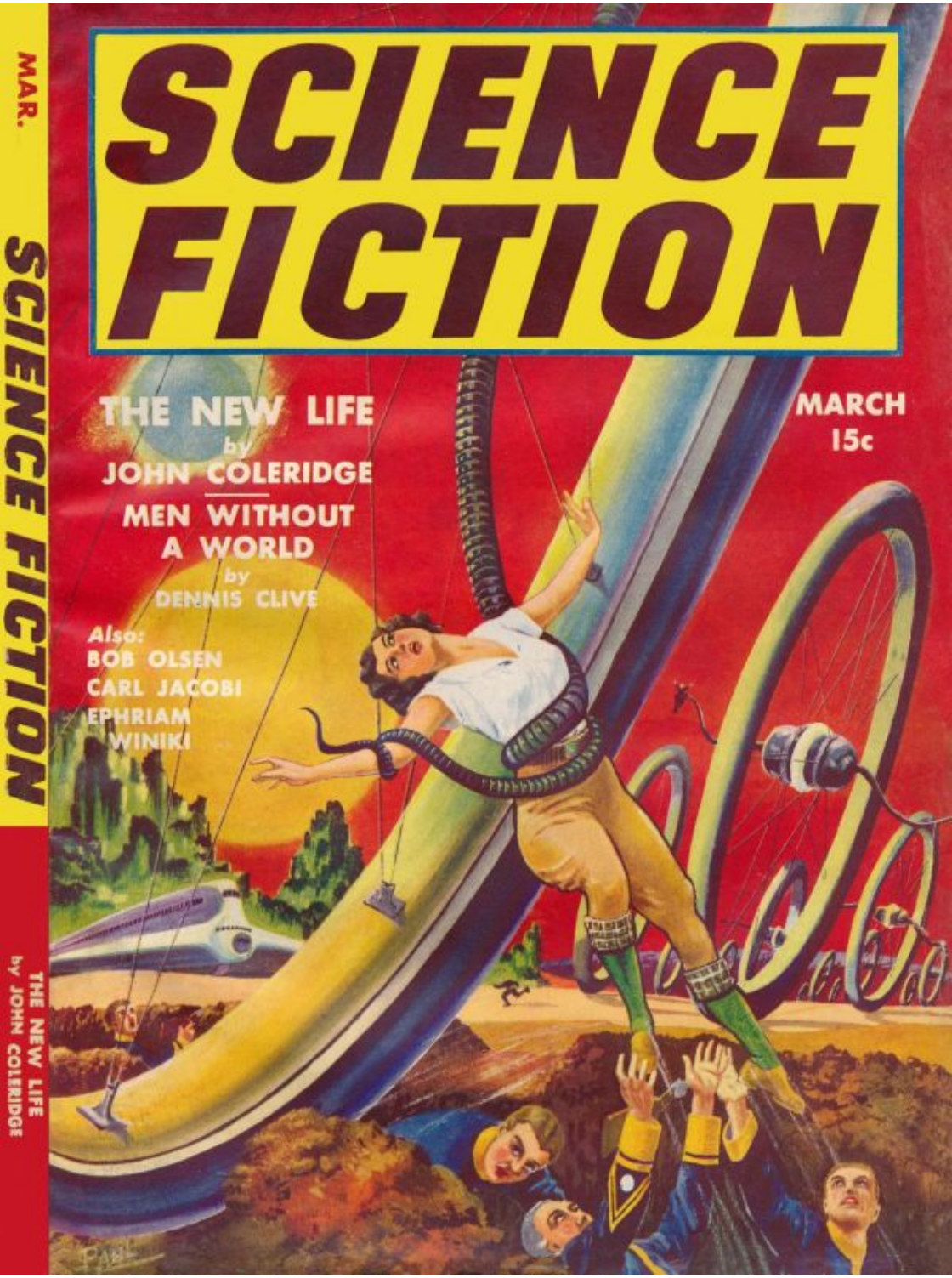
SCIENCE FICTION
THE NEW LIFE
by
JOHN COLERIDGE
MEN WITHOUT
A WORLD
by
DENNIS CLIVE
Also:
BOB OLSEN
CARL JACOBI
EPHRIAM
WINIKI
MARCH
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MAR.
SCIENCE FICTION
THE NEW LIFE
by JOHN COLERIDGE

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# ECLIPSE BEARS WITNESS

By
John Russell Fearn
Writing under the pseudonym Ephriam Winiki.

First published *Science Fiction*, March 1940.

*Dale was only a television technician—but his history-making stratosphere flight to "shoot" the longest eclipse on record, allows him, with the help of Evelyn, the beautiful stowaway, to unveil the greatest mystery of the century—using the heavenly bodies as pawns!*

# CHAPTER I
# THE GIRL'S STORY

"So, ladies and gentlemen, we look forward with absolute confidence to a record of an eclipse infinitely superior to any yet made. In this scientific year of 1998, aviation wedded to television will lay the foundation stone of supreme achievement in the study of solar phenomenon. . . . My friends, I give you Howard Dale, in whose hands will rest the task of bringing to interested millions the first two-hour record of a total solar eclipse. . . ."

A fitting conclusion to a grand speech, was this, trimmed as usual with all the garnish of a master orator. The speaker, Denham Cutts, President of the World Aviation Combine, San Francisco, mopped a bald head and waved to the young, dark-haired scientist who rose from his chair among the officials.

Howard Dale was thirty-five, athletic of build, lean and intelligent of face, with the high forehead and keen dark eyes of an idealist, and yet a man of action. . . . He advanced to the microphone with every evidence of assurance, faced the floodlights, television cameras, and enormous audience in the Combine Hall before him.

