed we could reach Ganymede with our navigation instruments intact. I had scoffed at Hadley's forebodings, ignoring the fact that we were using cold force for the first time in an atomotor propelled vessel, and were dependent on a flow adjustment of the utmost delicacy.

Dawson was staring at Joan in stunned horror. Our fate was sealed and yet Joan had descended from the pilot dais and was actually waltzing about the chamber, her eyes glowing like incandescent meteor chips.

We'll find out now, Richard," she exclaimed. "It's too late for caution or regrets. We're going right through forty thousand miles of mist to Jupiter's *solid* crust."

CHAPTER II

Through the Cloud Blanket

I THOUGHT of Earth as we fell. Tingling song, and bright awakenings and laughter and joy and grief. Woodsmoke in October, tall ships and

the planets spinning and hurdy gurdies in June.

I sat grimly by Joan's side on the pilot dais, setting my teeth as I gripped the atomotor controls and stared out through the quartz port. We were plummeting downward with dizzying speed. Outside the quartz port there was a continuous misty glimmering splotched with nebulously weaving spirals of flame.

We were already far below Jupiter's outer envelope of tenuous gases in turbulent flux, and had entered a region of pressure drifts which caused our little vessel to twist and lunge erratically. Wildly it swept from side to side, its gyrations increasing in violence as I cut the atomotor blasts and released a traveling force field of repulsive negrations.

I thanked our lucky stars that the gravity tug had spared the atomotors and the landing mechanism. We hadn't anything else to be thankful for. I knew that if we plunged into a lake of fire even the cushioning force field couldn't save us.

Joan seemed not to care. She was staring through the quartz port in an attitude of intense absorption, a faint smile on her lips. There are degrees of recklessness verging on insanity; of courage which deserves no respect.

I had an impulse to shake her, and shout: "Do you realize we're plunging to our death?" I had to keep telling myself that she was still a child with no realization of what death meant. She simply couldn't visualize extinction; the dreadful blackness sweeping in—

Our speed was decreasing now. The cushioning force field was slowing us up, forcing the velocity needle sharply downward on the dial.

Joan swung toward me, her face jubilant. "We'll know in a minute, Richard. We're only eight thousand miles above the planet's crust."

"Crust?" I flung at her. "You mean a roaring furnace."

"No, Richard. If Jupiter were molten we'd be feeling it now. The plates would be white-hot."

It was true, of course. I hadn't realized it before. I wiped sweat from my forehead, and stared at her with sombre respect. She had been right for once. In her girlish folly she had outguessed all the astronomers on Earth.

The deceleration was making my temples throb horribly. We were decelerating far too rapidly, but it was impossible to diminish the speed-retarding pressure of the force field, and I didn't dare resort to another atomotor charge so close to the planet's surface. To make matters worse, the auxiliary luminalis blast tubes had been crippled by the arrest of the force current, along with the almost indispensable gravity stabilizers.

The blood was draining from my brain already. I knew that I was going to lose consciousness, and my fingers passed swiftly up and down the control panel, freezing the few descent mechanisms which were not dependent on the interior force current in positions of stability and maximum effectiveness, and cupping over the meteor collision emergency jets.

Joan was the first to collapse. She had been quietly assisting me, her slim hands hovering over the base of the instrument board. Suddenly as we manipulated dials and rheostats she gave a little, choking cry and slumped heavily against me.

There was a sudden increase of tension inside my skull. Pain stabbed at my temples and the control panel seemed to waver and recede. I threw my right arm about Joan and tried to prevent her sagging body from slipping to the floor. A low, vibrant hum filled the chamber. We rocked back and forth before the instrument board, our shoulders drooping.

We were still rocking when a terrific concussion shook the ship, hurling us from the dais and plunging the chamber into darkness.

Bruised and dazed, I raised myself on one elbow and stared about me. The jarred fluorescent cubes had begun to

function again, filling the pilot chamber with a slightly diminished radiance. But the chamber was in a state of chaos. Twisted coils of *erillium* piping lay at my feet, and an overturned jar of sluice lubricant was spilling its sticky contents over the corrugated metal floor.

Joan had fallen from the pilot dais and was lying on her side by the quartz port, her face ashen, blood trickling from a wound in her cheek. I pulled myself toward her, and lifted her up till her shoulders were resting on my knees. Slowly her eyes blinked open, and bored into mine.

She forced a smile. "Happy landing?" she inquired.

"Not so happy," I muttered grimly. "You were right about Jupiter. It's a solid world and we've landed smack upon it with considerable violence, judging from the way things have been hurled about."

"Then the cushioning force field—"

"Oh, it cusnioned us, all right. If it hadn't we'd be roasting merrily inside a twisted mass of wreckage. But I wouldn't call it happy landing. You've got a nasty cut there."

"I'm all right, Richard."

Joan reached up and patted my cheek. "Good old Richard. You're just upset because we didn't plunge into a lake of molten zinc."

"Sure, that's it," I grunted. "I was hoping for a swift, easy out."

"Maybe we'll find it, Richard," she said, her eyes suddenly serious. "I'm not kidding myself. I know what a whiff of absolute zero can do to mucous membranes. All I'm claiming is that we've as good a chance here as we would have had on Ganymede."

"I wish I could feel that way about it. How do we know the atomotors can lift us from a world as massive as Jupiter?"

"I think they can, Richard. We had twelve times as much acceleration as we needed on tap when we took off from Earth."

She was getting to her feet now. Her eyes were shining again, exultantly. You would have thought we were descending in a stratoplane above the green fields of Earth.

"I've a confession to make, Richard," she grinned. "Coming down, I was inwardly afraid we *would* find ourselves in a ghastly bubble and boil. And I was seriously wondering how long we could stand it."

"Oh, you were."

"Longer than you think, Richard. Did you know that human beings can stand simply terrific heat? Experimenters have stayed in rooms artificially heated to a temperature of four hundred degrees for as long as fifteen minutes without being injured in any way."

"Very interesting," I said. "But that doesn't concern us now. We've got to find out if our crewmen are injured or badly shaken up. Chances are they'll be needing splints. And we've got to check the atmosphere before we can think of going outside, even with our helmets clamped down tight.

"Chances are it's laden with poisonous gases which the activated carbon in our oxygen filters won't absorb. If the atmosphere contains phosgene we'll not be stepping out. I'm hoping we'll find only carbon monoxide and methane."

"Nice, harmless gases."

"I didn't say that. But at least they'll stick to the outside of the particles of carbon in the filter and not tear our lungs apart."

"A thought, Richard. Suppose we find nickel carbonyl. That's harmless until it is catalyzed by carbon. Then it's worse than phosgene."

"There are lots of deadly ingredients we *could* find," I admitted with some bitterness. "Gases in solid toxic form—tiny dust granules which would pass right through the filters into our lungs. Jupiter's atmosphere may well be composed entirely of gases in solid phase."

"Let's hope not, Richard."

"We've been talking about lung corrosives," I said, relentlessly. "But

our space suits are not impermeable, you know. There are gases which injure the skin, causing running sores. Vesicant gases. The fact that there are no vesicants on Io and Europa doesn't mean we won't encounter them here. And there are nerve gases which could drive us mad in less time than it takes to—"

"Richard, you always were an optimist."

I stared at her steadily for an instant; then shrugged. "All right, Joan. I hope you won't fall down on any of the tests. We've got to project an ion detector, a barometer and a moist cloud chamber outside the ship through a vacuum suction lock, in addition to the atmosphere samplers. And we've got to bandage that face wound before you bleed to death."

CHAPTER III

What the Camera Showed

A HALF hour later we had our recordings. Joan sat facing me on the elevated pilot dais, her head swathed in bandages. Dawson and the two other members of our crew stood just beneath us, their faces sombre in the cube-light.

They had miraculously escaped injury, although Dawson had a badly shaken up look. His hair was tousled and his jaw muscles twitched. Dawson was fifty-three years old, but the others were still in their early twenties—stout lads who could take it.

The fuel unit control pilot, James Darnel, was standing with his shoulders squared, as though awaiting orders. I didn't want to take off. I had fought Joan all the way, but now that we were actually on Jupiter I wanted to go out with her into the unknown, and stand with her under the swirling, star-concealing mist.

I wanted to be the first man to set foot on Jupiter. But I knew now that the first man would be the last. The atmospheric recordings had revealed that there were poisons in Jupiter's lethal cloud envelope which would have corroded our flesh through our space suits and burned out our eyes.

Joan had been compelled to bow to the inevitable. Bitterly she sat waiting for me to give the word to take off. I was holding a portable horizon camera in my hand. It was about the smallest, most incidental article of equipment we had brought along.

The huge, electro-shuttered horizon camera which we had intended to use on Ganymede had been so badly damaged by the jar of our descent that it was useless now. We had projected the little camera by a horizontal extension tripod through a vacuum suction lock and let it swing about.

I didn't expect much from it. It was equipped with infra-red and ultra-violet ray filters, but the atmosphere was so dense outside I didn't think the sensitive plates would depict anything but swirling spirals of mist.

I was waiting for the developing fluid to do its work before I broke the camera open and removed the plates. We had perhaps one chance in ten of getting a pictorial record of Jupiter's topographical features.

I knew that one clear print would ease Joan's frustration and bitterness, and give her a sense of accomplishment. But I didn't expect anything sensational. Venus is a frozen wasteland from pole to pole, and the dust-bowl deserts of Mars are exactly like the more arid landscapes of Earth.

Most of Earth is sea and desert and I felt sure that Jupiter would exhibit uniform surface features over nine-tenths of its crust. Its rugged or picturesque regions would be dispersed amidst vast, dun wastes. The law of averages was dead against our having landed on the rim of some blue-lit, mysterious cavern measureless to man, or by the shores of an inland sea.

But Joan's eyes were shining again, so I didn't voice my misgivings. Joan's eyes were fastened on the little camera as though all her life were centered there.

"Well, Richard," she urged.

My hands were shaking. "A few pictures won't give *me* a lift," I said. "Even if they show mountains and crater-pits and five hundred million people gap at them on Earth."

"Don't be such a pessimist, Richard. We'll be back in a month with impermeable space suits, and a helmet filter of the Silo type. You're forgetting we've accomplished a lot. It's something to know that the temperature outside isn't anything like as ghastly as the cold of space, and that the pebbles we've siphoned up show Widmanstatten lines and contain microscopic diamonds. That means Jupiter's crust isn't all volcanic ash. There'll be something more interesting than tumbled mounds of lava awaiting us when we come back. If we can back our geological findings with prints—"

"You bet we can," I scoffed. "I haven't a doubt of it. What do you want to see? Flame-tongued flowers or gyroscopic porcupines? Take your choice. Richard the Great never fails."

"Richard, you're talking like that to hide something inside you that's all wonder and surmise."

Scowling, I broke open the camera and the plates fell out into my hand. They were small three by four inch positive transparencies, coated on one side with a iridescent emulsion which was still slightly damp.

Joan's eyes were riveted on my face. She seemed unaware of the presence of the crewmen below us. She sat calmly watching me as I picked up the topmost plate and held it up in the cubelight.

I stared at it intently. It depicted—a spiral of mist. Simply that, and nothing more. The spiral hung in blackness like a wisp of smoke, tapering from a narrow base.

"Well?" said Joan.

"Nothing on this one," I said, and picked up another. The spiral was still there, but behind it was something that looked like an ant-hill.

"Thick mist getting thinner," I said.

The third plate gave me a jolt. The spiral had become a weaving ghost shroud above a distinct elevation that could have been either a mountain or an ant-hill. It would have been impossible to even guess at the elevation's distance from the ship if something hadn't seemed to be crouching upon it.

The mist coiled down over the thing and partly obscured it. But enough of it was visible to startle me profoundly. It seemed to be crouching on the summit of the elevation, a wasplike thing with wiry legs and gauzy wings standing straight out from its body.

My fingers were trembling so I nearly dropped the fourth plate. On the fourth plate the thing was clearly visible. The spiral was a dispersing ribbon of mist high up on the plate and the mound was etched in sharp outlines on the emulsion.

The crouching shape was unmistakably wasplike. It stood poised on the edge of the mound, its wings a vibrating blur against the amorphously swirling mist.

From within the mound a companion shape was emerging. The second "wasp" was similar to the poised creature in all respects, but its wings did not appear to be vibrating and from its curving mouth-parts there dangled threadlike filaments of some whitish substance which was faintly discernible against the mist.

The fifth and last plate showed both creatures poised as though for flight, while something that looked like the head of still another wasp was protruding from the summit of the mound.

I passed the plates to Joan without comment. Wonder and exaltation came into her face as she examined them, first in sequence and then haphazardly, as though unable to believe her eyes.

"*Life*," she murmured at last, her voice tremulous with awe. "*Life on Jupiter*. Richard, it's—unbelievable. This great planet that we thought was a seething cauldron is actually inhabited by—*insects*."

"I don't think they're insects, Joan," I said. "We've got to suspend judg-

ment until we can secure a specimen and study it at close range. It's an obligation we owe to our sponsors and —to ourselves. We're here on a mission of scientific exploration. We didn't inveigle funds from the Smithsonian so that we could rush to snap conclusions five hundred million miles from Earth.

"*Insectlike* would be a safer word. I've always believed that life would evolve along parallel lines throughout the entire solar system, assuming that it could exist at all on Venus, Mars, or on one of the outer planets. I've always believed that any life sustaining environment would produce forms familiar to us. On Earth you have the same adaptations occurring again and again in widely divergent species.

"There are lizards that resemble fish and fish that are lizardlike. The dinosaur Triceratops resembled a rhinoceros, the duck-billed platypus a colossal. Porpoises and whales are so fishlike that no visitor from space would ever suspect that they were mammals wearing evolutionary grease paint. And some of the insects look just like crustaceans, as you know.

"These creatures *look* like insects, but they may not even be protoplasmic in structure. They may be composed of some energy-absorbing mineral that has acquired the properties of life."

Joan's eyes were shining. "I don't care what they're composed of, Richard. We've got to capture one of those creatures alive."

I shook my head. "Impossible, Joan. If the air outside wasn't poisonous I'd be out there with a net. But there are limits to what we can hope to accomplish on this trip."

"We've siphoned up specimens of the soil," Joan protested. "What's to stop us from trying to catch up one of them in a suction cup?"

"You're forgetting that suction cups have a diameter of scarcely nine inches," I said. "These creatures may be as huge as the dragonflies of the Carboniferous Age."

"Richard, we'll project a traveling suction cup through one of the vacuum locks and try to—"

Her teeth came together with a little click. Startled, I turned and stared at her. Despite her elation she had been sitting in a relaxed attitude, with her back to the control panel and her latex taped legs extended out over the dais. Now she was sitting up straight, her face deathly pale in the cube light.

The creatures were standing a little to the right of the rigidly staring crewmen, their swiftly vibrating wings enveloped in a pale bluish radiance which swirled upward toward the ribbed metal ceiling of the pilot chamber.

Enormous they were—and unutterably terrifying with their great, many-faceted eyes fastened in brooding malignance upon us.

Joan and I arose simultaneously, drawn to our feet by a horror such as we had never known. A sense of sickening unreality gripped me, so that I could neither move nor cry out.

Dawson alone remained articulate. He raised his arm and pointed, his voice a shrill bleat.

"Look out, sir! Look out! There's another one coming through the wall directly behind you."

The warning came too late. As I swung toward the quartz port I saw Joan's arm go out, her body quiver. Towering above her was a third gigantic shape, the tip of its abdomen resting on her shoulders, its spindly legs spread out over the pilot dais.

As I stared at it aghast it shifted its bulk, and a darkly gleaming object that looked like a shrunken bean-pod emerged from between Joan's shoulder blades.

Joan moaned and sagged on the dais, her hands going to her throat. Instantly the wasp swooped over me, its abdomen descending. For an awful instant I could see only a blurred shapelessness hovering over me.

Then a white-hot shaft of pain lanced through me and the blur receded. But I was unable to get up.

I was unable to move or think clearly. My limbs seemed weighted. I couldn't get up or help Joan or even roll over.

My head was bursting and my spine was a board. I must have tried to summon help, for I seem to remember Dawson sobbing: "I'm paralyzed too, sir," just before my senses left me and I slumped unconscious on the dais.

How long I remained in blackness I had no way of knowing. But when I opened my eyes again I was no longer on the dais. I was up under the ceiling of the pilot chamber, staring down at the corrugated floor through what looked like a glimmering, whitish haze.

Something white and translucent wavered between my vision and the floor, obscuring the outlines of the great wasps standing there.

