

The Multillionth Chance

By John Russell Fearn

Physicist Giant Mayson re-creates Iana, the wonder girl of long ago, out of scattered atoms—but between them stands the memory of Anrax, long-dead master of science!

An A\NN/A Preservation Edition.

[Notes](#)

CHAPTER I

Mystery Girl

GRANT MAYSON had done the job so many times it had lost all its fascination. Long ago, when he had been a mere apprentice to this huge Transmutation Laboratory, he had gaped in wonder at the crash and crackle of twenty million volts of man-made lightning flashing between anode and cathode spheres as base elements were changed into commercial products, or rare metals, according to the demands of the Government. Now, after twelve years of continuous association with this particular scientific miracle, he was in charge of Laboratory A and not over-thrilled by it either.

Today, as usual, it was the same old routine. He sat with his long, lean body folded up on the tub seat before the control board, deep inside the massive textolite globe which formed the cathode of the twin globes. Through a minute observation slit he saw the opposing globe fifty feet distant, the backdrop of the laboratory equipment behind it

“Lights out!” he barked into the telephone, and total darkness descended outside his globe.

There were no assistants inside the laboratory: they were in the power-control rooms two blocks away from this center of vast disturbances to come. Grant Mayson was on his own, lord of the lightning indeed, atom-smashing and metal-mutating brought to such a fine art in this year of 1964 that the efforts of Rutherford and Van de Graaf of earlier years seemed like the strugglings of amateurs by comparison.

Grant narrowed his keen blue eyes through the slit in the spherical wall, and took a last look round. He smoothed back the tumbled dark hair from his forehead, reached out his lean hand and closed the master switch.

Nothing to do now but wait for the dials to tell him when the job was done. Unperturbed, he watched lightning flicker. and jump in rapid fire flashes. Green, blue, lavender, violet arrows were presently stabbing to the dark laboratory roof and then down the massive supporting columns to earth...

The electrical fury grew apace, discharging its terrific main load into the giant vacuum tube a few yards away, at the base of which reposed the particular element to be converted. In ten minutes, Grant knew, that cube of crude metal would be gold, its atomic makeup shattered—moulded, and transformed into the precious metal.

Gradually the whole laboratory began to quiver in an eery glow of streamers and fireballs as twenty million volts crashed between the globes. Four minutes—five—six—

TEN! The indicator needle quivered on the red line. Grant shut off the power and the miniature thunderstorm came to a sudden end.

“Lights!” he snapped. He eased his lanky figure out of the chair, mopped his face, then opened the

airlock of the dome.

The cold-light arcs were blazing down from the roof now, flooding the wilderness of apparatus. Grant climbed steadily down the metal ladder, smiling at a sensation which once had worried him, that feeling of cramp and of having the hair lifted straight up by the static electricity. The reek of ozone, the smell of hot oil—same old set up.

Humming a tune to himself he crossed the waste of concrete floor towards the vacuum-tube chamber, then half way to it he paused and blinked. His whistling stopped in mid bar and an expression of astounded wonder settled on his lean young face.

There was something in the center of the floor that had no conceivable right to be there. A girl! She lay flat on her back, arms flung back over her head, legs stretched out in front of her.

“What the devil!” Grant whispered, moving a step or two closer to look at her.

She was not like any girl one would see around in the ordinary way. For one thing her clothing was unusual. It consisted of a one piece garment with short sleeves, the material radiating light as though sewn with thousands of minute diamonds. Two dainty, sandaled feet were outthrust revealing a shapely turn of ankle. The arms below the sleeves were delicately moulded, the shoulders supple and broad. Blond hair lay swept back from her wide forehead, partly from natural tendency and partly from electric reaction.

Grant moved directly over her and studied her face. It was oval and intelligent, with rather high cheekbones and delicately pointed chin. The brows were smooth and the nose straight. She had a firm yet womanly mouth.

It suddenly dawned on Grant how utterly impossible the whole occurrence was. The laboratory was tightly locked. Only he and the Chief of Staff had the combination. By no possible means could this girl have entered here—and certainly the place had been empty before he had started up the generators. He recalled his final survey. So?

ALTHOUGH a scientist, he was only thirty-three, and he could not deny he experienced a certain thrill of pleasure as he raised the girl gently in his arms. There was something about the contact of her body. But her eyes remained closed, her arms limp. To all intents and purposes she was out cold. Grant took her across to the nearest bench and laid her down upon it, pulling off his smock and rolling it up for use as a pillow,

A bell shrilled. He turned impatiently to the department telephone. The voice of Balmore, chief of staff, was at the other end.

“Finished with Mutation Forty-two-G, Mayson?” he asked.

“I—er—yes, sir, I’ve finished.” Grant rubbed his head. He was a trifle perplexed.

“Good! What results?”

“Results?” Grant looked towards the vacuum tube and gave a sudden start. “I don’t know yet, sir. I haven’t looked.”

“Haven’t looked!” Balmore ejaculated. “How the devil much longer are you going to be? I’m waiting for your report. Or is there something wrong?”

“Well, not exactly, sir. I just—er—”

“There is something wrong!” Balmore decided. “I’ll come over right away.”

Grant winced and put the receiver back. He realized now that he was in considerable difficulty. Women, unless they were technicians and specially authorized by the Science Council, were utterly taboo in the varied departments. Any infraction meant dismissal. And here was a startling and none too discreetly attired blonde lying out cold on the bench.

Grant was a fast thinker when it came to physics, but in this emergency he was stumped.

In the intervening time he tried to think up half a dozen places where he could conceal the lady, but none of them seemed practicable. He was still trying to make up his mind when the laboratory door lock clicked and Stephen Balmore came in.

HE WAS a small, sharp-featured man, likeable enough in his way, but filled with the austerity inseparable from his high position.

“Just what is wrong here, Grant?” he demanded, striding forward. “You’re taking the devil of a—great guns!”

He broke off, as he caught sight of the girl.

“That’s the reason, sir,” Grant said uneasily. “I give you my word that I don’t know where she came from. I’d just finished my routine when I found her lying unconscious on the floor.”

“Oh!” Balmore said.

As a man of the world he did not commit himself any further for the moment. He went closer to the girl and stared down at her, stroking his chin, his eyes traveling down the rounded lines of her figure.

“Extraordinary!” he said, and coughed sharply.