"Actually," he said, in a quiet, well modulated voice, "my part in this research is merely to utilize the knowledge of other men—not only the men who have made beam-television transmission the perfect science it is today, but also the one man who laid the basis of air travel by rocket ship, enabled us to build ships capable of traveling at fifteen-hundred miles an hour by rocket propulsion in the rarefied heights of the upper atmosphere. That honor belongs to the late Doctor Ralph Glendon, who, as we know, had such confidence in a new machine he designed that he fired himself to the moon a year ago. . . . Unhappily, he never returned, and that secret of real space-travel is still barred to us——"

"What about the writings and lectures of his daughter?" shouted a voice from the audience. "She says he's alive—that there are even buried cities in the moon . . ."

Dale raised his hand to quell the rising murmur of voices.

"Science has given its answer to the observations of Evelyn Glendon," he answered gravely. "Without proof, modern science cannot be expected to believe—— But to return to the point at issue. Traveling in the almost airless heights existing a hundred miles or so above the earth, moving at fifteen hundred miles an hour, our ship will keep pace with the umbra of the moon's shadow and we shall televise back to Earth a record of the eclipse lasting for nearly two hours, or more; a distinct improvement, you will agree, over the former twelve-minute deadline permitted for viewing an eclipse from a fixed standpoint on earth. . . . At our great height, tremorless, cloudless observation is a certainty. . . ." Dale paused, smiled modestly, then concluded, "I am happy to be the television engineer in charge of this magnificent achievement. February 26, 1998, two days hence and the date of the total solar eclipse, will go down in scientific history."

He bowed to the cheers of the audience, walked from the platform and made his way towards the private officials' exit. . . .

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As he hurried along the opulent corridor leading to his private apartment in the immense, self-contained building, Dale became aware of light footfalls rapidly pursuing him. He went on with easy, swinging strides, until at length a girl's breathless voice hailed him.

"Mr. Dale! A moment, please!"

He stopped and turned, slightly surprised as he recognized the trim, smart costumed young woman moving towards him. He had seen her oval face and blonde hair too many times in newspapers and scanning screens not to recognize her. . . .

"Hello, Miss Glendon!" he exclaimed cordially, as she came up. "Something I can do?"

The girl's clear blue eyes were bright with indignation. "There certainly is!" she retorted. "Firstly, you can apologize for your statements about me out in the hall. Who are you to tell me I'm all wrong when I say my father still lives, that he's discovered cities under the surface of the moon?"

Dale said nothing, waited expectantly for her to continue. She went on speaking with a cynical touch to her voice.

"I don't expect you to believe me any more than the rest of these scientific bone-heads when I tell you that dad has radioed to me by short wave system, ever since he landed on the moon a year ago. He and I are the only ones with the particular wave length . . ."

"I've heard you make that statement before," Dale acknowledged quietly, "but it isn't very convincing when you won't permit anybody to see this short wave apparatus, is it? Oh, yes, I know you have relayed to the world what you claim is your father's voice speaking from the moon—but you know what science thinks. That it is just a phonograph record. . . . And do you verify matters by letting anybody see the apparatus you use? You do not!"

"Would you, if you had the secret of a perfect short-wave radio apparatus entrusted to you?" she demanded.

"So that's your reason?"

"It is. I gave dad my solemn promise the secret would never pass out of my hands. Why, even in this Combine there are certain people who'd give their eyes to see it—plan out something on the same lines, use it for all kinds of vicious purposes. No, the secret of a radio that can communicate over 240,000 miles remains mine, Mr. Dale . . ."

The girl paused, suddenly dropped her cold poise and became beseechingly feminine.

"I tell you, Mr. Dale, everything I've ever said is truth. It *has* been father's voice I've relayed—not a phonograph record made beforehand. What is more, when dad gives me the final details of construction for another ship, space will be open to anybody . . . You see, I'm only getting dad's radio messages in snatches. Good though the apparatus is, reception and transmission are constantly interfered with by the Heaviside Layer. There isn't the penetration there ought to be. But, if I could only afford a machine that would move my receiver a hundred miles above the earth I'd have the chance to get the full final details of a new rocket ship, identical in design to the one dad used. . . ."

"Interesting," Dale murmured, unmoved.

"I last heard from him three nights ago," she went on eagerly. "He promised to give me the final communication, with complete details, at the time of the total eclipse. The absence of light in the moon's umbra shadow will, he believes, make his communication crystal clear. . . . But it'll take perhaps thirty minutes to give it—longer than any eclipse lasts, unless . . ." She stopped, looked up with demure innocence as Dale compressed his lips.

"Are you daring to suggest you come on the eclipse research ship?" he demanded. "You surely must think me a first class chump. Why doesn't your dad come back to Earth with his invention if he's alive? Why all this radio business?"

"Why should he come back all this way when he's making important discoveries?" she snapped back. "Likewise, what's wrong with my coming aboard the ship? I've a right to prove

myself correct. I'm asking you as a fellow scientist to do something I can't afford to do. I told dad I'd find some way to get his message at total eclipse. I was thinking of you when I said it. . . ."

"Charming," Dale commented, smiling bitterly. "I'm very flattered, of course, but I'm afraid I can't help you. It's more than my job is worth. Just the same as I'd get fired if I dared agree with your views that your father still lives and that there's a lost civilization inside the moon. . . ."

His words made the girl look up quickly. "You—you mean, you *do* believe me?" she cried. "You're not like the others?"

"Unfortunately, Miss Glendon, I'm just a paid scientist—a television engineer," he sighed. "If I dare disagree with the views of the powers that be—publicly, that is—I'd find myself broke and out of a job. That's no pleasant prospect in this commercialized age of 1998. But my private sympathies are with you. . . . I do believe you, but daren't say so. At least not until you provide proof. And I guess nothing short of actual photographs or your father's return to Earth will convince science as a whole. . . ." He looked at her seriously. "You see my position?"