There were five wasps standing directly beneath me in the center of the pilot chamber, their wings a luminous blur in the cube light.

My perceptions were surprisingly acute. I wasn't confused mentally, although my mouth felt parched and there was a dull, throbbing ache in my temples.

The position in which I found myself and the whitish haze bewildered me for only an instant. I knew that the "haze" was a web the instant I studied its texture. And when I tried to move and couldn't the truth dawned in all its horror.

I was suspended beneath the ceiling of the chamber in a translucent, hammock-like web. I was lying on my stomach, my limbs bound by fibrous strands as resistant as whipcords.

Minutes which seemed like eternities passed as I lay there with fear clutching at my heart. I could only gaze downward. The crewmen had vanished and the wasps were standing like grim sentinels in front of the control panel.

I was almost sure that Joan and the crewmen were suspended in similar webs close to me. I thought I knew what the wasps had done to us.

I had talked to Joan about life evolving along parallel lines throughout the Solar System, but I hadn't expected to encounter life as strange and frightening as this—insectlike, and yet composed of some radiant substance that could penetrate solid metal and flow at will through the walls of a ship.

Some radiant substance that had weight and substance and could touch human flesh without searing it. Nothing so ghastly strange and yet—indisputably the creatures were wasplike. And being wasplike their habit patterns were similar to those of so-called social wasps on Earth.

Social wasps sting caterpillars into insensibility, and deposit eggs in their paralyzed flesh. When the wasp-grubs hatch they become ghoulish parasites, gruesomely feasting until the caterpillars dwindle to repulsive, desiccated husks.

CHAPTER IV

Eddington's Oscillations

HORROR and sick revulsion came into me as I stared down at the great wasps, with their many-faceted eyes seeming to probe the Jovian mists through a solid metal oulkhead!

They thought we were Jovian caterpillars! Evidently there were flabby, white larva-shapes out in the mist as large as men—with the habit perhaps of rearing upright on stumpy legs like terrestrial measuring worms. We looked enough like Jovian caterpillars to deceive those Jovian wasps.

They had apparently seen us through the walls of the ship, and their egg-laying instincts had gone awry. They had plunged ovipositors into our flesh, spun webs about us and hung us up to dry out while their loathsome progeny feasted on our flesh.

The whitish substance exuding from the mouth-parts of one of the photographed wasps had evidently been mucilaginous web material.

There was no other possible expla-

nation. And suddenly as I lay there with thudding temples something occurred which increased my horror tenfold.

Zigzagging, luminous lines appeared on the ribbed metal wall opposite the quartz port and a wasp materialized amidst spectral bands of radiance which wavered and shimmered like heat waves in bright sunlight.

A coldness itched across my scalp. Dangling from the wasps right foreleg was the web-enmeshed form of the fuel unit control pilot. Young Darnel's hair was tousled, and his metacloth pilot tunic had been partly torn away, leaving his ribs exposed.

I had never seen anything quite so horrible. Embedded in Darnel's flesh was a huge, faintly luminous grub, its rudimentary mouth-parts obscurely visible beneath the drum-tight skin over his breastbone.

His hands closed and unclosed as I stared down at him. His forehead was drenched with sweat and he writhed as though in unbearable anguish, a hectic flush suffusing his cheeks.

My throat felt hot and swollen but I managed to whisper: "Darnel. Darnel, my lad."

Slowly his eyelids flickered open and he stared up at me, a grimace of agony convulsing his haggard features.

"Nothing seems quite real, sir," he groaned. "Except—the pain."

"Is it very bad?"

"I'm in agony, sir. I can't stand it much longer. It's as though a heated iron were resting on my chest."

"Where did that wasp take you?"

"Into the chart room, sir. When I struggled in the web it carried me into the chart room and stung me again."

I swallowed hard. "Did you experience any pain before that, lad?"

"I felt a stab the first time it plunged its stinger into me, but when I came to in the web there was no pain. The pain started in the chart room."

I was thinking furiously. Stinger—ovipositor. A few species of stinging terrestrial insects possessed organs which combined the functions of both. Evidently the wasps had simply stung us at first—to paralyze us. Now they were completing the gruesome process of providing a feast for their avaricious progeny. One of the wasps had taken Darnel from the web, and deposited a fertile, luminous egg in his flesh.

It was becoming hideously clear now. The wasp's retreat into the chart room had been motivated by a desire to complete its loathsome task in grim seclusion. It had withdrawn a short distance for the sake of privacy, passing completely through the wall out of sight.

My stomach felt tight and hollow when I contemplated the grub, which had apparently hatched out almost instantly. It seemed probable that Darnel's anguish was caused by the grub's luminosity searing his flesh, as its mouth parts were still immobile.

"Darnel," I whispered. "The paralysis wore off. They couldn't sting us into permanent insensibility. The pain may go too."

He looked at me, his eyes filming. "I don't understand, sir. Paralysis?"

I had forgotten that Darnel wasn't even aware of what we were up against. He couldn't see the grub. He didn't know that we were—caterpillars.

He was in torment, and I was powerless to help him. I was glad he didn't know, despite my certain knowledge that I was about to share his fate. I whispered hoarsely: "Can you see Joan, lad. Is she—"

"She's lying in the web next to you, sir. Dawson and Stillmen have been out."

"Taken out."

"There are two empty webs, sir. Oh, God, the pain—I can't stand it."

The great wasp was moving now. It was moving slowly across the chamber toward the quartz port, between its motionless companions. Its wings were vibrating and it was raising Darnel up as though it were about to hurl him out through the inches-thick quartz into the mist.

Suddenly as I stared the utter strangeness of something that had already occurred smote me with the force of a physical blow. The wasp had carried Darnel *right through the wall*—from the pilot chamber to the chart room, and back again.

Apparently the great wasps could make us tenuous too! Close and prolonged contact with the energies pouring from them had made Darnel's body as permeable as gamma light. Horribly it was borne in on me that Darnel's anguish was caused by a *pervasive* glow which enveloped him from head to foot. It was fainter than the radiance which poured from the wasps and was almost invisible in the fluorescent cube light, but I could see it now.

The wasp didn't hurl Darnel out. It simply vanished with him through the quartz port, its wings dwindling to a luminous blur which hovered for an instant before the inches-thick crystal before it dwindled into nothingness.

The same instant a voice beside me moaned. "Richard, I can't move."

"Joan," I gasped. "Oh, my dearest—"

"Richard, I can't move. I'm in a sort of web, Richard. It's—it's like a mist before my eyes."

I knew then that Joan was trussed up on her side, gazing through her web directly at me. I was glad that she couldn't see the wasps.

"Joan."

"Yes, Richard."

"Did you just wake up?"

"Wake up? You mean I've been dreaming, Richard. Those wasps—"

"Darling, do you want it straight?"

"You don't need to ask that, Richard."

I told her then—everything I suspected, everything I *knew*. When I stopped speaking, she was silent for ten full seconds. Then her voice came to me vibrant with courage.

"We can't live forever, Richard."

"That's what I've been thinking. darling. And you've got to admit we've had the best of everything."

"Some people I know would call it living," she said.

"Darling?"

"Yes, Richard."

"I've a confession to make. I've liked being out in space with you. I've liked the uncertainty, the danger—the desperate chances we both took with our lives."

"I'm glad, Richard."

"I don't glow outwardly—you know that. You've had a lot to contend with. I've reproached you, and tried to put a damper on your enthusiasm, and—"

"You've been a wonderful husband, Richard."

"But as a lover—"

"Richard, do you remember what you said to me when we were roaring through the red skies above Io? You held my fingers so tightly I was afraid you'd break them, and your kisses were as fiery as a girl could ask for. And you said I reminded you of someone you'd always loved, and that was why you'd married me.

"And when I scowled and asked her name you said she had no name and had never existed on Earth. But that I had her eyes and hair and thoughts, and was just as slim, and that when I walked I reminded you of her, and even when I just sat on the pilot dais staring out into space.

"I knew then that you had always been in love with love, and that means everything to a woman."

"I didn't do so badly then?"

"Richard, you've never done badly at any time. Do you think I could love a man who was all flattery and blather?"

"I've always loved you, Joan."

"I know, Richard my darling."

"If only it didn't have to end."

"It will be over swiftly, dearest. They'll take us out into the mist and into one of their nests, but we'll be beyond pain ten seconds after the atmosphere enters our lungs. Darnel and Dawson are at peace now."

"But we could have gone on, and—"

I broke off in stunned bewilderment.

The vibrating wings of the wasps beneath me seemed to be casting less massive shadows on the walls of the pilot chamber. The wasps themselves seemed to be—

My heart gave a sudden, violent leap. For perhaps ten seconds utter incredulity enveloped me. Unmistakably the wasps had grown smaller, dimmer.

Even as I stared they continued to dwindle, shedding their awesome contours and becoming no larger than ourselves.

"Good God!" I exclaimed.

"Richard, what is it?"

"The wasps, Joan. They're getting smaller!"

"Richard, you're either stark, raving mad, or your vision is swimming from the strain of watching them."

"No, Joan. I'm quite sane, and my eyes are all right. I tell you, they're shrinking."

"Richard, how *could* they shrink?"

"I—I don't know. Perhaps—wait a minute, Joan. *Eddington's oscillations.*"

"Eddington's *what?*"

"Oscillations," I exclaimed, excitedly. "A century ago Eddington pictured all matter throughout the universe as alternating between a state of contraction and expansion. Oh, Joan, don't you see? These creatures are composed not of solid matter, but of some form of vibrating energy. They possess an oscillatory life cycle which makes them contract and expand in small-scale duplication of the larger pulse of our contracting and expanding universe. They become huge, then small, then huge again. They may expand and contract a thousand times before they die. Perhaps they—"

A scream from Joan cut my explanation short. "Richard, the web's slackening. I'm going to fall."

Fifteen minutes later we were rocketing upward through Jupiter's immense cloud blanket, locked in each other's arms.

Joan was sobbing. "It's unbelievable, Richard. We were saved by—by a miracle."

"No, Joan—Eddington's oscillations. Although I'll admit it seemed like a miracle when those tiny wasps became frightened by enormous *us* descending upon them, and flew straight through the quartz port into the mist."

"What do you suppose made the web slacken?"

"Well," I said. "That web was spun out of the bodies of those dwindling wasps. It seems to have been a sort of energy web, since it shriveled to a few charred fibers before we could pluck it from our tunics. Apparently it was sustained by energies emanating from the wasps which burned out the instant the wasps dwindled."

"Richard, hold me close. I thought we would never see Earth again."

"I'm not sure that we will," I warned her. "We've lost our crew and we can't even set our course by the stars. Perhaps the direction gauges will function again when the atomotors carry us beyond Jupiter's orbit, but I wouldn't bank on it."

"Oh, Richard, how could you? You said you liked uncertainty, danger. You said—"

"Never mind what I said. I'm just being realistic, that's all. Do you realize how heavily the cards are stacked against us?"

"No, and I don't particularly care. Kiss me, Richard."

Grumblingly I obeyed. It would have been better if we could have saved our energies for the grim ordeal ahead of us, but it was impossible to reason with Joan when she was in one of her reckless moods.

Here is the opportunity department for newcomers. Every month we will publish short shorts, giving preference to FIRST STORIES. If you have wanted to write science-fiction, now is the time to start. This department will discover the coming favorites.—The Editor.

THE LAST MAN

by

CHARNOCK WALSBY

Slowly he set the switches, adjusted the dials, and levers. Then he stopped—

THERE was a soft click, followed by a quick dropping in the whine of high speed motors suddenly slowing; levers were snapped back in long serried banks by a man running swiftly in front of them and the life died out of the machine.

The man stood back, bringing a weary hand across his sweating brow. His work was nearly done. Five minutes more and he would be following the others; but this time, when he had gone, the machine would go on until it ceased of its own accord, because there would be no one left to stop it. He was the last man.

As the thought passed through his brain he realized the enormity of the act he was about to perform. He was the last human being. In all the cosmos not one living human remained but he, and now, he too was deserting, leaving the universe in which man had been born to flourish for countless aeons of time.

He had been too busy to think about it. Since the day the machine had been completed over two hundred years ago, every waking hour had been spent tending it; whilst others had been making their farewells to the galaxy they loved so well, he had had no thoughts except for his duties. Even those who had helped him run the machine had had their chance, but not he.

And now emotion welled up in him like a flood-tide. He, the last of all men, could not leave without saying his goodbye to the creation that had housed man so long.

He walked over to the glassteel window and peered out. The landscape outside was bleak and barren; huge craggy masses of mountains thrown about anywhere with immense pitted flat plains like old sea bottoms between and around them, were clothed with a layer of hideous green, except where the mountain heights caught the lurid glow of the cinder red sun, whose tip just showed above the horizon, and reflected a dead ruddy brown color. The green blanket was snow, frozen hard as chrome steel. Out there a man would have been frozen immobile in a few seconds. That was why beyond the grey metal walls topped by the glassteel dome of the city there was nowhere any sign of life, vegetation or civilization.

The city was man's last retreat on a world soon doomed to fall into the dying red sun. Two hundred million years ago when the human race first settled here the planet was warm with a rich blanket of moist sulphurous atmosphere, green seas and luscious, though foreign, vegetation. The last planet on which man could live, because it was the only live-star satellite left in the whole system, it had been made the home of the human race, but now even this final adobe was untenable.

He looked up from the desolate landscape to the heavens, which, despite the sun, showed a dull ebony black. Nowhere could be seen in all the firmament a single star or point of life. Out there, where there had been space and brilliant stars, galaxies and nebulae billions upon billions of years ago, there was now nothing but swirling dust, vast clouds of it whirling slowly about like a stupendous turbulent sea. Dust, the elemental of all matter in the system. Planets had dropped into suns, stars crashed one into the other, luminaries had been born in the far flung nebulae, but in the end all had become dead hulks of matter swinging through space; then with the remorselessness of infinite time the cold worlds and suns had crumbled into fragments, until but one or two spheres remained in a universe of dust. Of the many millions of stars in all the galactic system but a handful remained and of these all but one were dead. The dull cinder red sun hanging on the horizon was that one. The universe had nearly run down.

During all this man had waged a constant battle with nature, leaving an old planet when it became too great a struggle to maintain life and civilization to settle down upon a new one. Many times had mankind faced defeat, because it seemed no planet fit to colonize could be found; many times annihilation threatened in diverse forms, but always the human race won through; and now, after glorious history so long the number of years ran into thousands of ciphers, there was no place left for man to live. True, he could have still existed by means of his science even in a universe of dust but the machine offered the best way out.

Man an accident in the staggering vastness of creation, born on a mi-

nute planet circling an insignificant sun, a tiny puny animal even on his own world, would outlive the system that had produced him and go on to further heights. An accident, for in all his wanderings in which he had visited every planet and lived upon billions of worlds, man had never found other creatures of his intelligence and evolution. Apparently, tiny Earth in all the cosmos was the origin of intelligent life. But was it accident or design?

As the last human thought of Earth, a lump of emotion filled his throat. Although that home of mankind had ceased to exist so long ago it was staggering to think of it, yet he could picture that wonderful little world with its blue seas and white rolling waves, its blue skies cloud-flecked, its marvellous sunsets with the heavens rivalling the painter's pallette, its green fields, snowcapped mountains, forests, rivers and above all its birds and flowers. Even yet, those old, old visual and oral records of Earth's halcyon days were the most treasured and used of humanity's possessions.

The last man bowed his head in silent reverence to the memories of the birthplace of man. Out there where the stars should be was somewhere the remains of Earth. Perhaps they were swirling past him at this very moment. How sad it was saying farewell to the whole cosmos, yet how much more poignant it must have been for those long forgotten descendants who had to say goodbye to the mother world. The universe had been man's career and battleground, but Earth had been his cradle.

Raising his hand in greeting the last of all humans took his leave of the system that had housed man since his inception, and turned back to the machine.

Huge, it reared above him, all bright shining metal, moving parts, gears, coils, cables and glowing electric valves, yet, because it was the race's salvation, and the sole occupier of his mind for two hundred years, he regarded it as if it were of flesh and blood. During those two centuries it had hardly ever stopped and during all that time, night and day, human beings had entered its vitals, one every ten minutes until all but he of the surviving ten millions had gone through to a new life.

Each person as he entered the machine was annihilated, his intelligence alone being spared. The intelligence was then transferred into a body formed synthetically on a planet in an atom universe, and, on that microscopic world, man was rebuilding his civilization. Half a thousand million years before, it had been proved that not only were the atoms diminutive solar systems, but that man could transfer himself to them by switching his mind from his existing body to a synthetic one on a small world. To have reduced his body was impossible, but the transfer of his intelligence, which has neither mass nor substance, and therefore not bound by space considerations, was feasible.