Grant said nothing for the moment because he feared the wrong words might pop out.

“You realize this can be very serious, Mayson?” Balmore’s use of the surname showed he was on his high horse. “You know the rules. It is preposterous for you to say that this woman just—just happened. Science is not magic, you know. She must have been hidden here, or something, and the electricity discharge probably drove her out of concealment. Then she was overcome. She looks as though she has come from some kind of social party. The dress, I mean. Amazing material!”

“I don’t agree that she was hidden somewhere, sir,” Grant said, with sudden firmness. “This laboratory was totally empty when I began, and she was here when I’d finished. The only thing that happened between my checkup and discovery of her was the discharge of twenty million volts of electricity. That, under certain conditions, might produce many things!”

“But not a blonde, young man!”

Balmore considered, then his sternness relaxed a trifle.

“I don’t want to jump to conclusions, Grant, for if I do you may find yourself without a job. I don’t want that. If you can find a logical reason for this occurrence, I’ll ask the Council to give you a full hearing. For the moment this young lady had—er—better be removed to the hospital.”

Balmore paused and watched sharply as the girl suddenly moved lazily. In fact she would probably have fallen off the bench entirely had not Grant seized her shoulders. Languidly she sat up and opened a pair of very large, steady gray eyes.

Grant looked at her, and Balmore peered over his shoulder.

“Who are you?” Grant demanded. “How did you get here?”

For a moment or two she did not seem to understand. Then she broke into a tumbling succession of strange words. Short little sentences with the words oddly broken off. At the end of two minutes of nonstop gibberish, she looked from one man to the other in plaintive inquiry.

“No good,” Grant shrugged. “We don’t understand you. Do you, sir?”

“Hanged if I do,” Balmore replied. “I’m not bad at languages, but this has me beaten. We’d better get the experts to work... Anyway, Grant, this lessens the charge against you. This girl is not ordinary by any means, either in language, looks, or—hmm!—figure.” He glanced at her keenly.

“Fine girl, confound it,” he growled.

Grant smiled in relief and by motions showed the girl that she was expected to stand up. She nodded her golden head and slid gracefully from the bench. She was about five feet eight tall, with the majestic carriage of a queen.

“This way.” Balmore motioned, taking her arm. He nodded back at Grant. “Get the report of that mutation, Grant, then come along to the hospital. We’ll see what we can do there.”

Grant nodded, bitterly aware of the fact that he dare not show he was jealous of his chief’s monopoly of the mystery girl.

CHAPTER II

The Council Decides

THE inexplicable arrival of a beautiful girl in a physical laboratory at the height of an atom-smashing process was something that captured the rather science-steeped imagination of the mass of people.

Dozens of stories were circulated, printed, radioed, and televised, few of which bore relation to the truth. The Science Council did not like it, either, and frowned with ever increasing severity on the hapless young scientist whom they deemed responsible for their sacrosanct laws being broken.

For all the efforts of Stephen Balmore, Grant found himself in an increasingly precarious situation. He had a week to find a reasonable explanation or else be dismissed. The fact that the language experts said the girl spoke gibberish did not count. After all, any girl could talk gibberish if she wanted to.

It appeared far more likely that for some reason the studious Grant Mayson had kicked over the traces and somehow gotten himself entangled. The scandal mongers worked overtime on this theory. As for the girl’s clothing, dress designers were of the opinion that it was certainly rare stuff, but it could be an exclusive creation from abroad.

Grant saw the danger lights ahead. He went to visit the girl in her private room at the hospital and struggled valiantly to get some sense out of her. Attired now in the clothes normal to the day and age, she had lost thereby none of her beauty but she had certainly become more bewildered. All she could do to Grant’s impassioned questions was raise her graceful shoulders helplessly, or spread her hands, or—chiefly—just gaze fixedly with her big gray eyes.

“But, Miss Who-ever-you-are, this is awful!” Grant cried, pacing the room in agitation. “What can I do to make you understand? You must have a name, or something?”

“A—name?” she repeated awkwardly.

Grant pointed to himself and said “Grant Mayson” until his throat was dry. The girl gathered the implication finally and said “Iana” several times. Her name was at last established.

“You came here,” Grant said deliberately, sitting down opposite to her. “Nobody knows how—but you do.” Then as she just sat and waited, he sighed and rubbed his hair. “What am I talking about?” he groaned. “I might as well describe the calculus to a baby!”

He paused, his eyes brightening at his own unthinking remark.

“Calculus!” he repeated softly. “Mathematics! Say, maybe I have something. The law of mathematics is universal, according to the savants. Look, Iana, do you understand this?”

He whipped up a piece of paper and put three figures on the sheet—three figure 2’s—drew a line underneath and added “6.” The girl studied it for a moment.

After he had put four 7s she wrote 28 without hesitation. The figures she made were distinguishable, though not entirely normal in outline.

“You understand me!” Grant yelled. “We’ve mathematics in common! What else have you?”

Evidently quite a deal for, as he handed the paper to her, she went to work busily with normal figures, then complicated ones, and finally threw in a problem or two in Euclid for good measure. This done, and satisfied Grant understood, she began the execution of complicated formulae which made Grant, for all his pretty extensive scientific knowledge, frown deeply.

Finally he gave up watching her figuring and instead gazed at her intelligent, mobile features as she worked. He read sharp perception there, a great gift for abstract reasoning, purpose in the chin. This girl was not figuring for amusement, which was one reason why he felt there was deep meaning to the paper of figures she finally handed to him.

“For me?” he asked, pointing to himself.

She nodded promptly, then pantomimed an attitude of deep concentration, pointing at him earnestly.

“For me to study,” he nodded. “Right, I will—though I don’t think it’s going to be a picnic... See you later.”

He left the room quickly and headed straight for the analytical department in his own place of work, where he could have the free run of the mathematical calculators which could do much of the work for him.

It was four in the afternoon when he went in and the staff, though curious, paid no attention to him. They had all gone and it was midnight when he had finished.

He smiled slowly to himself, rubbing his somewhat aching head as he surveyed the figures.

“So that’s it!” he whispered. “She’s told me, through the universal language of figures. I fit in the odd parts by my own imagination. The multillionth chance came off! Wow, is *this* something for the Scientific Council!”