"You don't know what it means to me to have even one person believe in me," she said quietly. "I'm sorry for what I said a few moments ago. . . . But surely you can take me with you? I'll give science all the proof it needs. Please!"

"No use," he shrugged: then with sudden earnestness, "Just why *doesn't* your father come back? That's all you need . . ."

She hesitated on an answer, bit her underlip, then turned very suddenly and went away without another word up the corridor. . . .

## CHAPTER II
## INTO SPACE!

Dale could not help feeling rather disgruntled at the way Evelyn Glendon had taken exception to his adherence to duty. As he had pointed out, disbelief in her statements was the bulwark of his job with the Combine; no true scientist of 1998 was prepared to listen to the vaporings of a girl even if her father had been the inventor of the first rocket-ship.

The moon, scientifically and visibly, was dead—and so, science believed, was Doctor Glendon himself. Stories of short wave radio reception, of vast scientific knowledge left by a dead race inside the moon's thin husk, was all hot air, the effort of a hard-pressed young woman to scrape together easy money by the brilliant memory her father had left behind.

Some wondered, the majority doubted, but a select few—Dale among them—believed. That was what made it so hard. . . . Only one thing really puzzled him—the girl's desperate desire to complete radio reception from the altitude of the ship. If she had gotten this far, she could surely finish! Somehow, he felt, the whole thing had been a fabrication, but where the flaw lay, he could not determine. The trouble was, he secretly liked the girl quite a bit. . . .

He had no further word from her, nor was there any sign of her among the milling sightseers who spent the remaining two days in examining the research ship from end to end. On the morning scheduled for departure, she was still absent, nor did Dale have the opportunity, being with the officials of the Combine, to look around for her.

The research ship, 300 feet of beryllium steel, tapered at both ends and sprouting rocket-tubes fore and aft, was covered with a protective alloy for the nullifying of dangerous radiations at high levels. It lay poised in its cradle at an angle of forty-five degrees, pointing to the gray, somber dawn of the February sky.

Around it, held back by cordons of police swarmed a multitude of people, early risers determined to witness the take-off. In front of them, mounted on trestles, cranes, and every conceivable object that gave a high point of vantage, were newsreel men, television experts, press photographers—all the breed of men and women whose job it is to give the news of the world to the world.

As usual, President Cutts was in the forefront of the Combine officials, gave his speech in his pompous, dictatorial style, only repeating what the world already knew—that the total eclipse of the sun would be relayed by television from a hundred-mile altitude back to earthly receivers, thence relayed to every private and public receiver. . . . Within all the big scientific institutions, astronomical experts would be grouped before giant scanning screens, making notes, taking movie films, observing a two-hour total eclipse for the first time in history. Definitely, the whole thing represented a conquest of speed over time. . . .

Dale was inwardly thankful when the speech was over and he was allowed action. The ship's crew, under the command of bulldog Commander Bradman, filed away to the various controlling sections of the craft. The handling of the vessel was no part of Dale's work; his connection with it was limited to giving orders for maneuvering for positions and angles, afterwards to be determined and acted upon by Commander Bradman. . . .

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At 8:00 to the very second, the blasts roared through the groundward rocket tubes, hurtled the slender craft upwards towards the gray sky. Within the television transmission room Dale

stood before the broad radiation-proof window and gazed outside. Beside him, "Shorty" Blane, tow-haired transmission assistant, watched Earth falling rapidly away below. The vast mob of people became couched in a minimizing square cupped in the heart of a sprawling, lofty city.

Then suddenly they were hidden from view as clouds embraced the ship in dense white mist. The two men felt the floor thrusting against their feet as the vessel's speed slightly increased in the diagonal leap against the pull of gravity and air resistance.

They stood motionless, tensely waiting, as the clouds thinned out and the vessel plunged through the 7-mile-high troposphere into the stratosphere. The risen sun, blindingly brilliant, shone through an atmosphere that externally registered well below freezing point. The sky had become dark violet.

Without pause, the ship climbed higher to reaches that were violet black, gaining speed as the air became thinner. It hurtled through the 38-mile stratosphere layer and burst suddenly into the dazzling, warmer beauty of the auroral draperies. Outside the window, concealing even the sun's brilliance, crackled and twisted incredible electric energies, shooting stars, fragments and pieces of meteoric matter, the eternal hurtling dust in the Earth's upper atmosphere—dust that was mostly nickel iron, reduced to flaming streamers by the frictional impact of the atmosphere.

Here and there, meteoric pieces hurtled dangerously close, bounced off the vessel's stupendously thick hull, and she went onwards with scarcely a check to her ascent into the seething, boilingly hot fury of the ionosphere, immediately below the Heaviside Layer, a belt known by the stratosphere pilots as "Hell's Gulf." The external thermometers gave a reading equaling the boiling point of water, heat produced by the dazzling sun's invisible rays beating on the Heaviside Layer immediately above. . . .

The whole great gap was a mass of brickbats and bolts of energy, terrific solar radiations which, but for the proofed walls and windows of the ship, would have incinerated the occupants, or failing that, have turned them white as Albinos with the storm of radiation.

"Pretty, isn't it?" murmured Shorty laconically, handing over colored goggles from the rack.

"Yeah—from this side of the window." Dale slipped the glasses over his eyes and stared out upon the last few miles of the gap, felt the ship rocking and swaying with desperate power as it fought its way upward for the last twenty-five miles.

The air was thinning—the ebon dark of space was replacing the gray black of the rarefied heights. The whole gulf of infinity loomed ahead, frightening in its majesty. Far below, a seemingly incredible distance, the earth was no longer flat, but a bulging planet——

Then the ship had cleared the shield of the Heaviside Layer and was free in the depths of space, 100 miles above the globe.