Mankind could desert this dying galaxy for one far greater, one which made the old look lilliputian in comparison, for every speck of dust in the universe they were leaving was a universe itself in the cosmos they were going to. Who could tell to what heights man might not rise in such a creation?

Long had such a course been put off, until humanity had to decide to descend to the atoms or try to live in dust-filled space. Three hundred years had gone into building the machine, which would transfer men's minds and build up bodies on tiny worlds by the most remote control ever known, but it had been done and now the machine's task also was nearly finished.

The last man was almost as sorry to leave the machine as he was the galaxy. Too long had he worked and lived with it, not to have affection for it. Slowly he set the switches, adjusted dials and levers, then with his hand on the main switch he stopped to give one last look at the gigantic mechan-

ism and with an odd involuntary almost loving gesture he patted its metal side. Down from early Earthman that gesture came, from the days when man rode living machines of flesh and blood (horses) across the centuries. It proved that man was still man and would never change.

But, unconscious of that, the last man pulled the switch and sprang for the silver door of the annihilator room to join his kind in a new cosmos.

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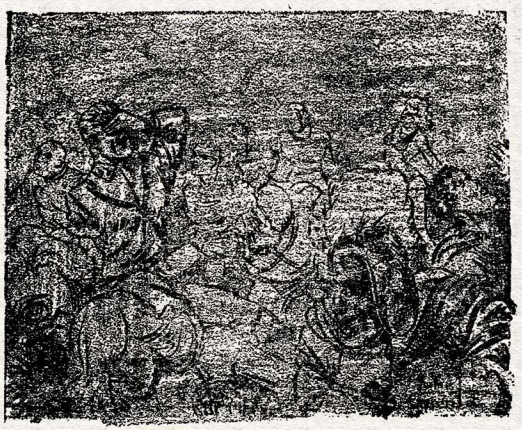


A GREEN CLOUD CAME

by

ROBERT W. LOWNDES

All I could see out the window was green whirls of it—and people where they had fallen!

HER fingers lightly caressed a button on the long table as she half-turned toward him. At this moment, she was glad they still wore the semi-barbaric accoutrements donned for last night's festivities, commemorating the conclusion of the final war—weird, fantastic trappings, selected more for adornment than for approximations of ancient military dress—for he would not notice that she was trembling. When at last she spoke, her voice was steady.

"Please go now, quickly."

His hand made as if to clasp her arm, then dropped to his side. For an instant he stood there, words welling to his lips, then, with a half shrug he turned away. She did not move as he strode toward the doorway, glanced out the window; her back was a picture of composure.

"Natalla!" It was not a command, or yet a call, but a cry of astonishment blended with horror. Gone was her carefully built-up poise as she whirled, then gasped as she saw the look in his eyes. Swiftly she hurried toward the window, but he stood in front of her, blocking her view.

"What is it, Eric?"

"Don't look," he gasped. For a moment she felt fear coursing through her, fear that at this moment he would wilt, give way to terror. She bit her lips, telling herself she couldn't endure the sight of it. But, an instant later, the panic had left him; she could see rugged determination flowing back into his being. Almost faint with thankfulness for the strength of him, she relaxed against his body, permitted him to lead her across the room to a sofa.

"Do you remember Greer?" His voice was analytically thoughtful. "He was the little astronomer who made those startlingly radical predictions about a year ago. Remember how we all checked his data? No one could

find anything of the sort, even though we checked and rechecked a dozen times. The conclusion was the only one that could be drawn under such circumstances; Greer was suffering from delusions. So he was cured by the psychiatry department."

Her nose wrinkled in concentration. "Greer? Wasn't he the one who claimed to have discovered a sort of gaseous cloud in space? Our system was supposed to be approaching it; when it reached our atmosphere, it would prove a deadly poison to all life-forms on this planet."

"Yes—that's it. Well, it seems he was right. It's come—the green cloud. All I could see out that window was the nauseous swirls of it, and the people where they'd fallen in the streets. Neither of us can leave this building." He snapped on the tele-screen. It lit up; he could hear the faint hum of the machinery, but no images appeared. "Dead!"

"Eric, it couldn't be."

He paced up and down the floor, clasping and unclasping his hands. "I don't know. It came without warning on a night when nearly everyone was out celebrating. No one in the streets or parks could have been prepared for it. Most of the dwellings were probably left with windows opened. It's only sheer luck that it wasn't the case here. And luck again that we came back early."

"Please sit down," she begged. He looked at her a moment, then shrugged, came over to the sofa, and sat beside her. "There must have been some, Eric," she said.

"The law of averages would seem to indicate that. There might be some who are naturally immune to whatever brand of poison this is; some who escaped as did we; some who were underground, or in forests. But until we learn differently, we must assume that we are the only humans alive."

His eyes were haunted. "How could we have missed it?" he whispered. "We checked and re-checked all the data, and put it to the calculating machines. The answer was the same each time: no such cloud existed."

"Perhaps there were some factors that only Greer himself knew. Some small items concerning his calculations which he overlooked in presenting data, not realizing that it had influenced him. If one factor were missing, known only to Greer, then all the machines in the world might well give a negative result."

He shook his head. "It's fantastic—yet, what can we think? If your idea of a missing factor is correct, we'll never know. Even if Greer is still alive. He was cured of his delusion."

She was silent for a moment, then she slipped off her gloves, laid a hand on his arm. "Eric," she whispered. "I'm sorry it had to happen at a time like this. It may be that Sandra escaped, too. I know what she means to you. If we find her, later, I shan't stand in the way."

He chewed his lips. "That's all over, now. The first thing we must do is to check up on the food, water, and sanitation system. Just how long the machines will run without human supervision is questionable—not long, at any rate. The robots cannot do everything alone, either."

Her eyes were calm and clear, her voice a breath of cool air in the heat of his anguish. "Then let's do it the same way, Eric. Nothing is going to happen for awhile. Let's tackle the problem after we're refreshed." She moved to free herself from him; he had, automatically, slipped his arm around her waist, drawn her to him. "You—you can use the lab for your quarters. Good night, Eric."

He held her back. "Natalla."

"Let me go," she murmured.

"Natalla, wait. I didn't tell you all I saw. It was more than—the cloud." He fell silent, breathing rapidly.

"Well?" she said.

"I was reading some of the old books yesterday. Some of them centuries old. The people then, most of them, didn't live as well as we do but

they were very much like us in some other ways.

"They—well, sometimes a man would think he had fallen out of harmony with his mate. In this book, the man thought he'd found another woman more suitable to his psyche. He was about to obtain a release—divorce I think they used to call it—when she was injured in an accident. His mate, I mean. The medical experts did not think she could live.

"He realized then, when it seemed to be too late, that there could never be any other mate for him. They didn't have psychoadjusters in those days, so, if she died, he would be affected for many years. The only way emotional upsets could wear off was through the primitive process of letting time wear them down, little by little. It all ended well, however, because medical experts discovered that it was only her psyche that made the injury seem fatal; when she found that he still wanted her to be his mate, she recovered."

"Eric, what are you trying to tell me?"

"That I don't want to be released from you ever. Even if this had never happened, if what I saw out there was only my imagination.

"I know now that I was only deceiving myself when I sought release from you. Sandra? Well, I rather like her, but she could never take your place. I still wish to be your mate, Natalla."

Her eyes answered him, he thought.

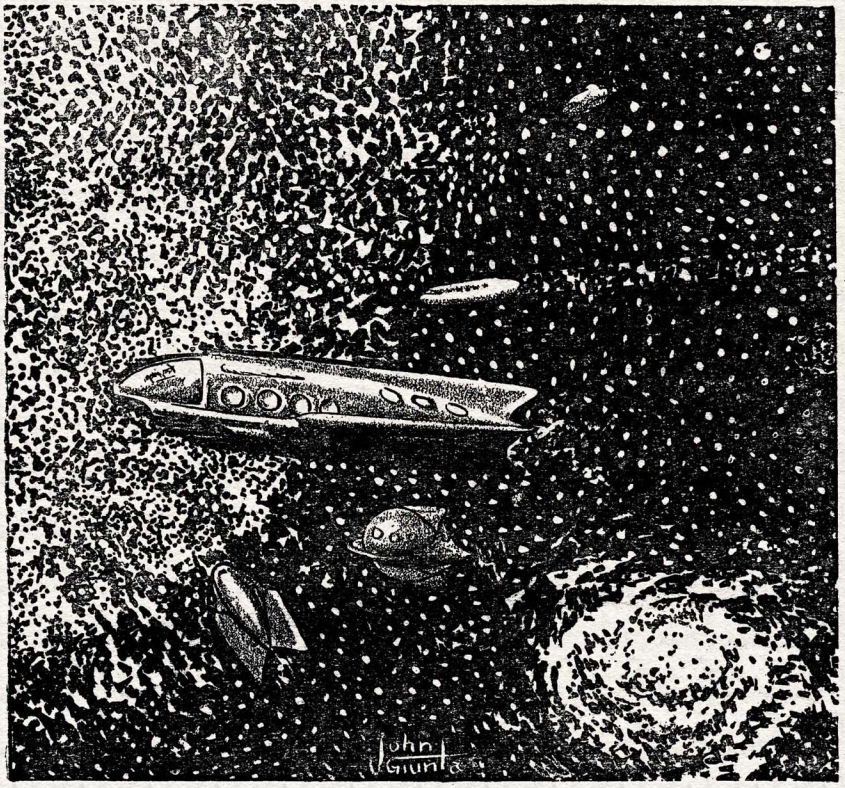
"You're tired, Eric. But perhaps you'd better not spend the night in the lab after all."

He reached down, picked her up in his arms. "In the old days," he said, "it was considered particularly fine form for a man to carry his mate to their sleeping quarters."

She smiled and buried her face against his shoulder. No need to tell him that she, too, had read the old books. Or that she'd rigged up a z-special screen outside that window, projected a carefully-made film on it. After all, *she* hadn't seen the green cloud. He'd held her back. And hadn't he mentioned something about it being his imagination.

She wouldn't be too harsh on him, of course, tomorrow morning when all was discovered to be well. And she was positive that he hadn't noticed her fingers slide over the button as she leaned against the table a moment ago, the button summoning a robot, pre-instructed to dismantle the apparatus.

24th Century or no 24th Century, men were still such dear fools.



AND RETURN

by EANDO BINDER

THE departure was strangely depressing. Both Dr. Arthur Templeton and young Henry Moore had looked forward eagerly to this moment. Now, with both their wives tearful, they felt oddly disturbed. Their previous enthusiasm dampened to a forced jocularity.

"Please don't go!" begged Mrs. Templeton suddenly of her husband. "I have the queerest feeling that I won't ever see you again!"

The words struck the group with chill, though undefined apprehension.

"What! Is the lady a spiritualist?" chided Dr. Templeton gently. "Now, dear," he went on seriously, "there's absolutely nothing to worry about."

"But you're risking your lives!" chimed in Mrs. Moore.

"Someone had to fly the first airplane," remarked Henry Moore. "And so it is with this new type of space engine. But our ship has proven itself on its trial trip to the moon. There's no danger."

"We'll be back inside of a month," promised Templeton, signalling the younger man with his eyes to break away.

They entered the long, sleek ship. The pneumatic seals clamped shut.

Inside the ship, sealed off from the world, the two men went to the pilot cabin at the front. Though nervous, Moore handled the controls skilfully and the ship rose with its front and rear underjets hissing steadily. The powerful thrust of atomic energy lifted the huge craft directly off the ground and catapulted it into the air.

Disaster, like a premonition, nearly struck them at the outset. Fifteen minutes after they had left ground, something huge and gleaming flashed by them so closely that they nearly collided.

"Great Scott!" exclaimed Moore weakly. "That meteor came pretty close to sending us on a different kind of journey!"

When they had reached the stratosphere ten miles above Earth, Moore added the thrust of the rear system of rockets. He built up a gradual speed that quickly took them out of Earth's atmosphere.

They gazed out upon open, star-strewn space, thrilling deeply. What new limits might they not reach with their super-powerful engine?

DR. ARTHUR TEMPLETON and Henry Moore had made a brilliant scientific team—Templeton, the keen theorist, and Moore, the skilful technician. Between the two of them, no frontier of science had been safe from their combined attack.

Their latest and most important result had been the development of an atomic-energy process which produced almost unlimited power. Instead of announcing it, they had decided to be the first to apply it to long-range interplanetary travel. Pluto had never been reached by ordinary space ships.

After the successful trial flight to the Moon, they had immediately prepared for the extended voyage to Pluto. Food, water and air, and other supplies had been loaded in, enough for a year, which was the margin of safety Dr. Templeton had insisted upon. He had also insisted upon taking along a ton of their neutronized fuel whose disintegration furnished them with power. Moore had thought it rather inane to take along enough fuel to propel them to the next island universe, and enough supplies to last for ten such trips as they were making, but made no objections. They had departed in all secrecy, from their wall enclosed hangar five miles out of the town they lived in.

THE ship sped into the void. Earth became a huge green balloon that was collapsing as though it had been pricked. Up ahead, red Mars grew brighter as Moore set a course past it. He applied accelerations he had not dared use on the short trip to the Moon. Mars became a disk in 24 hours. They passed it, going on, riding safely above the asteroid belt of midget worlds. These held no interest for the two travellers, but the beautiful picture of mighty, belted Jupiter enlarging in the void held them spellbound. They passed close enough to view the Great Red Spot, which was now somewhat faded, and the eleven moons.

Then they plunged beyond, where few ships had dared go.

Here, with an open stretch of three billion miles before him, Moore built up a speed he estimated was 60,000 miles a second. Pluto was reached in a day's time. It was a disappointing spectacle, but gave them a singular feeling to see the sun reduced to almost star-like proportions. It was less than a week since they had left Earth. They were proud of their achievement, having bridged the spatial gulf to the limits of the Solar System for the first time.

"It's been grand!" sighed Moore, realizing that the first thrill was gone and would never be captured again. "As for our engine, it's come up to all our expectations. In fact, I haven't

really opened it up yet. With atomic-energy, it seems evident that only the speed of light is a limit. Well, I guess there's nothing left but to return." He reached for the controls.

"Wait!"

The one word from Dr. Templeton was sharp. "While you're out here, away from the sun's glare, I want you to measure the speed of starlight. That's why I had you bring along the Michelson revolving mirror."

Moore stared at the strangely earnest scientist. All during the trip he had been preoccupied, deep in some maze of thought that Moore had no inkling of.

Moore smiled. "You have a sense of humor, doctor. We'll go back to Earth and announce our new engine and the trip to Pluto, two great new accomplishments. And then, to top it off, we'll announce that we've measured the speed of light near Pluto, when it's only been done on Earth several dozen times!"

Dr. Templeton did not smile.

Moore was suddenly struck by a thought. "For God's sake, man:" he exploded. "You don't expect it to be anything but 186,300 miles per second, as computed by Michelson and others?"

"This is starlight!" Templeton returned cryptically.

"What difference does that make? Light is light."

"I don't know. But measure it and see. Try Sirius' light."

Moore stared for a moment, then shrugged. With his usual skill, he set up the necessary mirrors to reflect a single beam of light back and forth several hundred times. The revolving mirror at the end of the circuit would be rotated by an electric motor.

"You know," said Moore half grumblingly after many hours of delicate adjustments, "this is a senseless experiment. If the result is anything but 186,300, do you realize that the entire structure of astro-physical theory would be undermined, shattered?"

"Do *you* realize it!' asked Templeton seriously.

Moore shook his head sadly and started the experiment. With the ship held stationary in space by its gyroscopes, he turned off the cabin lights and fixed his first mirror to catch the beams of Sirius. Then he started the revolving mirror. A low whine filled the cabin. It was an eerie scene with only the dim beams of Sirius lighting the two men's tense faces.

When the revolving mirror had reached the speed at which it should twist a light beam enough to produce the usual interference bands of light and dark, Moore peered into the eyepiece. There was no interference!

"Lord!" he breathed, shaken.

"Speed up your mirror!" suggested Templeton.

Moore gradually applied velocity till the mirror was rotating at twice the required rate. He looked in the eyepiece again. Still no interference bands! He shut the machine off, staggered to his feet and turned on the cabin lights.

"Can't rotate the mirror any faster or it would fly apart," he muttered. He had a punch-drunk expression. "What does it mean?" he whispered hoarsely. "It can't be true! Light out here can't travel at twice and more the accepted rate, as measured on Earth. What does it mean, doctor!"