DURING the following afternoon, in response to his special request that his defence be heard, the Science Council met. They took their seats in the raised tiers and waited for the proceedings to begin. Grant was standing on one raised dais in the center of the huge room, and the unknown girl was poised

majestically on a dais some yards from him.

Silent, some of them grim-faced, the scientists looked down on the two chief figures in the drama. On the one hand was a young man prepared to fight for his position as a scientist, and on the other the fate of an unknown girl was at stake. For unless some definite reason could be given for her presence, both in the laboratory and the city itself, law would demand her removal to a vagrant's colony, about the worst fate that could befall anybody.

"You have a solution to this—er—puzzling affair?" Balmore asked, as presiding chairman of the Council.

"I have, sir—yes. How much of it you and the gentlemen of the Council will believe depends entirely on your scientific credulity. Yesterday, this girl—who gives her name to me as Iana—handed to me a mass of computations she had worked out I have definitely established that she is a first class mathematician and—if we could only understand her—she is probably a first class scientist, too. However, I have the original figures here—" Grant waved a sheaf of papers in the air "—and my own studies along with the mathematical machines have worked them out. Iana explains her appearance amongst us as a multillionth chance of Nature. The same kind of chance that might cause a kettle of water to freeze on a fire instead of coming to a boil."

"What precisely has that to do with it?" asked one member acidly.

"I am not a great scientist, gentlemen," Grant said quietly. "For that reason I would like to hark back for a moment to a master mind of bygone days—Sir Arthur Eddington. He sums up our case very neatly when he says—'By a highly improbable, but not impossible coincidence, the multillion particles making up an organic or inorganic body might accidentally arrange themselves in a distribution with as much organization as at an earlier instant. The chance is about one in twenty-seven billion million, which proves that the world is a mass of probabilities, drifting towards greater and greater disorganization and final entropy.*'"

* *New Pathways in Science* by Sir Arthur Eddington.

"Yes, yes, quite," Balmore agreed. "We know the law of probability, entropy, and chance. But do you really mean to say that this young woman here actually came into being by—by some law of chance?"

"Eddington, sir, approximates the time for the re-formation of a former mass of atomic aggregates into a prior setup at something like three million years," Grant answered. "That, though, is purely an arbitrary time: it could be longer, or shorter. What I say is this: The girl has existed somewhere before, and perhaps she died. Her atomic makeup was automatically dispersed, maybe drifted free in the cosmos *but*—by the law of chance, operating in a way it will yet take us centuries to fully understand—the exact aggregates, down to the last detail, formed again into just the identical pattern of a former instant. This fact, and the terrific electrical interplay in the laboratory—where those atoms at that moment must have been drifting, unresolved—brought about a sudden re-constitution.

"This girl took on a former pattern, even to the last jewel on her dress, and so—lives again! It might never happen again throughout eternity. But it happened this time! The multillionth chance came off! You have to admit, gentlemen, that you might take a deck of cards, shuffle it completely, and yet find it back in the original order when you examined it. It would be a multillionth chance, but it *could* happen! And it has happened here with this girl..."

There was silence for a moment, the girl watching intently and Grant rather surprised at his own ready grasp of the complicated situation.

“Certainly,” Balmore said presently. “We admit the theory of chance, because we are scientists. But how do you account for the mind of this girl? If she once died, how does it happen that her mind is operating again?”

WITH knitted brows Grant considered the question carefully before replying.

“I cannot go into the deep issues with my limited knowledge, sir,” he answered. “But I do suggest to you that a mind is disembodied unless it operates through a particular configuration of atoms—a body. No two bodies are the same; hence none but the mind for that body can operate through it. It seems therefore that the mind of Iana operated perfectly through her former body. It became disembodied when her body died, but when the same reassembly appeared her mind automatically operated through that setup again.”

Once more the silence.

Then a derisive laugh burst from one of the members.

“Of all the preposterous theories to explain an unknown girl in a private laboratory, this is the most unique. I’ll see if I can remember it to tell my wife the next time I come home late.”

There was a titter of amusement and Grant looked round at the faces rather desperately. Head was nodding towards head, and it was clear, despite his leaning towards belief, that Balmore was obliged to obey the will of the majority.

After some minutes of whispered conversation he silenced the gathering with his gavel and then stood up slowly.

“I am sorry, Mayson,” he said quietly. “Deeply sorry! But your explanation is not accepted. The Council rules that you be discharged from your position and that this unknown woman be handed over to the Vagrant Commission, Your duties will terminate at midnight tonight. The meeting is now closed.”

Grant stared stupidly, stunned by the edict. Just as the assembly was about to rise the girl herself hurried forward from the dais, waving her hands imperiously.

Everybody paused, and Balmore waited expectantly.

“Wrong!” the girl insisted, and repeated the word several times. “Grant Mayson right! I—I—” She waved a helpless hand as she searched for the right word. “I—prove!” she exclaimed finally.

“So she does talk English after all?” a member observed drily.

“Why not?” Grant demanded. “She is a highly intelligent woman, and I spent a lot of time yesterday trying to find a few words she could understand. She’s been here long enough to have picked up smatterings, anyhow. Give her a chance, I beg you!”

THE girl glanced at him anxiously, then back to Balmore.

“Prove!” she repeated urgently, pointing to herself. “First—first learn—er—language.”

“That’s fair enough,” Grant cried “Get the best linguists in the country and in two weeks she’ll talk better than any of us. You just can’t condemn her, and incidentally me, without a hearing.”

There was a momentary hesitation, and Balmore seized his opportunity.

“That is fair enough, gentlemen,” he said “That the explanation is strange, even fantastic, does not mean that it should be condemned summarily. At least, as scientists, we should give the unusual every chance to prove itself. Am I right?”

Gradually heads begun to nod, and finally the majority raised their hands in agreement. Grant looked round with a sigh of relief, then hurried forward and caught the girl’s arm.

“Can I make this my own responsibility, sir?” he asked, and Balmore gave a grave nod.

“You can. Miss—er—Iana will remain at her room in the hospital, and there will be special hours allotted for you and the linguists to see her. Upon that decision the Council rests.”

CHAPTER III

Iana Demonstrates

AFTER getting this reprieve, Grant Mayson wasted no time. He summoned language experts from all parts of the country to pour forth their knowledge to the eager, interested girl. Now that she realized something definite was afoot she was desperately anxious to learn—as indeed were the linguists to gain the rudiments of her own odd language.