Dale studied the sun carefully. It blazed with savage intensity, backed by its streaming corona, lashed with prominences. But at the lowest right-hand corner the first "bite" of the encroaching moon was becoming manifest.

Dale turned and snapped on the control-room microphone.

"Quarter speed, and stand by for orders," he called sharply.

The ship began to slow down and cruised with leisurely ease in the airless ether. Dale waited for a moment, then switched on the Earth radio contact.

"Okay, Earth?" he called quickly.

"Ready and waiting," came the clear response from the speaker. "What are your readings?"

Dale studied his dials, then replied, "Altitude one hundred miles, speed one hundred miles an hour. Eclipse shadow will shortly overtake and then transmission will begin. No trouble. Quite a few brickbats flying around, but not likely to do any harm. Stand by."

He turned aside and carefully checked over the machinery—the telescopic television projector itself, the X-ray photographic apparatus, the numberless instruments. . . . When he came to the solar micrometer, he found Shorty regarding it pensively.

"Something the matter, Shorty?"

"Eh? Oh, no—except—— Well, there's a chain of pretty deep sunspots in action. Take a look . . ."

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Dale bent over and studied the sun's dimmed, reflected image, already half-obscured by the moon's flawlessly notched edge, giving supreme testimony of absence of lunar atmosphere. What remained of the sun's disk was plainly mottled, far more so than Earth plates had ever shown it through the blanket of atmosphere.

"Yes, they are pretty deep," Dale admitted, straightening up. "Nothing unusual about them, though. It's the sunspot period just about this time."

"Think they'll interfere with transmission?"

"No reason why they should. You might as well take a reading of them—depth, area, and so forth. We can see how they check up on Earth plates. . . ."

Dale glanced at his watch and then turned back to the window. The flooding glare of the sunshine was dying, blocked by the fast moving bulk of the moon. Already the dim, uncertain shadow of the penumbra was in evidence, reaching out across the void.

Shorty finished his sunspot calculations, filed the reading in the cabinet, then began to fuss around anxiously, his keen gray eyes studying the vital machinery from every angle.

The complicated television projector had its telescopic receiving lenses firmly locked into a special section of the ship's wall, so that every image received would be absolutely free of distortion, would be transmitted back to the Earth receivers along the carrier wave already being generated by the softly humming machines.

At last Dale drew the control-room mike to him, stood watching as the last crescent of sun began to become swallowed up.

"Full speed ahead!" he snapped out—then he swung to the Earth transmitter and yelled, "Stand by! Be ready for reception!"

Both for him and Shorty there was an unexpected, indefinable thrill in watching the umbra of that total eclipse sweep through the distant void, a cone of darkness, point earthward, darker than space itself . . .

The ship began to strain enormously as the full blast of the rocket recoil sent it skimming with great speed through the empty gulf. Dale divided his attention between the drawn scale map on the wall beside him, and the narrowing sickle of extinguishing sun. Everything now depended on accuracy, the demonstration of carefully worked-out mathematics to maneuver the ship directly into the center of the umbra as the shadow first contacted Earth directly over Midway Islands in the approximate center of the Pacific Ocean—thence pursuing its 1,500-mile-an-hour rush across the United States, the Atlantic, the English Channel, and so on to Europe. . . .

As the ship hurtled faster and faster in its leap to join up with the shadow, the remaining segment of sun closed more slowly. Dale became a dynamo of action, snapping out orders, watching tensely, the strain of the anxiety he felt clearly written on his drawn face. Shorty remained silent, stubby fingers poised over the switches of the television projector panel.

The crescent began to close; Baily's Beads became transiently evident, then——

"*Now!*" Dale shouted, and at that command, every man who heard him knew exactly what to do.

The television machine started up, whirred steadily, a mass of rotating fan blades and complicated inner lenses. The generators throbbed. Shorty stared at the pilot scanning-screen and found the image of the totally eclipsed sun dead centered.

"O.K.," came the voice of the Earth operator. "Reception perfect. Nice going, Dale. . . ."

Dale contacted Commander Bradman again. "Maintain present speed. No divergence whatever. We mustn't move out of the umbra. . . ."

"Right!"

Dale sighed with relief, then turned to look out on the astounding glory of the eclipse. Though space makes the prominences and corona always visible, they could not be viewed with any ease by reason of the sun's unshielded, blinding glare. Now, with his dark glasses off, he and Shorty stared in awe-struck delight along the central track of the shadow cone.

No earthly spectro-heliograph had ever revealed so perfectly the awesome marvel of that ruby chromosphere and prominences. No eye from an Earth position had ever before seen the corona so magnificently revealed—a blinding haze of pearly light sweeping out for millions of miles into the coal black of space. Traveling along in the track of that shadow was an unforgettable experience.

The cabin now was in almost total darkness. What light there was came from distant starshine and the small relief bulbs in the ceiling.

## CHAPTER III
## POWER LEAK!

For the space of fifteen minutes, the transmission of the eclipse proceeded perfectly. Ever and again the delighted voice of the Earth operator broke sharply from the speaker. Then Shorty, back at the machinery, looked up with a sudden start of anxiety, his gaze following the path of the fan blades in the projector.

"Say, it's slowing down!" he gasped. "The image'll be badly blurred!"

Dale swung around from the window, strode to the machine and studied it earnestly. The speed of the fans' rotation, essential to flickerless transmission back to Earth, had noticeably slowed down.

"What the—?" he began in bewilderment—then he raised his eyes as he became aware for the first time that the lights in the roof had lost their brilliance. The generators too were not humming as powerfully as of yore.