A look of triumph shone from the latter's face. But it was curiously intermixed with a vague sadness. "It means," Templeton said slowly, "that one universe has been destroyed and another must take its place!"

He looked out of the port as if he could see out there the accepted universe crumbling to ruin. Then he turned back to Moore.

"Our entire conception of the universe outside the Solar System is based on visual interpretation. Science had to use light as the foot-rule with which to measure the cosmos. The accepted theory of the astro-universe today, on Earth, is based primarily on the speed of light. Einstein speaks of

the uniform speed of light, an absolute value that enters each of his equations."

Templeton waved at the mirror apparatus.

"But, as we've seen, the absolute velocity of light is a myth! Every measurement on Earth was made with an earthly source of light. No one thought of taking a beam of *star* light and measuring its velocity, after it had come across abysms of space."

"It would be next to impossible on Earth, because of diffusion of the weak starbeam," Moore murmured. "That's why it was never tried. But this is so fantastic! I can hardly believe it yet! Light from Sirius with a velocity at least twice as great as we thought on Earth!" *

"What of the stars, then, whose beams have traversed thousands of times that distance?" Moore continued.

"Exactly, what of them?" nodded the scientist. "Simply and briefly, the light from many of the further stars is arriving here in the Solar System at almost infinite velocity!"

Young Henry Moore was making strange, moaning sounds, as if he had been an accomplice in some hideous crime. The full meaning of this discovery beat into his brain.

"We've just smashed a universe!" he cried. "Annihilated it! Every measurement of the cosmos made on Earth is wrong, wrong! No allowance for the acceleration of light has ever been made. Therefore, our entire scale of extra-terrestrial values is a deception —an illusion. All the planets are nearer. The sun is nearer. The Solar System has shrunk! Not a great deal —just a few thousand miles in each case—but that shrinkage, applied to the entire cosmos—"

He stopped, appalled. He held his hands over his head as though he expected any moment to feel the universe crash about his ears.

Calm because this had not come as a complete revelation to him, Templeton continued the thought.

"Yes, mankind has put too much trust in its eyes, which cannot see the actual universe any more than they can see the subatoms. As you say, the Solar System automatically shrinks a little. As a result, all methods of measuring the distances of stars are wrong. Therefore, *all* the universe shrinks."

"How much?" asked Moore. "Have you made any calculations?"

For answer, the scientist strode to a built-in file and pulled out a single sheet of paper. He smiled a bit self-consciously.

"I had the temerity to believe my suspicions would be confirmed. Light accelerates, by my theory, not less than one-half percent per minute. This result mounts up staggeringly when we go beyond the confines of the System."

He cleared his throat nervously.

"According to this scale, Alpha-Centauri is a light-month away—only 125 times further than Pluto. Sirius is less than 800 billion miles away, instead of 60 trillion. The farther out we go, the greater the former values fall off. For instance, a star thought to be a hundred light-years away is only one light-year!"

Moore found himself holding his breath, for no reason he could define, as he listened. It was just something breathtaking, to see a man taking the universe and squeezing it together like a sponge.

Templeton went on. "Our entire Milky Way Galaxy deflates, by the new scale, from a greater diameter of 300,000 light-years to only 30 light-years. The nearest island universe, Messier 33, moves in from a remote

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*(There was a clue all the time, to earthly astronomers. Roemer, the first man to measure the light-speed, in 1676, got a result of 192,000 miles a second. He had found the eclipses of Jupiter's moons some fifteen minutes late, when observed from opposite sides of Earth's orbit, a distance of 186 million miles. Why was his result higher? Because, by Templeton's theory, the light that left Jupiter kept increasing its velocity, so that by the time it reached Earth, it was 6000 miles a second faster!)

770,000 to a comparatively close 70 light-years. And the farthest we know, Bootes, comes all the way from 221 million to a mere 200 light-years!"

Moore was standing at the port, gazing out at the universe of stars that had suddenly contracted. For a moment he almost imagined he could see those great suns and nebulae whisking Earthward at stupendous velocities. He sighed.

"In a way, professor," he said slowly, "it's almost a shame. That grand universe of Einstein, Jeans, Eddington and the other cosmologists has shriveled down to a miserable pea-size." He laughed hollowly. "We came out here to explore the void, and we go back pulling the skies down with us! Somehow, I can't feel any glory in what we've done."

Moore shrugged away his queer mood and said in more normal tones, "Well, I guess we may as well call it a day and go back."

Templeton's eyes suddenly gleamed. "I had planned to go on!" he said quietly.

"What do you mean?" blurted Moore, aghast. "Go on—where?"

"Out into the universe!"

Templeton faced his young friend squarely. "That was why I insisted on having the ship stocked with a year's supply of necessities, and a ton of fuel. Its disintegration will give us enough power to go anywhere in the universe!* And since the universe has just shrunk to dimensions that are quite ordinary—"

"But our wives!" interrupted Moore. "We promised—"

Templeton's voice was thoughtful, almost mechanical. "Queer, but I have a feeling we shouldn't—or *can't*—go back now without—" He shrugged. "We can still be back in a reasonable time. With the whole macrocosmos before us, why not go on?"

Moore agreed. Why he didn't know. For one thing, he wanted to test the new engine. They could at least visit the nearest star without much risk. But perhaps it was that mysterious thing called fate that lured them on.

IT was like a dream, as the ship sped on through the void. The sun faded behind them until it became merely a star. True to the scientist's prediction, there was no limiting factor to their velocity. No increase of their mass and decrease in their fuel's ability to attain higher rates, as demanded by Einstein's formula. They began to realize pointedly that Earth's entire astronomical science had been a house of cards.

Moore pulled over the acceleration control till inertia pressed them heavily into the backs of their cushioned seats. Within a few hours he made a triangular calculation of the sun, Sirius and Alpha-Centauri and found they were already going three times as fast as light—by the old measurement. And still light accelerated faster, for they were able to see the stars back of them.

It was like a dream.

Moore sometimes sat for hours, gazing out at the myriad suns, slowly shaking his head. It was not easy to accept these things against all the teachings of Earth science. Three days later, by their chronometer, Moore applied deceleration.

Proxima-Centauri, for which they were heading, resolved itself out of the void and grew steadily brighter. Before they arrived, they could distinguish the triple components of the Centaurian system—two mighty yellow suns and one extremely small, white dwarf, revolving majestically around a common center of gravity. The latter, Proxima-Centauri, was at present, in its orbit, the nearest star to the Solar System.

Moore slowed the ship and took up a course through the system. With

*(Einstein's famous formula, stating that nothing could go faster than light, meant nothing now. It applied only to a *uniform* light-speed. His postulate that it would take infinite energy to move an infinite mass at the speed of light was a myth. In reality, according to Templeton's figures, there was no limit to speed anywhere in the cosmos.)

eager eyes the two interstellar travellers gazed at the triple-star group, hardly believing they were really there. They had left Pluto only a week before!

Moore turned a stunned face.

"Now I know how Columbus felt!" he whispered solemnly. "We are the first humans to see a star other than our own at close quarters—a feat considered impossible heretofore. We've discovered a new world!"

Templeton smiled. "You remember Columbus was told *his* journey was impossible—that he would fall off the edge of the world. It seems that humankind constantly forms unreal barriers for itself against new achievment. And now that we have come this far, what should prevent us from going on—seeing more of the universe?"

Moore nodded, now fired by an enthusiasm as great as that which gleamed in Dr. Templeton's eyes. If there had been any doubt in Moore's mind that perhaps the scientist had been wrong after all, it had been erased entirely. One could not have reached Alpha-Centauri in a week by the old theory! A sort of calmness came over them now. On they would go, answering the challenge of the universe. Even their wives were forgotten.

"Which direction shall we take?" asked Moore, faintly amused at the thought that here all roads did not lead to Rome, or to Earth at all.

"Toward the constellation of Sagittarius," Templeton's voice rang as he went on: "To the hub of the Milky Way Galaxy—fifty thousand light-years by the old measurement, but less than one five-thousandth of that by mine!"

"It's still a long way!" muttered Moore, driving the ship away from the triple sun system of Centauri.

ON and on they went, attaining speeds faster than before. The stars now began a procession past them, as though they were telephone posts alongside a railroad track. As their velocity mounted to incredible figures, Moore became frightened.

"Suppose we were unfortunate enough to pass close to another star," he gasped, "or collide with it! With the dimension so greatly reduced, space is not so empty as it was!"

Templeton chuckled. "By the old theory, space was like a box 1000 miles each way, in which six wasps—representing suns—buzzed about.* By the new theory, space is like a box 10 miles in size, with those same six wasps in it. Do you think there might be enough room left yet?"

Moore grinned. His imagination had gotten the better of him for a moment. Space had been inconceivably empty before. Now, though it had been squeezed together thousands of times, it was still inconceivably empty.

With his fears over, and the engine functioning smoothly without constant attention, Moore began spending more time at the ports, viewing this strange new universe. His eyes viewed at close hand sights that before had been possible only through Earth's giant telescopes—stars and nebulae of all types.**

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*Note—As determined by Sir James Jeans in his book "Through Space and Time".

**(Excerpt from Templeton's log. "We saw a great Cepheid star that was diamond-bright up ahead, but when it receded to the rear, had faded to a lusterless yellow, obeying some mysterious pulse-beat of its enigmatic interior. A ring nebula, one of the so-named 'planetary' ones, was a magnificent sight later, its tiny central sun surrounded by a glorious halo of shimmering, greenish gossamer. Almost every type of star has been appearing in the forward sectors of the firmament and racing to the rear of us. Red giants whose comparatively cool surface was no hotter than an electric furnace, but whose outer circumference would have engulfed the Solar System way out to Mars. Medium stars, blue and hot, whose radiation, from Earth's distance, would have withered all life in a short minute. Smaller stars, yellow and delicately haloed with pink streamers, comparable to Sol. Red dwarfs, no larger than Jupiter, but extremely dense. And finally, white dwarfs, not much larger than Earth itself, with a surface temperature of 50,000 degrees, and so dense that one thimbleful by man's measurement would weigh a ton.")

Many of the passing suns were not alone. Binaries, triple systems like Centauri, and multiple systems like swarming bees paraded past the ports.

Then, suddenly, the heavens burst out in a pyrotechnic glory that took their breaths away. Hundreds and thousands of stars, of all colors and types, popped out of the black void ahead and surrounded the speeding space ship. They viewed a panoply of the firmament impossible for Earth eyes to see—a hundred thousand stars visible to the naked eye at once.

"We've just run into a globular cluster," declared Templeton. "Nothing to worry about."*

They had a real fright, however, after penetrating beyond the globular cluster, when a dim little star which seemed directly in front of their ship suddenly began to expand and grow intolerably bright and hot. Its rays speared into the cabin and raised the temperature until the two men perspired.

Moore whirled, ashen pale. "We're going to hit a star! I can't stop the ship without killing ourselves with deceleration. We're doomed—"

"That's just a nova," returned Templeton calmly. "A star that has suddenly exploded into tenuous gases. It is almost the same illusion as if we were careening into a star. But watch, it will pass to one side."

The brightly flaming nova grew till it was moon-sized, then swung majestically to the side and faded to the rear. The cabin quickly regained its normal temperature.

"On earth," said the scientist, "some astronomer will see this phenomenon and report it—but not for some time to come!"

As a contrast to the globular cluster they had sped through, the firmament suddenly darkened to their eyes. Stars dimmed, winked out. Soon there was none visible. A horrible, intense blackness smothered the ship. It seemed to be going through a sea of black ink. Moore turned querulously to his companion, hiding his perturbation at this strange, oppressive phenomenon.

"We're passing through a portion of space in which the weak starlight is completely absorbed. The well-known Coalsack of the Southern Cross Constellation is an example." He had pressed his face against the port, looking out. "I think, from what I see, that it is caused by fine cosmic dust. I sense the particles streaming by."

Soon they had passed out of this utter night and once again the friendly stars peeped out of the curtain of space. Their velocity had now grown to inconceivable heights. The stars began streaking by like darting lightning-bugs. The two observers seemed to be in a long, wide tunnel composed of thousands of scintillating stars. Directly ahead, the configurations of the stars changed with bewildering rapidity.

"Almost a million times faster than light now!" stated Dr. Templeton, after a theoretical calculation. Moore's triangulation methods could no longer be used because of the speed of passing stars.

"I—I think we'd better stop and go back," said Moore. "If we go much further, we'll never be able to find our sun again." He looked out of the back port at the strange stars, wondering how many countless suns were between them and their home-star.

"We can't lose our way as long as we keep going in a straight line," declared Templeton. "Yes," he added, "There *is* such a thing as a straight line after all. Euclid was right at the start. The necessity for dealing with 'curved space' came only with the

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*(There are many such globular clusters within the Milky Way Galaxy, each with fifty to a hundred thousand stars within a space of forty light-years. By Templeton's new measure, within one light-year of each other. But he was right, that it was nothing to worry about. These apparently crowded suns were still far more widely spaced than the molecules in Earth's best vacuum! The ship was like a grain of sand speeding through a hollow globe the size of Earth, filled with a hundred thousand evenly spaced peas.)

wrong conceptions of light's speed and gigantic dimensions."

"But we can't go on forever," objected Moore. "We'll eventually run out of water and air, if not fuel."

"Look at the chronometer, and the automatic daily chart," said Templeton undisturbed. "Two weeks crossing the Solar System. One week, with greater speed, to reach Centauri. Four weeks since leaving the latter—total, seven weeks since leaving Earth. Allowing seven weeks for return, we have 38 weeks left of our one year of supplies. That means 19 weeks for travel beyond this point. With half of that for deceleration, we have over nine weeks in which we can accelerate —*outward!*

IT was not long after that the stars began to thin out noticeably. They no longer appeared in such countless numbers to the front. Thinner and thinner the heavenly ranks became until only a few stragglers darted by their ports. But when they looked out of the rear ports, the void seemed to be filling with densely packed stars. Portions of space were a continuous milky white.

"We have reached, and passed, the hub of the Milky Way Galaxy," said Templeton. "We're now plunging into the really empty gulfs of space—the regions between separate island universes. The nearest outer galaxy is fifteen times the distance we've so far covered."

A strange sight unfolded before their eyes as they looked back. The great Milky Way Galaxy, which contained their sun and all the constellations they knew, came within their view as an immense swarm of pinpoints. Slowly it began contracting.

As the hours, and then days, passed while they watched, it formed a dinnerplate. As their perspective became more and more remote, spiral arms grew at the outer edges. It began to look like a Fourth-of-July pinwheel caught motionless in the middle of its spin. When it had shrunk to no more than moon-size, it looked exactly like the photographs of spiral nebulae taken by telescopes on Earth.

And that, Moore realized, was exactly what it was. To some being in the Andromeda Nebula, the Milky Way Galaxy was simply a spiral nebula, too far away for its separate suns to be distinguished unless the Andromedans had powerful telescopes.

It was an awe-inspiring sight to see a vast universe of stars dwindling into appalling distance. To see the sun from which you came lost within a glowing mass of whitish smoke, composed of 200 billion other suns. And perhaps from that moment, Moore gave up hope of ever seeing Earth again. He did not say anything to Templeton, since it was already too late, but within himself he adopted a fatalistic attitude.

They had been so absorbed in the sight that they had noticed the passage of time only when the inescapable pangs of hunger and thirst forced them to supply their bodily needs at regular intervals. When they finally looked at the chronometer chart, they saw that they had been retreating from their galaxy for two months!

"IS it possible," asked Moore, "that the time passing for us is actual Earth-time? Perhaps it has only seemed like days and months, but is in reality centuries and ages! Maybe Earth is now in some far future time, as far as we're concerned!"

"No, Henry," contradicted the scientist with assurance. "It is actual Earth time. So don't worry that upon our return, we'll find our wives lying in some forgotten cemetery. You'll find her your wife just as you left her, exactly as much older as you are.*

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*(Templeton is again right. Einstein's relativity, a part of his grand illusory scheme to account for a uniform light-speed, had also passed by the board. Time passing for them was time passing for Earth. The universe, by Templeton's theory, was a much simpler place than Earth's philosopher-scientists had pictured it. There were

But Moore continued to have a queer inner conviction that he would never again see the Earth he knew. Strangely, he was both right and wrong.

A WEEK later, one half of their time for outward acceleration was over, and Moore applied deceleration equalling their former rate outward.

In the next month, their galaxy reduced in size steadily until it was hardly more than a star. Space seemed to darken now, if that were possible, and stars surrounded them in the heavens. But they weren't stars. Each was an island universe containing billions of stars. On they sped, passing island universes now as they formerly had stars. They too formed a tube through which they were hurtling at velocities exceeded only by impalpable light itself. Templeton's new, accelerating light.