For a week the exchange went on—for a fortnight. At the end of that time, thanks to a ready brain and every modern invention for expressing phonetics and inflexion, the girl was word perfect. But her mentors were baffled. Her own language was utterly unknown which, if anything, served to strengthen the case for her and Grant.

“Before we go to the Council room again tomorrow morning,” Grant said seriously, paying his nightly visit for the fourteenth time, “can’t you tell me beforehand what this is all about? I mean, I sort of feel entitled to it.”

She smiled gently, laid a delicate hand on his arm.

“Of course you are entitled to it, Grant. But, told in plain, cold words such as I have learned it would not even be credible. To explain in detail I need to use telepathy, the science of the mind. Then, and only then, will you and the other scientists thoroughly understand the truth.”

“Oh!” Grant looked at her beautiful face intently and he frowned a little. “But—but to do as you say would mean the absolute control of the minds of your listeners, wouldn’t it?”

“Of course,” she agreed simply.

Grant got to his feet and began to pace the room slowly.

“You can’t just say that, Iana. I don’t know yet where you come from, but I do know that we at least are limited to the merest outlines of telepathy. It is only with difficulty that we can send a mental message across a gap, and even then we sometimes need electrical amplification. Yet you casually suggest bending many wills to your own. It can’t be done!”

“Yes, Grant, it can,” she answered, quite undisturbed. “I understand telepathy completely. I know I am dealing with a race of people not particularly clever. By that I mean that they do not understand, as yet, the secrets of radiant energy, pure atomic force, ethereal waves, and so on. In fact, so far, you yourself are about the cleverest scientist I have encountered. You *are* clever, you know,” she added seriously, as he looked at her in surprise. “You worked out everything from those figures I gave you, just by using your imagination. That signifies mental ability of a high order. It’s funny, really.”

“How—funny?”

“You remind me a little of Cal Anrax.” Her voice had become quite wistful now. “He was clever too, and a marvelous scientist. We were to have been what you call married, only—Well, he was a wonderful man with a fine, keen brain. And yet he was so gentle, so fine a ruler. You remind me of him quite a lot, even in appearance.”

Grant looked at her wide gray eyes fixed upon him, and gave a little cough.

“I’m not so hot, Iana. I’m just a routine scientist with a liking for the unexpected and a gift for solving scientific problems. As for this genius of a Cal Anrax, your marriage, and the reason why it didn’t come off—well, it is what we call double talk. I’ll need the facts before saying anything.”

“And you shall have them, tomorrow,” she promised, and from that moment Grant lived only for the following day.

When he and the girl faced the Council again she simply repeated all that she had told him—that telepathy alone could make matters clear.

“Then what do you suggest?” Balmore asked. “There are two hundred of us here. You do not seriously suggest that you could get the whole two hundred of us in sympathy with your own mind?”

“With so much disbelief, no,” the girl admitted. “What I would like is for six of you who are willing to believe—which includes you, Dr. Balmore—to become willing subjects of my experiment. It will not take long, no more than an hour. But in that period I can make everything clear to you, can outline a history such as you have never dreamed of, and which will add itself to the annals of your own scientific records.”

“You mean here—now?” Balmore asked, wondering. Iana nodded her fair head.

IMMEDIATELY face bent towards face in consultation; then at length Balmore rose, and with four other members stepped down from the highest tier to the center of the big floor. Grant too moved from his dais and joined the little group.

“Sit down,” the girl invited—and chairs were brought. At her orders the six men made a circle with her in the center, standing, and looking at each of them in turn.

“I would like the windows covered,” she added, glancing round, so Balmoie gave the order and deep gloom fell upon the big hall. To Grant, watching intently, the girl’s figure remained faintly visible as she moved to look at each man closely.

Then, gradually, as she stood before him at length, he felt a strange sensation creeping over him. A lack of interest in his surroundings, deepening into an intense, dreamy-lethargy. The girl’s voice floated to him—reedy, faraway.

“What you will shortly experience will be the objective viewpoint of a projected mind—*my* mind,” she explained. “You will gaze upon scenes and incidents, be a part of them, and yet in no way connected, just as you would watch the unfolding of a play on a telescreen. All that you will see is fact, based upon my own experience, as I know these events happened. The remembrances of my mind will communicate themselves to you and finally—I trust—you will understand...”

She ceased talking and there was a heavy silence. Grant—all the men present indeed—felt their senses slipping. A whirling, impalpable darkness closed in...

Evening had settled over the Martian landscape. Over the ruling city of Jaloon with its wilderness of

white, delicately tapered buildings, across the fields and grazing land that surrounded it, the sky had the violet tinge of twilight and stars winked through the warm air. Out in the west a single wisp of amethyst cloud traced the sun's departure.

There was quiet—the deep quiet of a city that has conquered the distraction of noise. Deeply buried power houses made not a sound—the airliners creeping down to their distant bases might have been drifting leaves—the textalian rubber streets absorbed completely the sounds of endless traffic.

As the darkness deepened lights sprang up simultaneously all over the city, steady, white, shadowless lights which threw the buildings into brilliant relief.

Cal Anrax, standing on the balcony at the summit of the city's controlling building, gave a little sigh. The peace did not delude him in the least. News which he had received only an hour before only made it look all the more deceptive.

He was a tall man, spare and sinewy, the strength of his still young figure revealed by the brief, togalike costume he wore. Brown, muscular hands gripped the safety rail. His face had something of the keen steadiness of a poised eagle as he looked out over the expanse.

A light footfall disturbed his thoughts and he turned sharply. The brief impatience on his strong face faded into a smile of welcome.

"Iana—dearest. I wondered if you would come."

"But why not? You sent out a summons for me, didn't you? You hinted at news of importance."

"Yes. I am afraid it is all too important."

Cal Anrax's eyes studied the girl for a moment—slender, blond, gray-eyed, the soft night wind moulding her white, flowing gown against the smooth curves of her figure. She in her turn stood waiting, anxious.

"I've received serious news," Cal Anrax went on, looking back at the city. "We are on the very verge of war. As you know, it has been hovering like—like some primordial menace for the last two years, and now it has flared into imminent nearness. I dare to think that before dawn invasion will have commenced."

"Vaxil!" The girl's lips set bitterly.