"The currents leaking somewhere!" Shorty cried hoarsely, jerking around from a survey of the meters. "Look here, we're down to nearly half our normal output—"

"Hello there!" bawled the Earth operator impatiently. "What's gone wrong? Reception's falling off—— Images blurred . . . Remedy immediately!"

"Okay, keep your shirt on!" Dale snapped, then he turned to join Shorty in looking at the output meters. "I don't get this at all," he muttered. "Our current's being absorbed at a terrific speed—"

"Solar field, maybe?" Shorty suggested.

"No; I don't think that's likely. More likely a faulty contact or something in the power room. I'll take a look . . . Tell Earth to stand by."

Dale turned swiftly and grasped the handle of the metal door leading to the small but efficient generating chamber in the nose of the ship. Then he stepped back in surprise as the door refused to budge.

"Hey, Shorty, what's the idea in locking this door?" he demanded, glaring around and fumbling in his pocket for duplicate keys.

"I don't remember—" Shorty hesitated, puzzled, then he broke off as Dale savagely wriggled his key in the lock. On the other side of the door there came a distinct clink of a second key dropping to the metal floor—then the door swung wide.

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Dale strode within, only to stop in amazement as he found that the light was on. Instantly, his attention was forced to a slim figure seated amidst the droning machines.

"Evelyn Glendon!" he gasped, astonished. "What the—"

He began to stride forward, then stopped again as he caught sight of a small revolver in the girl's steady hand. Bewildered, he gazed at it, then to the complicated but compact radio device on the folding table in front of her.

" 'Morning, Mr. Dale," she said laconically, her blue eyes bright and determined. "Since you didn't see fit to give me a break, I took one for myself. It wasn't difficult. Remember the sightseers? I made myself one of them, brought my apparatus aboard in an ordinary valise, and hid it in here. Then I concealed myself in the wall cupboard overnight, waited until the

journey got under way . . . Pity I overlooked the fact of your duplicate keys, but I guess my revolver equals matters up."

Dale was trying to collect his scattered ideas when Shorty came whirling in. Catching sight of the girl, he pulled up short, rubbed his untidy head in perplexity.

"Gosh! Miss Glendon!"

The girl smiled with complete self assurance, waved the revolver suggestively.

"I suppose my hooking my radio to the power feed made your transmission output drop?" she inquired casually. "That's a pity, of course, but I think my work is a darned sight more important than any solar eclipse."

Dale looked back at her apparatus, studied it carefully. Then he looked at the girl sharply.

"I thought you said you wanted to come aboard to get a final reception from your father?" he demanded. "That thing there is a beam radio transmitter—remote control device . . . And what is more," he went on, more slowly, "this—can't go on!"

He charged suddenly in one straight dive, caught the girl utterly unprepared with his whirlwind tactics.

The revolver flew out of her hand and in her effort to reach it, she fell to the floor. Instantly Dale whirled her to her feet, pinned her arms to her sides. She kicked and threshed wildly, lashed out at his shins with her feet.

"Okay, take it easy," he grinned, looking down into her hot, infuriated face. "Young ladies can't do just as they like aboard a research ship . . . Shorty, disconnect this radio apparatus and get the transmission going again. Maybe we'll grab a few minutes for you at the end, Miss Glendon—"

"That won't do!" she screamed desperately, fighting like a wild cat. "Let me go, you big gorilla! This isn't—isn't what you think! It means my father's—whole life! Everything!"

She relaxed from the sheer helplessness of wasted effort. Dale still held grimly onto her, watched as Shorty cut out the contact of the radio. Instantly the generators in the television room hummed as of yore. Shorty gave a satisfied nod and went out . . .

"Reception O.K.!" intoned the Earth operator.

Slowly, Dale released the girl, allowed her to fall back slackly against one of the machine rail guards. In silence, he picked up her fallen revolver and pocketed it.

"You might have known you couldn't make it," he said coldly.

She didn't answer him. She stood in a half-slumped position, blond hair tumbled dejectedly over her face . . . Then all of a sudden she looked up with blazing eyes.

"I hope you feel satisfied when you realize you've probably cost my father his life!" she flamed bitterly. "Yes, this is a beam radio for remote control—and that yarn I handed you about getting a message was so much bunk. But it sounded logical. Whether I'd used this equipment or an ordinary transmission and reception radio wouldn't have made any difference in regard to power. Either would cut your output to half and you'd never have known the difference . . ."

"Then why the duplicity?" he cried. "In any case I couldn't have allowed you to cut our power down like that. Or maybe you didn't realize it would take so much?"

"No . . . I didn't."

"Suppose," Dale said quietly, "you tell me what it's all about? Why you have need for such trickery?"

"What's the use?" she muttered hopelessly. "The chance is gone now, and dad—" She stopped brokenly, her eyes misting.

## CHAPTER IV
## "I THINK YOU'RE NUTS!"

Something stirred inside Dale at her obvious grief. This wasn't play-acting. He moved forward and caught her by the shoulders, forced her to look at him.

"Do you mean you were guiding your father by remote control?" he asked slowly. "Is that it?"

"Yes." Her voice was low. She went on mechanically, "You see, he's desperately ill—so ill he can't trust himself to drive his ship back home again. He has spells of unconsciousness, and space travel will probably make him unconscious most of the journey because of gravitational strain . . . He—he told me about it some little time ago, and in his last message, he said he intended to convert his radio equipment for automatic remote control of his driving panel. He gave me the details of the transmitter necessary for the job . . . That's it there. But down on Earth the Heaviside Layer interfered with its action. I just *had* to be beyond the Layer . . . That was why I tried to get your permission to come aboard."