"This is now the superuniverse itself which we are traversing," said Dr. Templeton in exultant tones. "A sort of galaxy of island universes. Earth astronomers have estimated that there are at least 500 trillion of these separate galaxies!"

"And what will we find when we emerge from this supergalaxy? Another macrogalaxy composed of billions of billion-grouped superuniverses?" asked Moore with a fine sarcasm that camouflaged his reeling mind.

"Perhaps," returned the scientist. "Perhaps we won't get that far."

They waited to see. Finally the island universes thinned out, faded to the rear, forming a football of nebulosity that rapidly dwindled. No new universes appeared ahead. Space seemed impossibly darker there, as though it were truly empty.

When at last the star-like galaxy of island-universes winked out behind them, lost in irretrievable distances, Moore became panic-stricken. The void stretched ahead, seemingly forever and forever, into an infinity of infinities. No single light beam came from any direction. When they turned out the lights in the cabin, to sleep, the terrible *blankness* that enveloped them made Moore moan aloud in mortal terror. Even the calm, impassionate Dr. Templeton gasped.

They slept with the lights on. But Moore could not sleep. His staring eyes gazed into the haunting nothingness about them. His nerves hammered until his body trembled in every cell. He envied the phlegmatic scientist.

"Good Lord!" groaned Moore when he thought he could stand it no longer. "We'll never get back to our world, or even to our galaxy. God alone knows how far we've come or how fast we're moving. We won't even know when our forward speed has stopped nor when we're going back!"

"We can tell by the chronometer," answered Templeton. "When it lacks a week of six months that we've been gone from Earth, the ship will have stopped and will then be automatically retreating, tail-first."

It seemed like an eternity to Moore. The numbers of the steadily clicking chronometer dial changed with exasperating slowness. But time did pass. Moore counted it backwards, toward the moment when they would be moving back. Two weeks left—one week—one day—one hour—one—

MOORE, watching the chronometer dial, saw a strange thing happen. The dial suddenly unaccountably stopped, in mid tick! There it stuck.

The rest that happened was madness.

At the same time that the chronometer stopped, the steady thunder of their nose-rockets ceased—instantaneously. The long streamers of ejected particles in front froze into positions of static beauty, like a photograph of the sun's corona. All instruments

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straight lines, and absolute seconds, and ordered dimensions. Mankind had made something complex out of something as unalterable and simple as two plus two.)

within the ship halted in mid-stroke. It was very much like all motion had jammed up against an unbreakable barrier.

But there was no shock!

The two men found their bodies locked in position, also. Dr. Templeton, who had been eating at the moment, remained with a spoon poised halfway between a paper cup and his lips, mouth open, head thrown back. He had been in the act of crossing his legs, and now the leg he had brought up from the floor stuck comically out at an angle, as though he had been turned into stone.

Moore would have laughed except that he could not laugh. He was a frozen statue, sitting with spine twisted in an awkward slumped position before the chronometer. He had been in the act of chewing his nails in impatience and remained thus with a fingernail between his teeth.

Somehow, all the ordinary laws of the universe were in abeyance, whether of motion, time, or space. Even their human emotions seemed caught in this preposterous state of negativity. Moore knew he should be astounded, even frightened, but instead his mind simply accepted the startling event as a matter of course.

The answer to it all was supremely simple, and somehow he knew it without being able to objectively think of it.

THEY were caught in a Timeless Shore that their ship had reached just before it had decelerated to a full stop. The moment it had reached this point, motion ceased. This strange, incredible zone that man's mind could not fathom lay around the universe like a cocoon. What it actually was the human mind could not conceive. But its effects—

Time, in man's sense, had no meaning in this zone. It had a time of its own, measured in eternities!

Their mind's eye, penetrated by some ultra-radiation that mirrored the macrouniverse, showed them scenes their mortal eyes could never have witnessed.

Clearly, they saw their entire universe, composed of trillions of island galaxies. Together, they formed a swarm whose individual sums ran into figures greater than the sum total of atoms known to the human mind.

This was the full view of things that their new eyes saw from the strange, timeless shore on which they were beached. And there was the entire universe going through an incredibly accelerated life-cycle. They watched it, realizing that ordinary time was passing by in eternities at a click.

They saw the island-universe rushing outward from a common center. In this, at least, Earth's cosmogonists had been right. The universe expanded, as Jeans and Eddington had postulated. The island-universe did not expand within themselves, but simply separated from one another, flung outward, like bits of debris from an earlier explosion.

Gradually, they stopped flying outward. They hovered for a while and then slowly came together. Faster and faster they went. They continued coming together, and finally all melted together into one supernal, gigantic mass of matter. Into one huge sun almost as large in diameter as the former Milky Way Galaxy had been.

The separate galaxies and stars were no more. They had dissolved into this superatom. This atom contracted till it was but a pin-point, as small as a former star, matter compressed solidly together so that electrons, protons and neutrons touched. Then it suddenly exploded. Trillions of bits of debris were flung outward from a common center. Each bit was a nebulous, hot cloud that condensed and became a spiral nebula. Within each bit the nebulous matter condensed to suns, forming an island-universe.

The outflung galaxies still separated from one another, flung outward from the earlier explosion. Gradually they

stopped flying outward. They hovered for a while and then slowly came together. Faster and faster they went. They continued coming together, and finally all melted together into one supernal, gigantic mass of matter. The separate galaxies and stars were no more. They had dissolved into this superatom. This atom contracted till it was but a pin-point, then suddenly exploded.

The eternal cycle—world without end.

Their minds curiously in a timeless rapport, Templeton and Moore told each other what they were seeing. The birth-and-death cycle of their entire universe, occurring over and over again, like a repeated movie. Each time it formed a universe essentially like the previous ones, but with a totally new structure. Each new crop of island universes, though similar, were immeasureably different from previous galaxies. Thus the Milky Way Galaxy's particular structure was no longer in existence, in the succeeding explosions of the superatom that contained all matter.

The entire universe they knew was lost in an ageless eternity!*

As they watched this rapid life-cycle occur again and again, they knew they should be appalled. Every time the superatom formed and exploded and formed again, an eternity of eternities had passed, by man's scale. The Earth they once knew was already lost in ageless time, several hundred universe-deaths past. But they did not feel appalled. They could feel no emotion. They could only think dry, passionless thoughts. They were like gods, living some higher life, and watching the petty universes of ordinary beings living and dying in the space of a heartbeat.

How long, in man's scale, they watched, they did not know—could not know, for there was no such number. The superatom, formed and exploded countless trillions of times, till that became a number beyond expression.

They were aware gradually that others were around them, caught in this magic zone. Some were beings from their own universe, but from different worlds of different galaxies. Others were beings from other universes entirely, which had existed during a later or earlier beat of the atom-pulse. Hundreds, thousands—perhaps again a number beyond calculation—there were who had also found the secret of interstellar travel and had unwittingly penetrated beyond *their* known universe. They were all caught in this timeless sea, like flies on flypaper.

And they were all waiting.

Templeton and Moore formed mental, telepathic rapport with many of the other beings, learning amazing things about other lives and other civilizations. About universes that had not even existed when theirs had.

But it was worth a sort of mental joy that they contacted Ulg, who had lived on a world that revolved around Sirius, of their own particular universe. It did not matter that Ulg had actually had life a million years before Templeton and Moore had been born. He was the closest one to them, in all these millions of lost beings.

For ageless hours they talked with Ulg, and learned that his civilization of intelligent vapor-b e i n g s was strangely parallel to theirs. They too had had a long evolutionary struggle upward from a primal gas-cell that had existed among the hot heavy vapors of their torrid planet.

It was a mental shock to the two

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*(Some Earth minds, strangely enough, had dimly theorized along this line. It was the "accordion-universe" theory of Tolman and Hubble of Mt. Wilson, those two who had first catalogued the recession of the nebulae from a common center. Their basic postulate had been that the final heat-death of the super-universe would eventually cause a collapse of all the galaxies into a reverse state. But one man on Earth had come even closer to the truth—the philosopher-priest LeMaitre and his endless, pulsating superatom universe. For he had pictured almost exactly the supercyle of successive entropies and rebirths that Templeton and Moore now witnessed.)

Earthmen to hear that the gaseous Sirians had landed on Earth a million years before man's era. They had tried to colonize it for a time, living in fuming volcanoes. But eventually Earth had proven too thin-aired and cold, and they had left.

Ulg went on to explain that only he of his race, so far as he knew, had ever penetrated into the outer regions of space. He, too, had been urged on by his own insatiable curiosity and had wanted to circumnavigate the entire universe. Finally he had run into this unsuspected timeless zone.

It was Ulg who cleared up their misty doubts about what they were all waiting for.

"We will eventually get back to our own universe!" Ulg declared with his mental voice.

"But how?" Templeton and Moore asked, "How can it be! Our universe—yours and ours—has long vanished. There have been a trillion trillion universes since ours—all different!"

"And there will be trillions and trillions more," said Ulg calmly. "But some day, there will be ours—again!"

"What? Our very own universe, just as we left it?"

"Yes," Ulg said. "There are countless atoms in the superatom there, but eternity is a long time. And in eternity, any combination of atoms that once existed, can exist again! We have but to wait!"

"How will we know?"

"When our particular universe forms again," replied the Siriun, "our *minds* will know. Do not ask me why. I do not know that. But it will be so. Look—there goes Kkla, whom I recently spoke to. *His* universe just formed!"

Templeton and Moore, with their strange supersight, saw a tiny space ship, of queer purple metal, plunge past their position and disappear into the realm of the superatom. Into the ordinary universe where time, motion and all other normal laws were in force. One of the lost things here in the timeless sea had returned to his home universe, or one essentially like it. But it was appalling to think that already he had reached home, lived his full life, died, and his race and world and sun and universe with him—for the superatom had already exploded countless more times!

The two Earthmen could not really understand it. They could only faintly comprehend the fringe of it, and wait.

TIMELESS ages passed. They talked with Ulg and came to know his world and time almost as well as their own. And yet with all the new and incredible things they learned, their minds did not seem filled. It was all such an infinitesimally small part of the cosmic plan that it was a mere tithe of the complete scale of things. Their minds seemed to have a limitless capacity to absorb things, but there were further limitless things to be absorbed. Never at any time could they feel even slightly that they had comprehended the All.

Timeless ages had paraded past while the two Earthmen communed with these thoughts. Their superatom had exploded and contracted again for an infinite eternity. With Ulg, they were waiting, waiting.

Then, suddenly, their minds seemed stabbed with the one word—"now!" It was as if an All-being had warned them. One word came also from Ulg—"Goodbye!"—and then his queer, tubular ship flashed past them. The next instant their own ship was hanging in the normal void, away from the timeless shore, and they knew that soon their universe would loom out of the black abyss.

MOORE saw the chronometer dial finish the half-tick it had ended on. Coincidentally, the frozen streamers of ejected flames at the nose writhed into life and completed their fiery course. The ship's instruments began where they had left off. The automatic calendar that had not altered one tiniest fraction of a second, began steadily clicking and whirring now.

Dr. Templeton finished bringing his spoon to his mouth and swallowed the protein-gelatin. His upswinging leg completed its motion, crossing over on the other leg. Moore found himself chewing on his nails as impatiently as before they had struck the timeless shore.

There was one change they sensed, though their instruments could not show it yet. Their forward velocity had now reached the final inch and they were streaking backward at a rapidly increasing speed, away from the timeless zone and toward home.

"Was it all a dream?" asked Moore dazedly.

"No," returned Templeton, "because the mind of man could not dream a dream like that. It's true, Moore. We're back in what is probably precisely the same universe we left. Perhaps an atom or two is out of place, but otherwise it's been put together quite the same, like a child can erect the same house again and again with his blocks. Somehow, I *know* that without a particle of doubt."

"And Ulg, the being from Sirius, with whom we talked just a minute—or an eternity—ago, has already been home, and dead and buried for a million years! But, Dr. Templeton, what of the atoms of our bodies? *They* haven't been formed out of *this* universe!"

The scientist became very thoughtful over this. It, and certain related thoughts were uppermost in his mind during the long trip back home.

It was not difficult to find their way back, for they had essentially pursued a straight course all the time. At their terrific velocities, this path within the random course of the island universes had not deviated more than a few million miles. Nor had the galaxies, by Templeton's new measurements, shifted position by more than a few billions of miles—a small margin of error in wide space.

The universe became a glowing diamond in the ultrablack void, grew swiftly, and scattered into the separate island universes, to their vision. Once surrounded by these, Dr. Templeton picked out the Milky Way Galaxy with ease. They found their ship aimed a little off-center, more than he had calculated, which again made the scientist thoughtful.

In due time their galaxy expanded into a glowing ball, became a spiraled dinner-plate, and finally changed to gossamer clouds that filled the heavens. The delicate clouds faded and became pin-pricks of light. These brightened. They were the familiar suns.

Moore decelerated steadily as they entered the hub of the Milky Way Galaxy and shot homeward. The procession of celestial phenomena again titillated their Earth-born eyes. Winking Cepheids, angry-red Titan suns, ring-nebulae, magnificent clusters, ominously black coalsack nebulae, bursting novae, and the complete category of diversified stars.

When Alpha-Centauri enlarged in the heavens, it seemed like their own back yard. They shot past it and watched eagerly as their own yellow sun expanded out of the other stars. Pluto looked like an old friend, and the other planets like long-lost brothers.

Moore hummed the bars of "Home, Sweet Home" with more fervor than he had ever before had occasion to use.

Earth resolved itself from the firmament, as green and beautiful as ever, and Moore drove the ship home with almost reckless haste. Just as he was lowering away for a plunge into the atmosphere, something swept past them so closely that they almost collided with it.

"W-what was that?" gasped Moore. "I'd swear it was another space ship, just like ours!"

Templeton was again thoughtful, making no answer. Moore forgot about the event in the eagerness of landing in the enclosure around their secret hangar. When they stepped from the ship, their wives met them

at the lock, with surprise written on their faces.

"You've decided not to go after all!" cried Mrs. Templeton joyfully. "Oh, I'm so happy!"

She hugged her husband while he murmured unintelligibly. She went on. "As I saw your ship disappear in the sky, fifteen minutes ago, I felt that I'd never see you again—remember I told you I had that strange feeling? And you called me a spiritualist. Of course I was silly. Here you are, safe and sound. I'm glad you used your better judgment. Let someone else do that dangerous flying to the outer planets."

Templeton looked at the bewildered Moore, whose wife was saying about the same thing, and signalled him with his eyes not to speak on the subject.

"You two look a little worn and pale, though," commented Mrs. Moore. "As though you *had* been gone a month or more! Did something happen while you were up there for those fifteen minutes?"

"Why—you see—a meteor nearly struck us," said Dr. Templeton.

The two wives instantly became solicitous of their husbands, not noticing the peculiar fact that the ship, too, looked worn and used.

LATE that night, the two men got together, alone.

"Good God, Dr.!" gulped Moore. "What is it all about? My wife insists we left only fifteen minutes before!"

Templeton's voice was low, brooding. "The atoms of these bodies of ours, missing from this universe, slightly changed everything for us. Particularly the time scale—by a full year! That was *us* leaving—that other space ship we passed that seemed to be a meteor. And that was *us* coming back—the 'meteor' we nearly hit when leaving a year ago. A year—or an endless eternity! We must never let their —our—wives know that most of our fuel and supplies are gone from this ship. Do you hear, Moore? We must never let them know—*what we know!*"

Moore nodded, with a faint, worried smile on his face. He was wondering if those other two before them had nearly collided with a "meteor." And whether those other recent two would come back and also have to keep a secret from their wives.

The eternal cycle—world without end.