"Yes, Vaxil." Cal Anrax turned back impatiently into the expanse of his controlling office and the girl followed him slowly. "It has been perfectly obvious, Iana, for long enough past that Vaxil has been heading for war. A clever scientist, but not so clever that he cannot see that war only ends in destruction for all. However, the uncomfortable fact remains that he owns half this planet, and we own the other half. We—more by luck than judgment perhaps—have a united, peaceable people behind us. Your father handed over the control of the Western Hemisphere to me on his deathbed, and the people have taken to me kindly..."

HERE Anrax paused for a moment, as memories stirred within his mind. "Our peace, our quiet scientific progress, does not suit Vaxil or the people of the Eastern Hemisphere," he continued, after a moment. "They have not our sense of restfulness. The spirit of aggression is deep within them. Why? Because Vaxil is not a good psychologist. He invents laws that only irritate his people, under the mistaken impression that he is doing them good. They cast their eyes our way and see peace and progress.

"If, perhaps, they could conquer us and have the whole planet instead of half of it then—they

reason—they too could have peace and advancement. So Vaxil has told them, anyway, because he won't be content with anything less than the entire domination of Alron...

"An hour ago, Iana, I received news over the telepath that a massive armada of air machines and a million land cruisers are ready to move. A robot army of five million is ready too. That can mean only—war."

"Yes, war," the girl muttered. "To me it will be a new experience for there has been no war in two centuries, when the subdivision of the two Hemispheres was agreed upon. I've only seen the conflict in the records or heard it over the sound recaller. But now—Cal, dearest!"

She caught at his arm suddenly...

"Can't you make a last appeal to reason? Send out a message to Vaxil and everybody in the Eastern Hemisphere. You are the ruler here, as fine a one and as great a scientist as any that ever lived. I beg of you to try it...as your betrothed, not as your royal advisor. As a woman, my whole soul revolts against this impending, senseless bloodshed."

Cal's firm lips broke into a faint smile. He put an arm about the girl's shoulders and kissed her gently.

"How many women, how many betrothed, have perhaps asked that of a man down the centuries?" he murmured. "I respect your motives, the sweetness of your sex which is revolted by this beastliness. But I am the master of a Hemisphere!" His voice grew stern. "The ruler of ten million happy people—scientists, all of them, with a right to live and challenge all the devils of hell if their progress be threatened."

"I shall make no appeal to reason, Iana. I shall destroy Vaxil and all those who try to attack us. Believe me, this has not caught me unprepared. You see no airplanes, you see no tractors, you see not a thing to prove that our Hemisphere is defended. But it is! For two years I've made preparations, so secret I did not even dare to tell you."

"I should have known," she said quietly, smiling. "Just for the moment I thought we were unprepared... What happens now?"

"We go below," he answered briefly. "My headquarters are duplicated to be the same a mile under the ground as they are here, I can have around me every scientific need for the direction of the battle—every eye and ear of science to see what happens. You must come with me. Alone there, with the fate of millions in my hands, I should feel none too sure. But with you, wife-to-be, I can do anything!"

He took her arm, and without further argument she followed him across the big room to a shield in the wall. Pressure on a button sent it sliding up soundlessly. They stepped into a small elevator and pressure on another button released the compressed air from beneath its floor. Swiftly, without any sensation of falling, they dropped a mile into the earth and stepped out into a huge room—flooded with light—which was an exact replica of the office they had just left.

Behind them, as they walked forward, the tertanex shield went back into place. Hardly had Cal reached the control desk with its seven hundred vital buttons before the intercom radio buzzed for attention.

"Yes?"

A uniformed guard appeared on the teleplate.

"Evacuation is complete, sir, and all trained scientists have been directed to their positions."

"Good!" Cal closed a switch and snapped another one urgently as a priority-screen glowed urgently

for attention. It was the unemotional face of the Directional Tower Controller which appeared.

“Invasion has been launched from Eastern Hemisphere, sir,” he announced briefly. “First aerial armada due in five minutes.”

“Right!”

Cal Anrax’s blue eyes hardened for a moment and his lean jaw tightened. He spoke briefly into a microphone.

“Follow out Combat Plan Seventy-seven-SA,” he ordered. “Report in fifteen minutes. I’ll handle the rest from here.”

He switched off and sat down in the control chair, motioned to Iana to settle beside him. She obeyed without uttering a word, unwilling to disturb his concentrations. In silence she kept her eyes fixed on the giant central screen which gave a complete televised view of the city and landscape outside.

CHAPTER IV

Red War

IT WAS not long before menacing shapes appeared. The night sky outside was presently patterned by dark, swiftly moving shapes. With the moments they came so thick and fast that the stars themselves were blotted out.

Then came hell itself! Concussion smote the city, concussion so violent that even at this mile depth the buried control room quivered under the impact.

Again—and again—until the quivering merged into one complete vibration. Cal Anrax gave a grim smile. His lean fingers began to play over the control keys in front of him as though it were a complicated organ. Iana, though by no means an amateur scientist, could not even hope to guess at the subtle mechanics involved. Cal Anrax himself had invented this master-keyboard, the brains of a city’s defense, and since he was the greatest scientist the Western Hemisphere had ever produced there was no point in her questioning him.

She caught her breath suddenly and watched intently in the major and minor screens as the swarming armada of bombing planes was suddenly changed from a dark, shapeless mass against the stars to a plainly outlined solid phalanx of fliers. Secret floodlighting, directed from the bowels of the city and merging into one flaring sea of light, had every section and fragment of the attacking fleet enveloped in an effulgence as bright as day.

“Now we can see what we’re doing,” Cal murmured, his fingers still playing on the keys.

The automatic defenses of the city came into being immediately under his remote control. Blast rays ripped forth, leaving a wake of condensation in the air. Neutronic guns hurled their deadly load into the bellies of the fliers. From directional towers at the city’s four corners radiant energy spread forth in its basest and most deadly form, heating the attackers to an intolerable degree by the sudden kinetic interchange.

Chaos broke loose.

The fliers turned and twisted and dived to escape one defense and ran smack into another. Three planes crashed and their bombs with them. Others fell in the middle of the city and exploded with cataclysmic violence. Cal had formed a complete trap round the city. To escape from the neutron guns

meant colliding with the radiant energy waves, and to escape from those meant running the deadly battery of blast rays.

Not that the city itself was improved by the counter onslaught. The bombs fell just the same, sowing ruin in a criss-cross pattern.