"But why couldn't you have *told* me your real reason?" Dale asked in bewilderment. "I would have been more willing—"

She gave a wan smile. "I don't think you would. You see, dad is suffering from a severe form of radium poisoning, highly contagious. He contracted it on the moon. His ship, too, is affected in the same way . . ."

Dale stared at her blankly. "But, good heavens, girl, do you realize what such a thing might mean? Think of the danger! Not only those who might come into contact with him, but even metals if they were to touch his ship . . ."

"There you are! I guessed you wouldn't let me do anything if you knew the truth. For myself, I was prepared to take the risk. I'd made arrangements so there wouldn't be any possible chance of contagion. Of course. I might have caught it, but—"

The girl suddenly straightened up, firm little chin projecting stubbornly.

"I guess it would have been worth it!" she declared proudly. "Father would have brought back the proofs of the scientific knowledge that awaits us inside the moon, and—— Well, as it is, I don't know what's happened, but I can pretty well be sure that your cutting off the radio control would cause father to fall back into the moon's gravitational field. It's a very unlikely chance that he'd be conscious, judging from what he told me."

Dale shrugged, said quietly, "I'm sorry for that, of course, but don't you think that your father would be better off dead? Don't you think, if he's in the condition you say, he would prefer death to risking bringing contagion and probably a metal plague back to Earth?"

"Yes; of that I'm almost sure. He would never have attempted to return but for learning how science refused to credit his lunar messages. He knew that I was taking the rap, so he decided to come back with proof. Long ago, he gave me the details of a rocket-ship able to conquer space—plans for a ship similar to the one he used, only with improvements suggested by his own experiences. Trouble is, I haven't the money to do anything about it. What cash there was in dad's fortune was absorbed in that first machine of his . . . As you know, I've tried ineffectually to interest scientists and so secure a financial backing . . . Without proof, they won't even listen to me, and I suppose I can't blame them. Guess that proof's gone

forever now . . .” The girl sighed heavily. “Well, I’ve done my best. You might as well hand me over to Commander Bradman and finish the job.”

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Dale thought for a while, then asked slowly, “How exactly did your dad contact radium poisoning, anyway?”

“Well, piecing dad’s messages together, it seems that the moon got into its hollow internal state through the action of radioactivity. The outer husk of the moon’s pumice rock is only two miles thick. Some of the radioactive areas still exist in parts of the moon’s interior, just as there is a much younger radioactive center in our earth’s core. Traces of connecting links to these radioactive areas, on the moon, are seen in the bright streaks and rays. Those denote the surface outlets . . .”

“Go on,” Dale invited, thinking.

“Well, once he got to the moon, father naturally investigated the under-world. There is no air, of course, and he went around in a space-suit of his own manufacture. Unfortunately, it wasn’t proof against radioactive radiations. His suit went rotten, but being near his ship, he got back just in time to avoid disaster to himself—only to discover that he’d got a disease like radium poisoning, only difference being that it’s more virulent and contagious. He found that his ship was affected too, being pitted and eaten away. Naturally, being so tough, it could last a long time, but he describes it as a sort of progressive rust . . . It seems he was desperately ill before he hardly realized what was upon him. Also, he told me that it seemed obvious to him that the lunar inhabitants had had the same trouble to combat, because when he made later investigations—in the ship, of course—he discovered that their underworld cities are proofed in every direction by dense, peculiar metal which prevents radioactivity getting past . . .”

“But there are no Selenites left?”

“No. Only their vast heritage . . .”

“Hmm . . .” Dale stroked his chin. “Proof,” he muttered. “That is what we’ve got to have if scientists are ever to believe . . .”

“We might get private enterprise—” the girl began, then Dale cut her short with an inspired gasp.

“Wait a minute! I believe I’ve got something . . . Dense material!”

“The—the lunar cities?”

“Yes . . .” He stopped, stared at her with gleaming eyes. He glanced hurriedly at his watch. “Maybe I’m screwy,” he breathed; “But if not, we’ll give the scientists looking in on this eclipse absolute proof that you and your father are right!”

The girl stared amazedly. “But—but how can—?” she started to stammer, only to break off as Dale gripped her arm and whirled her into the neighboring transmission room.

“Everything O.K.?” Dale inquired, as Shorty looked up in mild interest.

“Sure. From the sound of things, every darned scientist on Earth is getting the thrill of his life.”

Dale glanced at the girl, gave her a significant smile. “In a few minutes, they’ll get an even bigger one,” he murmured. “Shorty, get me that reading you made on the sunspot chain—you know, the one we were discussing before the eclipse started . . .”

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Shorty looked puzzled, but he went to the recording cabinet and handed over his card of computations, watched, in some surprise, Dale’s gradually deepening expression of excitement.

"By gosh, yes it *is* a chance!" he whistled at last. "The present depth of those major central sunspots is roughly 216,000 miles, about a quarter the depth of the sun its-self. That means they go down a heluva way into the sun's inner structure . . ."

"So what?" Shorty asked, baffled.

Dale didn't answer immediately. He tossed the record to one side and went to the window, gazed out on the still total eclipse, then back towards the umbrated Earth.

"Directly over the midwestern states, heading eastwards," he murmured, apparently to himself. "We've about an hour's transmission left. That'll do perfectly."

He looked at his watch, then contacted the Earth operator.

"Everything O.K., Earth?"

"Perfect. Reception ceased for ten minutes but it's O.K. now. Every scientist sends congratulations."

"Yeah?" Dale grinned rather cynically. "Tell 'em all that they haven't seen anything yet. The big exhibition is about to commence."

"Meaning what?"

"Tell them I've got a girl aboard this ship—the one that every scientist has seen fit to unreasonably persecute and discredit—one Evelyn Glendon. She standing right here beside me—"

"Mr. Dale, you really shouldn't do this!" the girl herself broke in anxiously, coming forward. "You're only asking for trouble, and—"

She broke off and turned sharply as a gasp floated from the speaker.