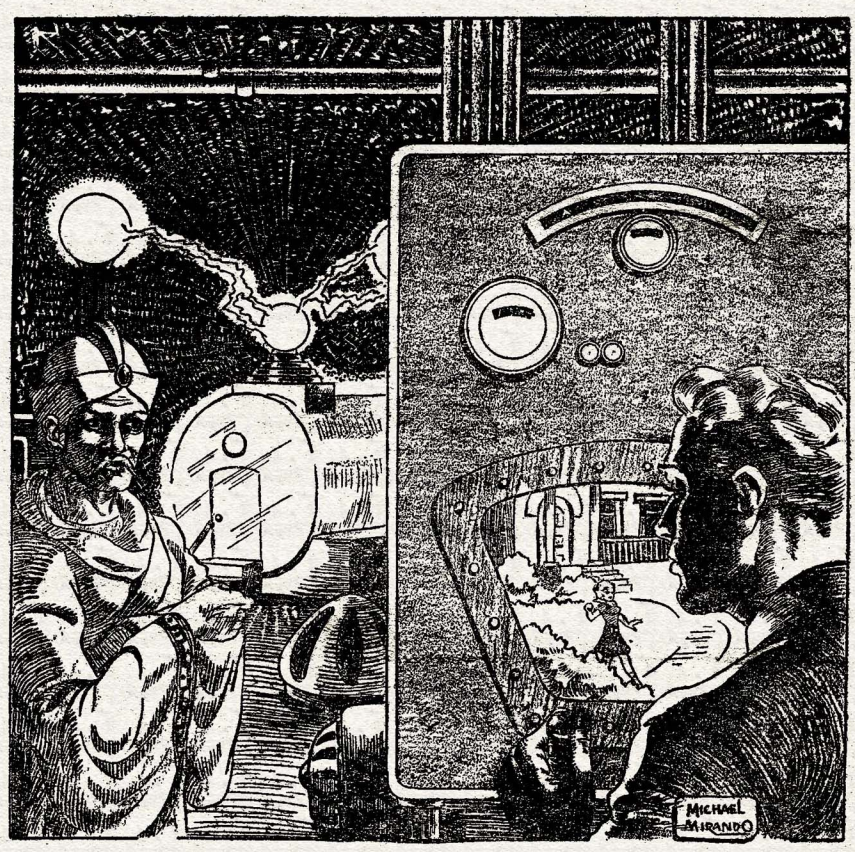
SCIENCE AND ROCKET MOTORS

♦ ♦ ♦

AGAIN, as many many times in the past few years, science begins to confirm the projected theories of science-fiction. Dr. Frank J. Malina of the California Institute of Technology, in co-operation with Professor Theodore de Karman, and Dr. Hsue Tsien, have been experimenting with the rocket motor principle and have reached the definite conclusion that, with a *perfect* gas (that is, one which remains a gas) in which the molecules bounce apart when pressure is decreased, efficient operation is possible. The suggested combination calls for one pound of gasoline to three and fifty-one hundredths pounds of liquid oxygen. The findings of these aëronautical research laboratories, thus confirm to a large degree the early rocket attempts of the International Rocket Society.

YESTERDAY'S REVENGE

by H. L. NICHOLS



The master licked his lips as he watched through the screen the lovely face of the girl from ages past. Yet there remained a doubt.

WAR! Years and decades of slaughter and hate and retrogression, of men against men, machines against machines, machines against men, in an ever quickening tempo of destruction. The World War, the War of the Wings, the War of the Rockets, the Pacifist War, the World Revolution drowning in the sea of its own blood, and at last peace, the Peace of Fear.

And in this Peace cities rose again on the surface of the earth, roads found new ways across the blasted continents, great ships again safely plied the seas, the skies were bur-

dened with commerce and everywhere the mighty deserts slowly shrank before the verdancy of nature and the genius of man.

But the ground was soaked with blood of the lost generations marching in endless columns to their sacrifice to hate. The vibrations of the hate were in the very ground beneath the cities. There was bitter hate in the hearts of the men who toiled to build the forms of civilization without its spirit, urged on by the lash, the torture chamber and the purge. And the focus of all this hatred was the Master, Protector of the Peace, betrayer and dictator of a world.

Once he had been the idol of the war-weary millions as he sent the robots of the Pacifist Democrats to victory after brilliant victory; as the regimented subjects of the brigand nations had broken their chains to fight under the banners of the great League of Scientists who promised peace and freedom and security; and as the League itself gave him complete control over the mighty armaments contrived for man's salvation.

By the time the last stubborn flamefort had surrendered, he stood upon a dazzling pinnacle of glory such as men had only dreamed before, and he would not descend to be again a man among men. He refused to return his dread powers to the League. When they insisted, he imprisoned them, and they escaped to raise his armies and all peoples against him, shouting the war cries of freedom, so that the whole world seemed to batter against his citadel like a sea of thunder and flame. Yet he alone controlled the robots, and the robots went forth bringing darkness to the sky and fire to the earth. The armies of the people were defeated and scattered, only to fight again from buried strongholds and mountain fastnesses. Then again and again the robots went forth, until the continents were shattered deserts and the underground cities great smoking craters open to the sky.

While the Master's vengeance still flickered through the wastelands, his rebuilding had begun, and now he sat high and secure in his great Room of Power, that seemed to float as a miraculous campanulet of silver above the half mile peak of the Serene Tower. There was no sound in this room save the Master's breathing, but against its outer walls of glass lapped the purr and whisper and whine of millions of horsepower performing their appointed tasks. From the Southern Port came the drone of a great liner beating its way into the stratosphere, from where the thunder of its released rockets would come to him only as a faint orange streak in a dazzling sky. Through the air also came the hum of hovering taxicopters far below, the muted rumbling of the great moving streets and freightways and the mutter and crash and clang of building machines, all dying against this shell of glass. Through the mighty frame of the building itself quivered the vibrations of the giant factories, endlessly fabricating materials for more factories, more cities, more ships of the sky and sea, more power and glory for the Master. But these vibrations, too, died in the protections of that tower top.

Here, the Master assured himself, he was safe, safe alike in his life and in his power. For here were the telepathic controls of the ingenious and terrible robots, that kept the world securely his. Here also were some of the robots themselves, resembling neither machines nor men as they waited in everlasting patience and vigilance for his activating thought. And lest some danger creep upon him unaware, there were the Guard, faithful in their unleashed cruelty and mindless worship; there were the ray screens and thought detectors; and primitive but reassuring, there was the electric lock upon the elevator that was the sole entrance to this room. Only the vibrations of hate beat in, beat past locks and screens and rays, beat through glass and steel and plas-

tic, beat gently, tirelessly, like ripples on a rock.

Safe indeed was the Master, and powerful beyond all telling, but the Master was afraid.

On the Master's desk the visiscreen glowed softly into life, and from it his secretary spoke. "Technician Heidkamp, special director Capitol Mecholab 43, desires an audience in the Room of Power to demonstrate the Time Visor to your Excellency."

"Has it been inspected by the Director of Precautions?" The Master's fingers drummed nervously on his desk and he cast a sidelong glance behind him, although he knew that no human being could penetrate the Room of Power without his orders.

"No, your Excellency, it bears a waiver with your signature."

"No matter, have it inspected and report back at once."

The visiscreen faded into lifelessness, and the Master returned to his musing. "No one in all the history of the world has ever been so powerful as I," he muttered, and yet he knew that in his heart there was fear, a fear which he had not the courage to face.

Again the visiscreen glowed, this time with the image of the Director of Precautions, who reported, "I, Melsit, have inspected the Time Visor, Experimetal Permit No. 445,826, and find it to contain no dangerous elements."

"It is well," said the Master, releasing the elevator lock, "Technician Heidkamp may bring it to my Presence, accompanied by two of the Guard. Remain in communication."

A bell rang softly as the elevator rose into view. Technician Heidkamp, a man whose gray, lined face and desolate eyes belied his middle-age, gave the salute, then entered wheeling before him a cabinet whose glass panels revealed an intricacy of tubes and wiring in interlacing spirals. Behind him came the giant Guards, watchful and impassive.

The Master watched, smiling secretly as he exulted in his power over Heidkamp. It was small pleasure to have the right of life and death over the workers who toiled in the depths of the city, but here was one of the great minds of all time, whom the Master could crush out of existence like an insect. The Master's eyes sparkled as he acknowledged the salute of the Technician.

From the top of the cabinet Heidkamp lifted the separate eyepiece, its control buttons showing white against the ruby ease, and laid it on the Master's desk. Again he saluted.

"Your Excellency, a year ago you commanded me to construct a machine through which, for your amusement, you could view the past. Night and day I have labored, and now I offer to you the Time Visor through which you may view one small segment of the past—that time when the world, long tottering on the brink of disaster, spread too late the wings of war, and hurled itself to its long ruin. From this high place you may see the towers of Manhattan once more piled against the southern sky, in the midst of that vast ancient web of bridges, highways and villages, with its great harbor filled with the shipping that the War of the Wings has since destroyed. Look downward, and you may follow hour by hour the simple life of the old village of Nyack where our city now stands. Or you may carry it to the ends of the earth, and view the whole crowded world of those other days.

"The instrument is adjusted to your Excellency's eyes. The lower button regulates the magnification, now set at three diameters. Your Excellency, you have long possessed the present and the future. It is my honor now to offer you the past." Heidkamp paused, his face glowing with the impersonal exultation of the born scientist.

The Master lifted the instrument toward his eyes, and as he did so, saw on the southern horizon a small cloud, intensely black, and from some for-

gotten saying there flashed uneasily through his mind the phrase "no larger than a man's hand." But through the eye piece there was no cloud, but a dawn-cleared sky into which the haphazard towers of the now almost legendary Manhattan lifted their pinnacles, softened by plumes of drifting smoke and flattered by slanting bars of golden sunlight. Long the Master looked, and at length turned the visor directly downward, to look through half a mile of empty space at a village sprawled toylike on a green hill sloping upward from the river.

Interested in the town which had once occupied the land where the Serene Tower now soared aloft, the Master increased the magnification. He had a nightmare sensation of falling with rocket speed, snatched his eyes away, and saw that in the south the cloud towered over a third of the horizon, black and ominous. He barked to the watchful image in the visiscreen, "Tell those fools in the weather department to stop that storm!" and again looked down thru the visor. He seemed now to be a few feet above a green lawn fronting a trim white house, roofed with wooden shingles. On the gravel path stood a girl whose pure young beauty made him catch his breath. She threw back her golden hair and looked directly toward him, her blue eyes wide and fearless.

But suddenly the Master was jerked back to the present as the floor swayed beneath him, and a fearful crash of thunder entered his eyrie, where no outside sound had ever come unbidden. He looked up and saw the great cloud, now overhead, pouring forth torrents of rain which made the campanulet seem like a diving bell in a cataract. On the outer surface of the glass was an incessant race of lightning, flashing over the surface in zigzags and spirals, seeking angrily to penetrate the Room of Power. The visiscreen was blank and rimmed with fire, blue flames and crackling sparks flickered from the machines and the robots, and it seemed to the Master that at last his defenses had failed.

Now the secret fear which lay hidden at the Master's heart grew in power, and he shrank back into his chair, while the great Negro guards stood like statues of fear, their hair erect and snapping. The elements, then, were not wholly under control of the Master's mighty science! Nature had broken the chains with which he had thought to bind her. And if the weather control could fail, could not something go wrong, too, with all the Master's power and authority?

Heidkamp, immobile, watched the Master and seemed to guess at his thoughts. Only his eyes betrayed his exultation at the fury of the storm. Only a flicker of the lids, when he looked at the Master, shadowed forth a hatred of the man in whose war his only brother had fallen, the man who had negligently said to Heidkamp, "Well, give her to him, man! What's a brown-haired girl?" when the Master's current favorite had coveted Heidkamp's only daughter. The favorite was dead now, executed at one of the Master's whims, and the daughter too was dead, refusing to survive her shame and perishing by her own hand.

But soon the torrent of rain ceased, the dancing fires vanished, and the lightning thinned and waned. The cloud was breaking under the impact of great rays that lashed out from below, boiling away in harmless beaten puffs, dissolving into the upper air or blowing north like fragments of a vanquished fleet. Belatedly the weather control operators had reasserted their mastery.

Now the Master's fear changed to fury. As the visiscreen came on again, he shouted, "Intelligence Department, at once! Zadol, how did that storm get past our guard screens? Broke them with electric overload? Who calculated the safety factor? Have them executed at once! One of them a woman?—no matter. Put the execution on visiscreen where I can enjoy

it. Ho, you Heidkamp, stand by and see the mildest penalty you technicians can expect when you fail me."

On the visiscreen appeared the figures of the shrinking victims, instantly electrocuted by the Master's new device, which galvanized every separate cell of the human body into a tiny inferno. As the despot's petulant order was executed, he smiled, while the Guards stood impassive and the murmur of the drenched city drifted thru the broken sound screens.

"Now, Technician Heidkamp, opener of windows and resurrector of the shattered and the dead, it is your task to prove to me that I saw the real past, not clever trickery. Burdened with the cares of the world, I have forgotten your theories. Explain."

"With pleasure, your Excellency. Upon graduation from Midland Technical, I was assigned to vibro-chemical work with the London Archaeological Expedition. In block 44 south, Section 33, we excavated a partially demolished laboratory and library, in which we found records of extensive calculations and experiments by which one Dr. Louis Foster had demonstrated that time is spiral in nature, and that the loops of present and past are pressed so closely together that vision and travel from one to the other are theoretically possible. Foster published his findings in 1941, by which time his country was so deep in the agony of the War of the Wings that it was interested in nothing except military science. Dr. Foster had hoped to make a time travelling device to escape the rising tide of slaughter, but before he completed it, cellulate bombs put an end to him and his work."

"Your Excellency generously condescended to supply me with facilities to investigate these theories. After finding Foster's mechanism to be ineffectual I experimented with Ronferth rays, until I found that the A and F output, interlaced at dissonant frequencies and reflected from thionite crystals in Madderhern tubes, would actually pierce the veil between us and the past. The case upon your desk throws a hollow beam of these dissonances, which it absorbs from the cabinet relays, and within this beam, light rays from the adjacent part of the next loop of the time spiral penetrate to the visor, subject to the same laws of optics that hold in our present time. The core of the visor is an ordinary electrically magnifying binocular, with stabilizers. The period of the time coil is sixty-six years, one hundred five days, and nine hours. Therefore, your Excellency, some minutes ago you were seeing the world as it was at seven o'clock, May 18th, 1940. For proof that this is indeed so, and not a deception, I can but trust to your Excellency's own acumen."

"You speak only of the past, Heidkamp. Can you not show me the loop beyond—the future?"

"The future is not visible, your Excellency, and I do not believe it yet exists. Through eternity t i m e stretches backward, and as our instruments grow stronger, it shall yield its secrets. But you are the point at which the spiral builds, and the future waits for your shaping."

"It is well." Responding to Heidkamp's subtle flattery, the Master's thin lips curled with pleasure as he thought of a future shaped to his will. His hands twisted and twitched as he contemplated his own endless power. "Heidkamp, it is well. The Guards will accompany you to the reception chamber. You may go."

As the elevator silently started downward, the Master returned to the visor, impatiently turning the controls until he again found the white house with the gravel path, in the long-forgotten village of Nyack. Long he waited until he could see again the girl to whom he felt so strangely drawn. Darkness fell, and the city became a glory of colored lights around him, but he did not heed, as he steadily watched a path that lay sleeping in the afternoon of a beautiful spring day.

At last his vigilance was rewarded. A shining four-wheeled roadster

stopped before the gravel path, and from it alighted the girl and a man, a man who was as tall and blonde and sleepy as the Master was small and dark and intense, a man with whom she laughed and talked as they went up the path and into the house. This time she did not look toward the Master at all.

The sun of that forgotten day sank behind banks of purple cloud, and as lights glowed throughout the village and from the windows of the house, the watcher from the future remembered from old stories the comfort and intimacy that would be within its walls. He thought of the radiant golden girl whose eyes caressed her companion, the girl whose bearing had the freedom and intelligence which now had almost passed from the women of the world, because like the men they knew themselves absolute slaves of the despot in the tower. The Master felt an irrational surge of rage toward the girl, long since dead, whose living body he could behold in the time screen. What right had she to look like that, with open, fearless eyes, oblivious of his power?

He slammed the visor down on his desk with a vicious curse. "Technician Heidkamp, at once," he snarled. In a moment Heidkamp, gravely saluting, appeared on the visiscreen.

"Heidkamp, you spoke of a time travelling machine. Can you build me one?"

"That is a far more complex and difficult matter than the building of the visor, your Excellency. The formulae are not yet complete. . . ."

"In thirty days you must build me a conveyance to bring a woman to me from 1940, alive and unharmed."

"But your Excellency! The formulae, the experiments, the safety factors!" Heidkamp's imperturbability for once was shaken at the Master's preposterous demand.

The Master's breath came fast with rage. "Have you forgotten your lesson of this afternoon? If you cannot carry out my instructions, the execution of the weather experts will prove child's play compared to the tortures I shall devise for you. Report at thirteen tomorrow." He touched the screen into darkness, and slept at his desk until the morning sun was high over the city.