The intercom buzzed and Cal flicked the switch.

“Land armor invaders two miles south of city, sir,” said the impartial Directional Tower Controller.

Cal nodded and threw another series of buttons into commission. Out on the city outskirts another mass of scientific equipment moved to the ready—

Then, abruptly, there was a concussion so violent from somewhere above that the underground room rocked beneath it. Cal found himself half flung from his chair and Iana went pitching against the control board.

Other things had happened too. The flaring illumination light on the armada had vanished. Cal’s frantic play over the switches failed to have any effect in any direction.

“The devil!” he breathed, staring at the power-meters fixedly. “Look! Power’s stopped!”

He met the girl’s wide, anguished eyes.

“Only one explanation,” he said bitterly. “Somewhere we have a traitor amongst us—a thing I could never have expected. I was of the opinion we were united. That concussion we felt. It must have been from the major power room buried a mile away. All my apparatus was powered from there. And somebody’s destroyed it!”

For a moment he seemed incapable of thinking. He stared mutely at the giant screen, operating from its subsidiary unit. He winced at the concussion of a rain of explosives from above.

“I can’t fight the inevitable,” he whispered, clenching his fists. “Without power we’re helpless.” His hand reached out for the microphone. “Good job the subsidiary unit feeds the radio equipment and lighting anyway...”

“But what are you going to do?” the girl demanded, catching his arm.

HE LOOKED at her steadily. “I am going to surrender.”

“But you can’t surrender! Don’t you realize what it means if Vaxil gains control of our Hemisphere?”

“Of course. But I also realize that he has got control already. I can’t fight without weapons, and the only way to save something from the wreck is to surrender on the best terms we can get. It isn’t cowardice, Iana; it’s common sense. It isn’t his scientific skill that has given him the victory; it’s my own stupidity! For one thing I trusted the people too much and did not suspect a possible traitor, and for another I made the fatal mistake of concentrating all my defensive power in one spot. With the heart destroyed, so are we.”

Cal turned and switched on the microphone.

“Cal Anrax speaking,” he announced briefly. “Put me in direct touch with Vaxil over priority waveband.”

There was an interval, then out of the lambent weavings of color on the screen the stern, sharply chiseled face of the Eastern Hemisphere ruler appeared.

“You have something to say?” he asked, laconic as always.

“Only a few words,” Cal answered in a quiet voice. “I am prepared to surrender. What are your terms?”

“Unconditional! With your main source of power gone what else do you expect?”

“What does ‘unconditional’ constitute?” Cal asked.

Vaxil reflected for a moment.

“You are a brilliant man, Cal Anrax, and a scientist like myself. For that reason I am inclined to extend clemency. The terms I impose demand your personal surrender to my commander in the field, together with the personage of the Princess Iana and the twenty men and women who form your Government. That done, I will decide what shall become of you.”

Cal was silent, his lips tight. He glanced at the girl.

“You have no alternative,” she said, low voiced.

Cal turned back to the instrument. “Very well, I agree. Instruct your field Commander to meet us in Central Square within an hour, hostilities to cease forthwith.”

Vaxil nodded and switched off his instrument. Cal did likewise, sat for a long moment in thought, then with a shrug of his lean shoulders he got to his feet.

“Does this mean—death?” the girl asked soberly. “Tell me if it does, Cal. It’s only right that I should know. I’m not afraid to die.”

He put an arm about her.

“Everything depends on the mind of Vaxil, dearest. He is not a vicious man, a swaggering conqueror. He fancies himself as a kind of magnanimous superscientist, and for that very reason he may flatter himself by showing us the courtesy to which our high rank entitles us. If we escape death, there is much I can do. If not—well, well have to face it. We’ll give them time to call off the war dogs. Then we’ll go up to the surface.”

Iana got to her feet and stood in despondent silence. Cal looked at her and smiled tautly.

“This isn’t the end, Iana,” he said gently. “If life is still permitted to us we can yet avenge these wrongs. I shall live only for that! Remember that I am a better scientist than Vaxil. I’ve made a mistake this time, and I admit it. But give me the slenderest chance to turn round and fight back and I’ll smash Vaxil forever. I’ll reclaim not only our own Hemisphere but conquer his as well.

You’ll see.”

It was three days later, with Vaxil fully in power in Jaloan, before Cal Anrax and Iana, with the men and women of their former Government, learned their fate. They were summoned before the Grand Council of Conquerors in the city’s administration hall, and in silence listened to the Eastern ruler as he spoke from the head of the council table.

“Death is the obvious answer—but by no means a sensible one,” he said slowly. “Only fools destroy people who are clever scientists. Yet on the other hand, if I permit you to live on this planet there may come a time when your ingenuity will prove to my detriment. So, I have to choose between that possibility on the one hand and death on the other. That leaves only one course—banishment!”

CAL ANRAX tensed a little and cast Iana a quick look. Around them the assembled men and women waited, grimly silent.

“Not banishment to another part of Alron where you might make an effort to regain control,” Vaxil proceeded. “I mean banishment to Vinra, the second planet from the sun. It will be to another world altogether where you cannot possibly make any attempt to strike at us! By the same token you will be able to make a stand for yourselves. Whether you die or prosper, whether you marry and bring forth young to carry on your struggle, will be up to you. In the records of this world at least you will be known as the ‘Outcasts’!”

“But Vinra is a terrible world!” Iana cried. “Scorched and frozen, not a scrap of water, a planet long since abandoned by our space expeditions as dead. It’s a graveyard, and you know it!”

“Perhaps,” Vaxil replied coldly. “You are such ingenious scientists that you might make it habitable—though I do not say how. At least, if you die it will be your own fault and I shall not have it on my own conscience. It is not our intention that you should be hurled to this arid, merciless planet without even the means to save yourselves. I and the Council are in agreement that you be allowed six hours consultation among yourselves to decide what equipment you wish to take with you. Two space cruisers will be placed at your disposal, but the controls on both will be locked so that you can only land on Vinra and nowhere else. When you reach Vinra automatic devices will destroy the motors so that no return is possible. One ship will carry you and your compatriots, and the other the essentials you have chosen for your new life. Have you, Cal Anrax, anything you wish to say?”

For some reason he smiled slowly.

“No, Excellency—except to express my thanks for your leniency. As the vanquished, we rather expected instant death. All I ask is that I be allowed the consultation immediately.”