"Well, I don't know what you're doing there, Miss Glendon," the Earth operator said, "but you're making it awful tough for Dale. Hey, Dale! You there? Don't you realize that this eclipse research is a secret? No outsider is allowed to—"

"Will you shut up and let me speak?" Dale demanded sourly. "Tell all scientists that I'm going to try and prove that everything Miss Glendon has said is true. I'm going to prove that the moon *has* got buried cities, and if that is proven, science will have no alternative but to give Miss Glendon full support! Since every scientist is watching the screens, tell them to keep on watching. In a few minutes they'll see plenty . . . And you might give me a relay hook up so I can explain things to them by radio. Stand by . . ."

"All right—but I think you're nuts!"

## CHAPTER V
## X-RAY THE MOON

Dale cut the Earth contact and turned to Shorty.

"Stop the television transmission," he ordered briefly.

"Huh?" Shorty stared like a man told to commit murder.

"Oh, don't stand there gaping, man!" Dale roared. "Time's getting short! Hurry up!"

"Maybe you *are* nuts," Shorty murmured, as he obeyed the order. The whirling fans became still. The driving unit stopped its steady humming.

Without a moment's hesitation, Dale unscrewed the massive, lensed front of the televizor extension, swung it on one side, then between it and the telescopic extension to the wall he fixed the huge X-ray screen, normally used for photographic observations on distant stars. With vigorous movements, he bolted the whole thing together again.

"Say, what in thunder's the idea?" Shorty demanded. "That X-ray screen's no use without X-rays to operate it. If you want to play around why don't you fix it in the camera and—"

"Start up again!" Dale interrupted him briefly.

Baffled, Shorty threw the switches. The machine went into action as before. Dale swung around and stared at the pilot scanning-screen, Shorty and the girl looking over his shoulders.

"The—the eclipse isn't there!" Shorty yelled in alarm. "It isn't even recording! Dale, you __"

"The eclipse *is* there," Dale corrected. "Look through the window if you've any doubts. The difference here is that the moon is rendered transparent. See those heavy dark markings in the center of the circle? They're *inside* the moon—"

"Inside!" cried Evelyn. "You mean that's what dad saw?"

"Just that!" Dale contacted Earth again, spoke sharply. "Hello Earth! Got that hook-up ready for me?"

"Shoot!" the operator invited.

"Attention all scientists!" Dale intoned. "Howard Dale speaking from the eclipse research ship. You have had ample time, ladies and gentlemen, to record the normal eclipse, therefore I take the liberty now of replacing it with the first complete X-ray of the moon ever made . . . Listen, please! You see a circle of hazy brilliance caused by the sun behind the moon, but it is not too intense for careful study. Gaze well! In the center of the circle you behold sprawling dark markings.

"Those are the lunar cities mentioned by Miss Glendon from information sent to her over short-wave radio from her father. She has told me that the moon's outer rock husk is only two miles thick—but these cities, in order to combat the effects of still undead radioactive substance existent in the moon, are of extremely dense material . . . Please remember that, in view of what I'm shortly going to tell you . . . The view is clearer than normal, of course, for two reasons. One is the absence of air both here and on the moon, and the other is the telescopic apparatus attached to the televizor, shortening the moon's apparent distance . . ."

Dale paused for a moment and caught a glimpse of Evelyn and Shorty watching him tensely.

"This feat is made possible," he went on, "by violent X-ray activity on the part of a field of sunspots. The existing field goes down some 216,000 miles into the sun itself. As you are

all aware, at a temperature of millions of degrees, radiant energy consists of X-rays, temperatures such as exist at the depth I have given. If *all* the atoms and electrons in the sun were suddenly abolished, the X-rays confined in the interior would scatter through space with the speed of light; some 300,000 years supply of radiation would be instantly lost. Normally, however, the atoms dam back this flood, catching and turning away the ether waves as they try to emerge, absorbing and re-emitting them in a new direction . . .

"But, in the case of intense, deep-seated sunspots, immense amounts of radiant X-rays escape, pass out into space—and in such a case as the present one, when there is a direct gravitational line between sun, moon, and earth, radiations are drawn strongly in one direction. In effect, the sun becomes the anode of an X-ray machine, the moon is the subject, and my barium platino-cyanide screen between telescope and televizor is, as in the normal way, the resolving medium. Also remember that in space, at this height, there is the same effect of a vacuum as that produced artificially by a Crookes tube . . ."

"Nice going!" whispered Shorty.

"I have said," Dale went on steadily, "that Miss Glendon's reports of her father's observations distinctly state that the moon has been hollowed out by radiant energy, but that the cities are proof against it. That is why they are of a metal dense enough to be visible against the haze which constitutes the thin husk of the moon's shell. Remember that that shell is only porous pumice rock, offering but little resistance to the power of solar X-rays . . . Before very long, indeed, the moon is likely to break up into cosmic dust . . .

"There, ladies and gentlemen, right before you, is the proof that Miss Glendon is right! Incidentally, she has the secret of perfect space-travel, such as her father used . . . All she needs is the cooperation of the scientists who have so far not seen fit to heed her. Science must conquer space, must find new ways of combating the moon's dangerous radioactive interior, if the secrets of a lost and mighty scientific race are to be probed . . . Gaze—for yourselves!"

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Dale turned away, trying to imagine what sort of effect his words had had back on Earth. Evelyn came forward and caught his hand. Her blue eyes were bright with hope and gratitude.

"This—this is marvelous, Mr. Dale!" she breathed, staring at the pilot screen and its unmoving picture. Then she frowned anxiously. "But—but suppose they say it's all a fake?—another of my tricks? They might even suggest you doctored the X-ray plate or—"

"I guess that isn't very likely, Miss Glendon!"