The rest of the morning he devoted to conferences with his captains in various parts of the world, in regard to their keeping of the Peace. His secret police were everywhere, and were themselves watched by spies, who underwent periodic hypnotic examinations in the Master's presence, lest they should be disloyal. So perfect was the organization that nowhere could a man say a word against the Master or his Peace and be safe from his vengeance.

But of late that vengeance had been withheld as its wielder watched the growth of a revolutionary society, the New Day, whose hope spread among his subjects swift as fungus thru rotting wood. They were building power for his overthrow and for establishment of the democratic world state which he had so falsely promised, and the Master was aware that they were the most brilliant and determined antagonists he had known since the establishment of his Peace. They had found ways to screen their thoughts against his detectors, but no way to keep his agents out of their organization, so that his spies sat in their high councils and betrayed them.

So the Master deemed himself safe from them, since he would know before they struck, and he leisurely prepared cruel traps for their undoing. And he promised himself that he would make their punishment so fearful that he could count himself safe against another revolt for a generation. But for the while he held his hand.

When noon was an hour past, Heidkamp was ushered into the Room of Power by the Guards. He dared make no further protests, but the muscles of his jaws twitched when the Master reiterated his harsh order that the

time traveller must be ready within a month, and added, "This visor has revealed to me a woman whose beauty is worthy of my recognition, and I propose to bring her here for my enjoyment. Mount the instrument on this range finder, so that I may indicate to you the location of her dwelling."

So the observations were made and subsequently checked against plans of the Serene Tower, and it was found that the house and path lay within the impenetrable wall of a vault. In the vault itself Heidkamp set up his laboratory, trusting that chance or strategem would lure the victim to the trap he planned.

Here Heidkamp labored by day and night, seldom stopping even for food. His lean, worn body brought new reserves of strength to the monumental task. It was not fear that drove him on; Heidkamp was not afraid of death or torture, and after the fate which had befallen his brother and child he had nothing more to live for. Heidkamp was driven by hate; hate of the Master. For deep in his brain there was a hidden hope that the Master, secure and omnipotent beyond the reach of mortal hands or minds in his Serene Tower, might somehow be vulnerable to contact with the free and dynamic ancient world revealed in the Time Visor. Had not the storm which had arisen when the Master first looked into the visor been, perhaps, an omen of some ill to befall him through this tampering with time?

So the days crept past, while Heidkamp in his dungeon laboratory worked among the giant tubes and shimmering radiances that should open the backward facing door, and while the Master in his eyrie brooded darkly over the romance that developed beyond that door while he waited impotently for the key. For it was Spring in Nyack, and the girl he sought was clearly and increasingly in love with her virile escort. Hand in hand they walked the streets of the village, or sped beyond the visor's range in the sleek roadster, while in the high and dreamlike tower, surrounded by miracles of science and of beauty, the Master yearned wickedly for the girl who had long been dust, and furiously hated her companion. When but half of the allotted thirty days were past, he summoned Heidkamp to the Room of Power for an accounting.

"Your Excellency, I am pleased to report that I have developed some new plastics in the beryl-nickeloid series, which can be charged with the Ronferth-Madderhern dissonances so heavily that the rays form a tangible structure in themselves, which takes the shape of the plastic, and can be forced into the next loop of time and drawn back again. A cage or cell so composed and charged can be used to entrap your desire, and transport her to us, but the apparatus is still primitive, and has proved fatal to life and destructive to material, that has been tested. I am working without rest with my assistants to correct the difficulties, but the field is new, and progress necessarily slow. We are in hourly hope of finding the right path to success, and hope that your Excellency will not lose patience with our efforts."

"Will you be able to move this cage of rays in space as well as time, so as to pick her up wherever she may be?"

"No, your Excellency. We must set up the plastic mold in our space so as to project the vibration screen to some point upon her lawn. This screen should have no palpable existence in her time, but if she steps within it, we can draw her to us."

And now, suddenly, a cunning idea uncoiled itself like a snake in the depths of Heidkamp's mind. His tone was colorless and submissive as he asked "Perhaps your Excellency himself would care to enter the cage and go backward through time, in order to invite this woman to enter your world of wonders as your favorite?"

The Master started and the cords on his forehead bulged with rage. "Heidkamp! Are you a traitor or are

you a fool? You would pay dearly for this treacherous proposal if I did not need your brain to carry forward this work!"

Heidkamp's bow was humble. "But, your Excellency, forgive me—I do not understand."

"Stupid!" shrilled the Master. "Can you not see that in that old time, where all my power is undreamed of, I would be cut off from my robots, my Guard, my police and my armies? In that village all my power would be naught, and even the mention of it would close me in a madhouse!" At the mere thought the Master's voice grew high and thin with terror. Almost he abandoned the whole project; yet the thought of the girl with golden hair and fearless eyes returned to him, filling him with eagerness and desire which, jaded by absolute power, he had thought never to feel again. "Lure her to the trap!" he cried. "But if she comes to any harm, you shall repent it in the longest, keenest agony my torturers can devise."

Yet the nameless, growing fear grew stronger within the Master as the days crept on and Heidkamp's experiments progressed. The future could not be foreseen . . . . who could know that the past might not somehow reach darkly toward the Master, and destroy him? Yet the mad passion inspired by the girl in the Time Visor gave him no rest; it grew too, waxing stronger as Heidkamp's science gradually placed her nearer to his grasp, and finally this passion outstripped even the Master's fear. Daily he summoned Heidkamp to the visiscreen, threatened him anew with endless torture if he should fail, and heard with satisfaction Heidkamp's story of progress. For the genius of the Technician, rising to the monstrous demands made upon it by the Master, was actually bringing to pass the miracle which he had commanded.

When on the 28th day of the allotted thirty Heidkamp reported that all was in readiness, the Master prepared to leave his lofty haven for the first time in many months. For this expedition he chose to be accompanied by the robots, rather than by the brutal Guard; and lest a half mile of steel and glass and air should too much intervene between his thoughts and the telepathic amplifier-converter, he had two of the robots carry it between them. These two went into the elevator, but before following them, the Master walked slowly around his eyrie, appraising what he saw, and beyond that, the distances unseen.

He had taken over from the Pacifist Democrats their plans for the rebirth of a world destroyed by war, and he congratulated himself that he had achieved beyond their dreams. Fair indeed was this great city, rising in miles of mighty windowed ramparts along the western bank of the purple Hudson, and fair indeed were a thousand lesser cities, set like jewels around the healing earth. And the vast fruitful farms and terraced orchards, dotted with placid lakes and webbed by shining canals, stretching to the north to break at last against the desolate shell torn slopes of the Highlands, and to the west into the cauldron of the sunset, these were things of wonder and beauty too. But for all his building and possession of this vast achievement, the Master knew that nowhere beneath that darkening sky could he count a single friend, or any person loyal except thru fear or greed. And as he turned away, he saw the crimson of the west spread over the whole dome of the heavens like a great flame, and the city and the landscape seemed to flow with blood. With a deep foreboding he shuddered into the elevator, bidding two more robots after him, and rocket-like they plummeted into the depths of the great building, in the safe and familiar light of the phosphene ceiling.

Soft as a breath the swift car came to rest at the level of the upper vaults, and into the blue lighted corridor issued the strange procession—four strange creatures beyond any man's

imaginings, whose very presence made the air electric with menace; two of them bearing the glittering thing that gave them life, the irreplaceable telepath whose structure was known to the Master and to no other living man, and within the shelter of their square walked the puissant owner of the world, quick with desire for the woman he hoped to resurrect from the forgotten dead, but still fearful in the memory of the bright flame of the sky and the city drenched in blood. He remembered now that as he had first seen the girl, the heavens had unleashed upon him that great storm, quivering with a concentration of the hate that always subtly beat upon him, and he wondered whether the old gods still lived, and had shown him then a sign and now another sign.

"Perhaps," he thought "I should turn back, lest I and my great destiny should be trapped and lost in the dimness of these vaults and the enticements of the past, so that I might never again look forth upon the planet that lies crushed beneath my will, or behold the great cold space of twinkling suns that yet may feel my power. But no, this is weakness, for the past is mine as well as the future, and this woman shall be but the first tribute I shall exact."

Thus fixed in his determination, he came to the laboratory, where Heidkamp stood alone and tense among the fantastic trappings of his science. In the center of the room was a great cylinder of softly glowing orange, on the warm surface of which danced flecks of silver light. This was the mold into which the whining generators, banked tier on tier in the further shadows, were pouring dissonances to be flung across the incredible emptiness of timelessness to snatch back a living prize. Upon its side an insulated handle stood out sharp and black, and around it a faint suggestion of a door showed thru the radiance.

No spark of hatred showed in Heidkamp's eyes as he saluted. "Your Excellency has arrived within three minutes of the time when the Ronferth potential will be at maximum. You will observe on the right a visiscreen connected thru a time visor so as to show the house and its surroundings. Upon the steps sits the girl whom you desire. She is waiting for her escort. I have drawn this black circle upon the screen itself, to show where the trap will be sprung."

"And how will you lure her to the trap?"

"I have taken advantage of your Excellency's authority to obtain from the museums diamonds and other gems that were highly esteemed in her time. Upon the floor of this cylinder I have placed a heap of these, which will be carried backward with the force screen and appear upon her lawn as the trap is set. Unless women were far different then than now, she will come to this glittering bait, penetrating the force screen that will be invisible and harmless while at rest, and then we shall pull the screen and the woman back together, so that she shall await the Master's pleasure within this glowing cell."

The Master licked his lips as he watched through the screen the lovely, oblivious face of the girl from bygone ages. Yet there remained a doubt. "Heidkamp," he said abruptly, "you have planned well and built skillfully, but I fear that all is not well, and that we perhaps tamper with forces that may rise up and destroy me. If you have any faint doubt of the safety of all this strange machinery, that Director Melsit himself cannot entirely vouch for, speak now, and you may have more time to make sure. But if you are sure, and carry me forward to success, you shall share my power and be heir to all of it. Think well, for this is a price that malice or disloyalty cannot offer."

"Your Excellency, I am your loyal and careful servant, the potential is at its peak, the bait is within the trap, and I await your word to close the switch that begins your conquest of time itself. Shall I proceed?"

"Close the switch."

The whine of the generators died to a whisper, the orange and the silver light sank slowly into the plastics of the cage, as if receding into a measureless depth of water to vanish at last, leaving the surface blank and sombre.

On the screen appeared clearly the image of the beautiful girl from the America of 1940. She was dressed in blue; she rested her chin on her hand as she waited for her lover to appear, and she seemed to be lost in some vague dream. For a minute she did not look up as, through the magic of Heidkamp's science, there materialized on the lawn the glittering jewels which were to bait the trap. Then she saw them. Her eyes widened. With a smile which bespoke childlike pleasure rather than greed she jumped up and ran toward the treasure. She came to the edge of the fateful circle, hesitated as if some mystic warning made her pause, and finally stepped within.

In the laboratory Heidkamp and the Master watched intently, and as soon as she was well within the trap, Heidkamp swiftly opened the master switch and closed two others. The coruscations of light appeared deep within the cage and expanded until the room was again alive with their radiance. Through the time visor there appeared upon the screen the house and path and lawn, but the jewels and the girl had vanished, swept forward into Time.

Heidkamp, hands shaking as he realized that the miraculous experiment had succeeded, turned the great black handle of the Time Trap and flung wide the door. Within the cell the girl huddled against the far wall, hardly knowing what had befallen her, conscious only of the dizzying sickening shock she had sustained from her transportation into the future.

An inarticulate cry of joy burst from the lips of the Master. Now his passion for the girl became an avalanche of madness, sweeping away all his fears and cautions. He hurled himself forward into the cage of the Time Trap, reached blindly for the girl, twisted one hand in her golden hair and pulled her toward him. Blanched and shaking, she held up her hands with a pathetic gesture of pleading horror. "Beauty from past ages!" cried the Master hoarsely, and bore down her resistance.

He had forgotten Heidkamp.

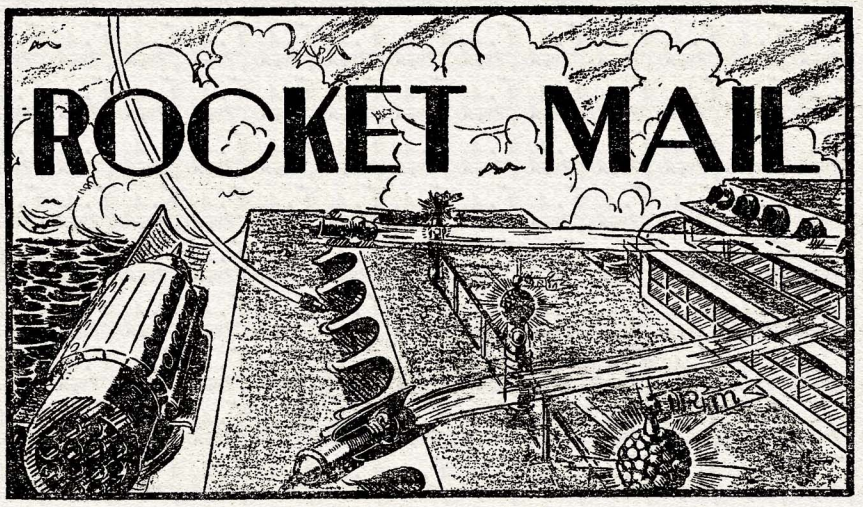
Quietly, almost reverently, Heidkamp stepped forward, laid his hand upon the door, and closed it. He fingered the master switch, and as he did so, remembered the forces of the New Day, ready to take over power and build at last a true democracy, including all the mechanical glories of the civilization which the Master had erected, with the added crown of peace and freedom and happiness for every man on earth. This he remembered, and he closed the switch.

The light died back within the cage, and in the circle on the time screen appeared the Master, so forgetful of all else in his struggles to win the lips of the girl that he was not even aware that he was trapped by Time. In his arms the girl struggled desperately, her feet scattering the wondrous gems upon the grass. A roadster stopped before the house with an abrupt jerk, and the girl's giant lover hurled himself from the driver's seat and laid a violent hand upon the shoulder of the Master.

For one long, ecstatic instant Heidkamp could see in the time visor the eyes of the Master, stark with his abrupt, dreadful realization.

Slowly Heidkamp picked up a long bar of heavy iron, and methodically destroyed the time traveler—first the long spirals of glowing tubes, then the frail and lifeless structure of the empty cage and last the idling generators, their whispers crashing into silence.

He ignored the robots, waiting in vigilance for the commands of the Master, commands that now would never come, their frantic urgency lost in Time.



Short and Sweet!

Dear Editor:

Um, another mag., eh? Well . . . . (read, read) umm, ah, ah! (read, read) "The End" sigh.

Need I say more? Save, Gallun's "Eyes That Watch," was the best-ta of the best-toe.

KAY BENTON,
Anna Marie Building,
Suite 8,
Norwood, Ohio

One for the *"Spacean"*

Dear Mr. Tremaine:

Allow me to be among the first to congratulate you on the first issue of "COMET".

First issues are usually an awful letdown but honest "COMET" surprised me! I haven't read all the stories in the first issue, but with yarns by authors such as Binder, Williams, Gallun and C. A. Smith in one issue no reader could complain. I know I can't. You picked some of the best authors in STF for your first issue and that alone should get you off to a good start.

The art work in the December issue is very good. Leo Morey's cover is splendid, but don't let him do all your covers. Jack Binder's work is above average, but I was really very pleased in John Giunta's drawings. Retain him by all means. Forte is also good for a newcomer, as is Kelly. But Lennarts and Holmdale could stand improvement.

Biggest hit of No. 1, Vol. 1, is the new feature, "The Spacean". At last! An editor who knows what the STF reader likes. By all means, never, never omit this feature, even if you have to cut out a story. And, "The Editor's Notebook," gives the magazine a friendly atmosphere. Too many editors don't care about the reader, except their money.

I won't even wish you luck. With a setup such as yours, you don't need it. You are going places—and fast.

Sincerely,
DAVID GLAZER,
12 Fowler Street,
Dorchester, Massachusetts

We've Corrected the Running Heads Now!

Dear Mr. Tremaine:

The first issue of COMET lies beside my typewriter, and having devoured its contents with the avidity of the typical science-fiction fan, I proceed to unburden my soul on paper, again like the typical science-fiction fan.

On the whole, I am pleased with your new magazine. That's an honest opinion—and I'll prove it by saying that it is *not* the best issue of any magazine that I have ever read; I know that it is the tendency in writing one's first letter on any magazine to be super-lavish in one's praises, but I hope you can offset the relative moderacy of my good opinion by its sincerity. The first issue of COMET is very definitely above par as far as first issues go; it is even above par as far as today's science-fiction in general goes.