Vaxil rose to his feet and motioned to a bronze door leading from the hall.

“You may retire immediately to the anteroom. When you have reached your decision press the signal button and you will be released. The Council will then consider your report.”

Cal Anrax nodded and led the way across the hall, into the broad expanse of anteroom with its long shining table and polished chairs. He took up his position at the head of the table, Iana on his left hand side, and looked down the two rows of faces, the men and women whose lives were virtually in his hands.

“We comprise a new race,” he said seriously. “On the face of it that sounds a big assertion, but it is true. Banishment to another world means just that, especially when that world is known to be dead. When we arrive there, union and children will be our only means of perpetuating the race. To that, however, we will give our attention later. For the moment I believe that Vaxil’s lack of perception—his belief that we can do nothing to avenge ourselves if banished to another world—has placed a supreme chance in our hands. I take it that we are agreed on one thing only—vengeance?”

The men and women nodded firmly, and the look in Iana’s gray eyes was sufficient for Cal.

“Good!” he nodded. “I do not mean the impetuous violence of revengeful fanatics, or the half-hearted effort of the spiteful—but cold, deliberately planned, scientific reprisal! Vaxil and his cohorts have got to realize, sooner or later, that the science of the Western Hemisphere cannot be so easily disposed of. I suggest, therefore, that in our choice of materials for our new planet we take only enough provisions for two years and make up the remainder of our equipment in machine tools. Arms we shall not need since the planet is known to be quite dead.”

“Machine tools?” Iana repeated, mystified. “But Cal, we shall need homes, protection from the terrible heat and frost. I am of the opinion we ought to take twenty-two prefabricated homes.”

“No!” Cal shook his head firmly. “We’ll find places to shelter, even as our ancestors did. Caves if need be. What we need are the tools to make tools, machines to mould metals, equipment to gouge out the solid rock, instruments to create synthetic clothes and food—in fact an assortment of machines to build us gradually into a prosperous power which, sooner or later, through the very use of those machine tools, will give us the chance to avenge!”

“Behind all this, I sense that you have some mighty scheme,” Iana said slowly. “None of us here is as expert in science as you so maybe we cannot see your purpose. I’m prepared to trust your judgment—to the limit. And you others?”

The men and women looked at each other, murmured among themselves for a few moments. Then the chief physicist stood up.

“We agree, sir,” he announced. “The example set by the First Lady of the Royal House is sufficient for us. You’ll have our full collaboration.”

“Good! Later you will see how right I am. Now, here are the machines I suggest we take_____”

And thereupon the debate on machine tools began—and lasted for a couple of hours until a fully detailed list was drawn up. The matter of immediate requirements in food and weapons was simpler. In four hours they had everything decided to their satisfaction and Cal Anrax signaled for release.

CHAPTER V

Dedication to Vengeance

SILENTLY Vaxil and the Council listened to the list of requirements, and evidently they saw no ulterior purpose behind it. Nor had the room been wired for sound so that any secrets could have been betrayed. Cal knew at least that in Vaxil he had a man who rigidly adhered to the laws of statecraft “Very well,” he agreed, when he had finished consulting his colleagues. “Your requirements will be granted, Cal Anrax. The second space cruiser will begin loading immediately with the machines of your choice, together with provisions in the first cruiser for your own use. You and your colleagues will spend the night in captivity as before and will prepare to depart at dawn. You, Cal Anrax, will be given the opportunity for a final checkup on the second cruiser’s contents before departure is made. It will be for you to choose a pilot from amongst your followers.”

Cal nodded.

“Very well, Excellency. I have assigned Ralix, my chief physicist, to that task.”

Vaxil rose to his’t feet.

“The matter is decided. Guard, return the prisoners to their rooms.”...

Dawn was just streaking the eastern Martian sky when the space cruisers departed. Below, in accordance with traditional ceremony, Cal and Iana watched the puffs of smoke dispersing from the firing of the twenty protonic guns in farewell salute.

Then the busy world of their birth was falling away swiftly into the gulf. It became a wide landscape, circular, a concave circle, and at last a globe.

“The end of an old chapter and the beginning of a new,” Cal said quietly, turning back to the control board. “Now we are really launched on a mighty venture.”

He closed a switch and the face of Ralix, controlling the following cruiser of equipment, appeared on the screen.

“Everything in order?” Cal asked briefly.

“Everything, sir,” the physicist agreed. “I’ll follow out your directions and report any trouble the moment it arises.”

“That will be Vinra itself, I’m afraid,” Cal said, smiling wryly. He switched off and gave his attention to the board in front of him.

It was the beginning of a long, tedious journey. All of them had made space trips before—to Deimos, Phobos, or brief excursions to highly valuable meteorites—but this was the first time they had made a really long trip. Formerly such journeys had been the lot of tough space explorers.

If there was fear, none of the men and women present showed it. They disposed themselves in various parts of the big control room, or watched the eternal stars through the ports. Iana, for her part, busied herself in the section given over to sidereal analysis, gathering together what facts she could from the pin point of bright light towards which they were heading.

Day and night—they were the same thing with the eternal blaze of the sun. Steadily, the motors fixed and unalterable, the vessels pursued their course at swift cruising speed. Cal and Ralix both were relieved at intervals by robot controls.

Onwards past the mystery green world, third from the sun, which space explorers had found to be a planet as yet infinitely young, filled with swirling gases, torrential rains, and chaotic landscape. A world to be—some day.

Half the journey was covered in tedious monotony—three quarters. Then at last the blinding white world of their destiny filled the entire ebony void ahead of them. There was no sign of anything except eye-searing whiteness, an arid waterless landscape exposed to a nakedly near sun. Serried mountain ranges powdered with snowy dust, monstrous fissures and ravines, endless plains wherein clouds of white powder whirled up to the zenith in the thinnest of thin atmospheres.

“Gravity nearly double that of our own world,” Iana said, consulting the instruments. “Atmospheric density about a quarter less than our own. That means extreme thinness. Very great heat—about two hundred degrees.”

“In fact all the things we don’t like.” Cal sighed, staring down through his purple goggles. “This world is going to play the very devil with our bodies, but maybe we’ll struggle through. Here we go.”

He broke off, as the last stage of the journey began.