All three turned sharply at the voice, to behold Commander Bradman standing in the doorway. He came forward slowly, a smile on his bronzed, rugged features.

"I've been listening to your speech to the scientists, Dale," he explained. "But I thought I'd better come along and verify things for myself . . ." He glanced across at the girl and she smiled rather nervously.

"If only other scientists had the brains of this young man here, there'd be far more progress in the world," he commented. "For my own part, Miss Glendon, I've always felt it was an injustice the way you were treated . . . Now I'll add my bit . . ." He strode across to the Earth microphone, switched it on.

"Commander Bradman calling!" His booming voice had an arresting ring about it. "These few words will serve to verify that every word Howard Dale has broadcast is truth. Miss Glendon is here, and the present X-ray eclipse is perfectly genuine. If any of you are inclined to suspect trickery, or that this has been done without the knowledge of the ship's crew, refer to me . . . We await your reply, gentlemen."

Bradman turned aside, smiled a little. “I had another reason for coming along,” he commented. “We’re moving rapidly to ward the eastern coast. I wondered if you intended to follow the eclipse shadow right across the Atlantic to Europe, or whether you propose casting it off and pursuing a leisurely journey back to San Francisco.”

“That depends on the answer we get from Earth,” Dale answered. “If they’ve had a long enough recording—”

He broke off, raised a hand for silence as the Earth speaker began to liven. There was a brief interval, then the thick, pompous voice of President Cutts became audible.

“Your communications have been received. Dale—also yours, Commander Bradman. If Miss Glendon is there, will you kindly ask her to speak. There are one or two questions scientists wish to ask. . . .”

Dale silently moved the girl forward She spoke rather timidly.

“Yes, Mr. Cutts? This is Evelyn Glendon.”

“You say you have full details of a special rocket-ship, and only need financial backing?”

“Yes, sir.”

“Why doesn’t your father return to Earth?”

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The girl explained the reason slowly, repeating exactly what she had told Dale. At the end of it, Cutts gave a satisfied sigh.

“That was the point that baffled us, Miss Glendon. . . . Lastly, did your father presume that Selenites vanished from the moon when the air gave out—or is there air inside these buried cities?”

“There is no air. Either the Selenites died for that reason, or else migrated to other worlds.”

“And left all their secrets behind?”

“Whatever the reason for their departure, their secrets *are* left behind. We surely don’t need anything more?”

“Nothing more,” Cutts agreed. “I have received radio reports from various scientists scattered about America—in fact in various parts of the world—and they all tender to you, Dale, their sincere thanks for the scientific achievement you have brought about, the first visible X-ray revelation of what exists inside the moon. With that revelation, there definitely goes all trace of doubt regarding Miss Glendon’s assertions. . . .”

There was a significant pause, then Cutts spoke quietly.

“Science cannot exactly apologize, Miss Glendon, so it will do the next best thing—give complete cooperation. . . . On behalf of all scientists, I am asked to tender you congratulations!”

The voice ceased and the speaker muted. Dale looked at the girl breathlessly.

“It worked!” he cried. “It convinced them! And thanks to you too, Commander.”

“Forget it,” Bradman said, smiling.

“Say, what do I do?” asked Shorty. “Keep the transmitter going?”

“After this!” Dale yelped. “I’ll say not! We’re turning around and heading back for Frisco. If the scientists haven’t seen enough by now, it’s their own fault. . . . Besides, when we can conquer space in the style of Dr. Glendon, we can pursue any eclipse, any time. . . . O.K., Commander, let’s go!”

Bradman nodded and went out.

Within a few minutes, the machine drifted out of that abysmal shadow. A shaft of bewildering light stabbed across infinity. . . . Brilliant glare began to flood across the transmission chamber.

Dale turned to the girl, found her looking through the window with her eyes narrowed against the returning blaze.

"Happy?" he whispered, and she nodded slowly.

"Yes, I'm happy—except for thinking about dad. If he does return, we shall soon know. If he doesn't . . . Well, his honor has been cleared. He hasn't died in vain. Thanks—to you."

Dale smiled. "I guess you need somebody to look after your interests and help you," he murmured. "Not just now and again, but all the time. Unless you see anything against it. . . ."

"I'm afraid I don't," she admitted shyly, then averted her eyes from the savage glare of sunshine and looked demurely down toward the cloud-wrapped ball reaching up from below. . . .

THE END

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BIBLIOGRAPHY

1. The eclipse referred to—the total eclipse of the sun on February 26, 1998—is stated in Chambers Encyclopedia, and will cross the Pacific Ocean, United States, etc., generally following the route described. Beginning at about 8:30 a.m., February 26, 1998, is approximately (as nearly as figures can prove) a Tuesday. In case of doubt, actual day has been omitted.

2. The atmospheric layers up to 100 miles are extracted from "Through Stratosphere to the Moon," by Gerald Heard.

3. The theory of the moon being hollowed out by radio activity, and also that such a condition may still exist in deep-seated parts of the satellite, is extracted from "Lunar Possibilities," by J. Fornier D'Albe. He assumes the craters to have been caused—bright rays also—by this very happening.

4. The description of X-ray activity is, save for a few interpolations, a verbatim extract from Sir Arthur Eddington's "New Pathways in Science"—pages 140 and 141. The possibility of sunspots being deep enough to emanate X-rays in the quantity and power suggested is of course stretched for the purpose of the story—though, according to Charles Gibson's "Scientific Ideas" (page 278), it is not entirely improbable, and may account for certain past geological changes.

[The end of *Eclipse Bears Witness* by John Russell Fearn (as Ephriam Winiki)]