Nevertheless, it would have been too much for me to expect an unimprovable issue—and I know you never expected me to expect that. But I'll tell you this—that the first issue gives me hopes. Once the magazine gains momentum, it's going places—and with *you*

at the wheel, it's going to go lots of places.

But let's be more specific. Ho, for the praise and the good old constructive criticism. First of all, I like your broadness in the story field. The yarns vary from straight science-fiction ("Momus Moon") to science-action on one hand ("In the Earth's Shadow") and weird on the other ("Primal City"). You've got heavy science ("Ultimate Image") and trick science ("Equation for Time").

As I say, I like that. Now, to be sure, I have my favorite types of science-fiction. I'm not much for excessive "action" or "blood-and-thunder" and I don't particularly like "weird" stuff—but I realize that you've got a whole bevy of fans to satisfy, and that no one is going to edit a magazine especially for me. Still, with a wide selection, I know that I'm going to get several stories each issue that are going to be right up my alley, and that thought is accompanied by an avid licking of lips. So much for stories (since I've taken to scribbling a bit myself—a bad habit—I no longer consider myself qualified to give detailed opinions on specific stories, much though I would like to). Still, I might say that the three stories I enjoyed most in the issue were: 1) Binder's "Momus Moon", 2) Winterbotham's "Equation for Time" and 3) "Lord of the Silent Death," by R. M. Williams.

I like the block letters of the cover title, which make it noticeable to the casual eye, without being loud. I like the title too—short and suitable. Of course, it is a little disappointing not to have the cover drawing stretch clear across the cover, but that is largely offset by the fact that it has no printing upon it. I realize the advertising value of the author listing at its left, and won't mind if you stick to that arrangement. It's better than having the drawing large and smothered in print.

"The Spacean" is amusing, but can you keep it up? It's the sort of thing that might easily drop into silly burlesque if one isn't careful. If you can hold it to the level of this first issue, it's got my vote of approval.

One really serious kick I've got concerning the format is this: Why have you got the pages headed *"COMET"* throughout? You can't tell one story from another unless you manage to find the title page. It's very inconvenient, having to refer to the contents page continually, in order to get to the particular story you were reading when you last put the magazine down.

Oh, yes, we're going to have serials later on, aren't we? And maybe a science article occasionally?

Sincerely,

ISAAC ASIMOV,
174 Windsor Place,
Brooklyn, N. Y.

Yes, when THE serial comes, we'll have serials; but not until one which is thought-provoking, new and really great reaches us. A serial must be worth the space it occupies. —F. O. T.

Editor—Orlin Tremaine:

Coming unexpectedly across the first issue of COMET—I naturally, as an old time fan dug down deep and pulled out 20 cents more for pro mags.

You see I buy all professional mags—regardless of their quality—as I said before I'm an old time fan!!!

However, when I saw your name as editor, I recognized it instantly as one time editor of "ASTOUNDING", so naturally I had very good expectations of your first issue. That is before I read it.

Now let me compliment you first on your format. I've seen thousands of STF mags (notice STF) and I own thousands of STF magazines. So I think I'm qualified to judge that your future newspaper idea is not new to us fans as we've almost had such a column called "Daily Planet" in another pro mag. But you had the first good judgment to accept such a column for COMET.

I realize that your first batch of stories were probably accepted in a hurry, due to deadline, so we'll excuse you this time. But I fully expect to see a more evolved type of STF yarn in future issues—so why not revive your thought variants. As you probably know by now, I am editing a new news weekly—"Fantasy Fiction Field." Any interesting news items concerning COMET would be greatly appreciated.

Sincerely yours,

JULIUS UNGER
1702 Dahill Road,
Brooklyn, N. Y.

Definitely stories are coming that will add to the list of STF classics—F. O. T.

Taurasi Didn't Miss a Point

Dear Mr. Tremaine:

The first issue of COMET arrived making a very good impression. Starting with the cover and working in my contents are:

1st: COVER: very good layout. I like the style of lettering on the name and also the idea of listing the outstanding author's names on the side. STF all over the place is OK also. I like the painting on the cover being without words. Boy how many good paintings on other STF mags are being spoiled by having lettering all over the place. Morey did an excellent job on your first cover, BUT we want PAUL, the ace of all STF illustrations. Get him for covers and inside illustrations.

2nd: CONTENTS PAGE: Clear and understandable, good layout, but I'd like to see a cut drawing by PAUL for the title on this page.

3rd: STORIES: The magazine's lifeblood. I've read most of your yarns and they are about average. Nothing outstanding, just average. Naturally, this is understandable as your first issue was rushed thru, but now that you've gotten into harness again, I expect the old super-swell stories to start coming into your magazine, as you did with ASTOUNDING in '34, '35 and '36. I liked "The Oversight", tho a little bloodish, and "Momus' Moon" best.

4th: INTERIOR ILLUSTRATIONS: Some of your interiors were good and some were very bad. Jack Binder and Morey are tops in the first issue. Of the new comers, FORTE and GIUNTA are the only ones that show promise. Johnny Giunta did his first STF illustrations for a fan magazine that I used to publish, COSMIC TALES, way back in 1937 and I've seen him develop since then into a coming STF artist. Hold on to him. He's got it in him. FORTE is also a good STF artist, but he's got to learn reproduction. His drawings at present are too dark due to reduction for painting, but this is easy to correct and I expect that his next drawings will show great improvement. I'd like very much to see PAUL do some of the interior illustrations.

5th: DEPARTMENTS: Editorial, Reader's Department, OK plus, as best as can be expected. THE SPACEAN is very good and entertaining. But what is missing from the magazine is a good fan mag department. I'd very much like to see the name of the story printed on the top of the right hand pages, so that when we open the magazine we know where we are. The way it is now, is very confusing.

All in all, I think, as a first issue, the magazine is tops, I expect great things of it in the future. I expect you to find new unknown artists and authors; authors that will be famous in years to come and those you discovered during your rise with "Astounding." COMET has an excellent start.

Sincerely yours,

JIMMY TAURASI
137-07 32nd Avenue,
Flushing, New York

Almost Boring?

Dear Mr. Tremaine:

Holy smoke! A new mag with the audacity to appear monthly—what oh what is this younger generation coming to? I like the idea tho. Was just wondering if you could make a go of it on a monthly basis.

The Spacean is strictly something new. With a little work this could easily become the most powerful feature in any STF mag. I say this providing the column is given a heck of a lot of continuation—terse items that have no connection with the preceding column will kill this feature.

The cut for the name strip (front cover) is tops in the STF field.

The front cover arrangement comes second only to the aristocrat of Science-Fiction. Guess Who?

The illustrations with the exception of Holmdale's and Forte's were terrible. Try Bok or Finlay instead of Giunta, Kelly and who ever did that awful thing for "Lord of the Silent Death."

The cut for the reader's dept. could stand one heck of a lot of improvement—it is too messy.

Take that word, COMET, off of every page throughout the mag and put the story's name in this spot.

Take about four of those short stories and throw them away—add a novelette or make the features large enough to compensate for at least two of those shorts. And if you are going to have a short, short story dept. don't for the love of Pete run four at a time. One a month is *plenty*, and I mean strictly. Make your readers column two way, and don't answer a letter with a letter unless you can enlarge the Rocket Mail to five or six pages.

The stories this issue were all good, but the number of shorts made them almost boring.

Sincerely,

ART R. SEHNERT,
791 Maury,
Memphis, Tennessee

We'll Try to Match Up!

Dear Mr. Tremaine:

The first issue of COMET has its faults, of course—some of which were beyond your power to remedy. The matter of some of the illustrations which did not reproduce well, a few type errors which managed to slip by, and such. But, to my mind, so long as you can find points in each issue with which you are dissatisfied, then so long the following issue will be a better one. I, personally, am rather unhappy about the picture for the first story in the first issue; since the first illustration often makes an important impression, I wish a better drawing had been selected for that place. But, these are minor matters.

The department "Spacean" is truly new and different. It was marred in spots by grammatical crudities, and such terms as "Plutians", and "Jupiterans", but, on the whole, it deserves a galaxy of stars. Who is the person to be congratulated on the make-up of this feature, by the way? Or is it editorially written?

"Rocket Mail" is nifty, as is the editor's notebook. I fervently hope that you will con-

tinue the trend started: that is, that you will make the reader's column a two-way affair, adding your own comments to each letter selected for publication. A reader's column interwoven with the personality of the editor has long been an indispensable feature of science-fiction magazines. I can never forget the pleasure I received from the discussions column of the original STF magazine, under the splendid guidance of the late Dr. Sloane, whose loss is a great one to all oldtime fans and readers.

In hopes that you will soon institute a strong serial policy, and impatiently awaiting the second issue of COMET, I am,

Sincerely yours,

(Doc) Robert W. Lowndes,
129 West 103rd Street,
New York, N. Y.

You remember Warner Van Larne, of "Strange City", "World of Purple Light", and "Wanted—7 Fearless Engineers", fame? The Spacean is his contribution to COMET.

The Great Stories Are Coming

Dear Mr. Tremaine:

I am sincerely glad to see you back in the field. First of all I wish to say that I agree with Sam Moskowitz in his analysis of the present fantasty field. I think the average level of stories is the lowest that it has ever been—and yet the stories are not really bad. Just what is wrong? I think it is the almost total lack of truly *great* stories. I think that the present 'field' is just that, a field, a huge level expanse in which no mags and few stories stand out higher than the average. A few years ago there were lots of mediocre stories, of course, *but* there were also quite a few that were truly great. And you published a large portion of them. As Sam pointed out, you printed, on the average, several stories per issue that were oustanding and many were real classics, now we are lucky if we get two or three per year in all the mags! Personally, I think it has been over a year since the last real classic.

What makes a story great? You must know this if you are to build up a great mag. First, fantasy's chief appeal is the fact that it is different, hence, it should be truly different—not a common adventure, western, war, detective, sex or horror plot and characters placed in a space-ship, time-machine or on another planet. How many 'science-fiction' stories have been written around a search for a derelict in space or a treasure asteroid with the exact plot and characters of a 'lost mine' western or a 'pirate gold' adventure? Far too many.

Let us look at some of the classics that you published in the past, they will explain greatness better than I could in a dozen pages. "Born of the Sun", "Manna from Mars", "The Mightiest Machine", "Old Faithful", "The Other", "N'Goc", "Alas, All Thinking", "The Invaders", "Murray's Light", "The Son of Old Faithful", "The Galactic Circle", "The Upper Level Road", "The Phantom Dictator", "Islands of the Sun", "Greater Glories", "Derelict", "The Red Peril", "Davey Jones' Ambassador", "Strange City", "At the Mountains of Madness", "Spawn of Eternal Thought", "The Cometeers", "The Shadow Out of Time", "Little Hercules", "A Beast of the Void", "Godson of Almarlu", "Tryst in Time", "The Blue Spot", "At the Perihelion", "Fires of Genesis", "Water for Mars" and "Galactic Patrol".

In other words, I want *big* ideas, stories with galactic sweep, with alien locations and creatures. I don't like the "Danny Dribblepuss looked funny when he stepped out of the time-machine and found that everyone wore pink pajamas" type of story. What passes for humor, human interest and 'light' fantasty today leaves me in a cold fury.

I am in favor of your short, short story idea—remember "The Shapes" by R. DeWitt Miller? A great story in three pages. Also it would be fine for we 'young hopefuls' who hesitate to try a full length yarn.

The first COMET is not bad—I like Morey—also how about having Dold? He would make the mag seem like old times. "Lord of the Silent Death" was OK, carried out the idea of ancient science quite well. "The Ultimate Image", so so, just another story. "The Oversight" ditto. "Tickets to Paradise", a bit above average. "Equation for Time" OK. "Momus' Moon" OK. Good idea. "Bratton's Idea"—PPPOOOeeeYY!! "The Primal City", Smith is never poor. "Eyes That Watch", quite good, had Gallun's alien atmosphere. "In the Earth's Shadow", average.

May the COMET fly high, sez I.

Very truly yours,

Martin Alger,
Box 520,
Mackinaw City, Mich.

EDITOR'S NOTE BOOK

—— S T F ——

EARLY REACTIONS to the first issue of Comet seem to be good. Two of the artists seem to have found approval judging from the first letters. Two apparently failed to click with the readers, which seems to be all right since we eliminated both of them on the second issue. All in all the reactions are fair.

—— S T F ——

Leo Morey's cover seems to meet with approval on the early returns. This issue puts the matter right up to the readers as to which they like best, since we have Paul. In my own mind these two are the greatest cover artists in the field.

—— S T F ——

The cover layout has come in for its share of discussion. Reducing the picture to make space for the panel and heading has drawn some slight disfavor, but this has apparently been more than offset because the picture is free from lettering. Will need three or four issues, and a wider reaction before we can definitely say how our new cover plan is being received.

—— S T F ——

The question of answering the readers' letters in print has already come into the discussions, and I want a widespread reader-reaction on this point. I have always contended that it was unfair for the editor to answer readers point by point in print because the editor always has the last word. He can say what he thinks with such finality that the reader, instead of opening a good controversy, finds himself squelched whether or not the editor intends to be final in his reactions.

On the other hand, if we leave the letter department as a 100% reader's column (answering questions in the headlines or in footnotes) we open the door to such controversies as sometimes raged back and forth for months in the past.

Let's bring this question out and look it over. I've stated my point. You state yours in ROCKET MAIL.

—— S T F ——

The running-heads have been corrected in this issue, even as we print the first letters suggesting that this be done! That's as quick as we could respond to the suggestion.

—— S T F ——

And Harl Vincent is back, and Frank Belknap Long! Slowly but surely, these first few issues of the COMET will bring together all the names you have been missing, in a galaxy of stars.

—— S T F ——

John Victor Peterson appears with a lead novelette that recalls the spell of space vividly. He is setting a stiff pace for himself.

—— S T F ——

So is Sam Moscowitz in his first story, *"The Way Back."*

—— S T F ——

J. Harvey Haggard is scheduled for his first appearance in the COMET next month.

—— S T F ——

In this issue we introduce our "short-short" department, and expect it will prove of double interest. First it provides a place for those little gems of stories which come to us every now and then and which are almost too short to command space as a regular entry. Second, it opens the door of opportunity to every scientifiction reader who has wanted to write but felt that it was too hard to crash the gates. I predict that this department will prove to be the source from which our new writing stars will appear. You are welcome to its columns—every one of you.

Here's Our Program:-

Coming Attractions

The rockets are settling to their drive and COMET rides toward perihelion! Time is a factor in building to a peak in stories, but—

NEXT MONTH we bring you the first of a startling, thought-provoking series of stories which will be talked about as classics of the year 1941:

THE IMMORTAL
By ROSS ROCKLYNNE

Here is the spell of "Twilight" and "Colossus"—yet new, different, unforgettable! When you finish reading "The Immortal" you will sit in a reverie which feels the atmosphere of the story. Don't miss it—it's number one in a great new series!

And that's only the beginning of thrills to come! **JACK WILLIAMSON** comes to **COMET** next month with

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A story that carries a thought so powerful that, were it not side by side with "The Immortal" it would be the proud feature of ANY magazine. The fiendish, fascinating hypnotism of the "hellstones"—the unforgettable explanation of their origin—leaves you with that feeling that here is a story worthwhile—one you've always wanted!

And still more dramatic tales . . . stories that make the February issue the best yet . . . fiction in the science field by such masters as:

STANTON A. COBLENTZ
ROBERT MOORE WILLIAMS
J. HARVEY HAGGARD
JOHN VICTOR PETERSON

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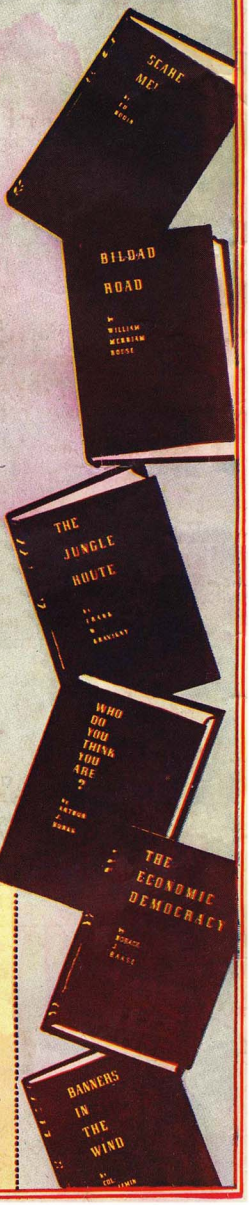

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