THE tension was nerve racking as they had no control over their fall. The crazy, tortured landscape rose up towards them with seemingly diabolical speed. Then they began to feel the power controlling the motors lessen somewhat. The noses of both machines rose gently preparatory to leveling out. Giant rockets in the forefront flared red. On the control board screen the face of Ralix appeared, strained and anxious as *he* crouched over his controls.

Then, sweeping forward in an immense arc, the leading machine landed and sent a fountain of dust five hundred feet into the air. Uncontrollable, it slithered for nearly half a mile and halted near a ravine. To

the rear the second machine performed the same gyrations and finished up at right angles them.

The motors stopped, and from somewhere in the power plant came the dull concussion of a small explosion. Fumes began to leak out into the control room from the engine casing.

“There goes our central transformer unit,” Cal said grimly. “Vaxil was not pretending. He has destroyed our chances of return. Obviously here we are and here we stay.”

Nobody spoke. The death of the power unit seemed trivial compared to the scene about them. In every direction was a vast desert of sun-blistered sand, cracked by gorges, soaked in the withering heat of a sun only 63,000,000 miles away. It was a planet without the protection of clouds, a planet from which the sun had long since whipped water and nearly all the atmosphere. Vinra—sunblasted for 720 hours and frozen for another 720—without life, without hope...

“It’s—it’s frightening,” Iana whispered at last, turning her goggled eyes away from the port.

CAL ANRAX smiled faintly, that look of the eagle on his face.

“Yet it has to be conquered, dearest. And it will be!”

Only by degrees, when Iana and the others began to see—as Cal Anrax had seen long since—that their domicile on Vinra was permanent, did they make real effort to conquer its pitiless conditions.

The terrible sunshine, the scorching winds from the dusty rainless plains, the incessant glare which stung the eyes and blistered the skin, made outside investigation almost impossible during daylight. Seven hundred and twenty hours of it, and a night of almost equal duration—and even worse climatically—when the moon rode the sky in pallid grandeur and thick hoar frost descended the moment the heat of the day had radiated off into the vacuum of space.

Cal Anrax took the only course and, space suited and goggled, with the strongest men in the party similarly attired to help him, he set about the task of building a habitation for them all—not on the surface though, for two reasons. One was the merciless climate, and the other was because the plan he hoped ultimately to mature demanded underground protection.

Long, hard, tedious weeks passed into months. Metals were sought and found below surface, were fashioned in furnaces with the machine tools and thereafter used for moulding the raw materials into the desired shapes.

For Iana, for each man and woman in the group of twenty, there was work to do—and they did it with a will because in such work lay their one hope of salvation and the defeat of the insanity which such a frightful world could easily have caused. They made the first cruiser their base, and through the weary, dragging months of alternate sun and frost they created a small underground city half a mile below the surface.

At least they could work uninterrupted. There was no sign of life on the dead planet. Apparently it had died young, its vapors dissipating rapidly due to its extreme nearness to the sun.

Slowly, surely, with the masterful genius of Cal Anrax at the head, the underground city grew from its first crude rudiments into a worth while expanse, well lighted, and with all modern amenities. But it took three years of drudging labor to create all the metal buildings they needed. Several were set aside as machine-tool buildings only. There also were well planned streets and synthetically created fields of pulverized rock and fertilizer, irrigated by synthetic water, fields which were already sprouting with the edible roots necessary for staple foods.

AT LAST Cal reached the crowning point of endeavor. He summoned everybody to his own particular domicile for a conference.

“We have a habitation, half a mile below the surface of a devil planet,” he said slowly, his fists clenched. “Vaxil thought we would die, and well we might have done so but for our purpose and energy. But the time has come now for vengeance—the vengeance I planned long ago when we became outcasts! And now it becomes doubly necessary because from ultra short wave messages I have picked up it is clear that revolution has broken out on our home planet and practically all our friends in the Western Hemisphere have been slain. For that Vaxil and his remaining hordes are going to pay a deadly price. I planned it long ago but hesitated over putting it into action because it would have meant destroying many of our own Western people. Now that deterrent is removed.

“I am going to make this world fertile and destroy Vaxil and his followers at the same time. That, I consider, is just reprisal...”

“How?” asked Iana quietly,

“I propose to steal the air and oceans of our home world!”

There were a few gasps and startled glances.

“But that’s impossible!” protested Ralix.

“No, my friend; I have it all worked out—and here is what we shall do. We shall require a tower rearing to a thousand feet, and sunk to half that depth in solid bedrock. We have unlimited metal and power now, so we can do it. Scientifically, we know that gravity is a force, that it can be heterodyned as radio waves can be heterodyned. I propose to direct a heterodyning beam across space to our home world, which, upon striking it, will encompass about a thousand miles of the surface.

“This beam will be in the center of what I might call a funnel of force—or in other words walls of vibration solid enough to withstand the sudden uprushing vortex of water and air. With part of the home planet degravitated, and this force funnel right over that part, the air and oceans will be sucked up the tunnel by following the course of least resistance. But for our force funnel they would spew sunwards, hence the presence of the funnel to hold them in their fixed path until they deluge down on the surface of this dying world.

“It means the total destruction of our home planet—on the surface anyway. But for two reasons it must be done: One, as revenge; two, because to expand and grow we must live on the surface. We can do this if my plan works as I think it will...”

THERE was a long silence as the assembly thought it out.

“How long is such a mighty project going to take?” Iana asked.

“Two years, maybe. Time is not the factor: it is the ultimate result. Place your faith in me again and I guarantee that the science and direction will be there. We *can* do it, if all of you agree. If you do not we shall rot out our lives slowly on this dead world, down here. Marriage and children we cannot even contemplate until we are sure we have a worthwhile heritage to hand on. We can have one. That is up to you.”

Finally Iana made up her mind. She raised her hand in assent. Gradually the others followed suit until every hand was raised. Cal Anrax looked at them and nodded with satisfaction.

“I thought I could rely on you. So, now to work. Here are the draft plans I’ve worked out.”

CHAPTER VI

Reprisal

FROM then on his mighty scheme developed. A nearby mountain range was selected and a site chosen. Scientific machines and implements were transported thither. The outcasts worked like ants against the glaring heights by day, toiled with cold light globes at night, aided by robots, struggling, building, erecting a mighty latticed tower of metal supported by cross-pieces.

It took a year to complete it, its supports sunk deep into the virgin rock. Then came the harder part which Cal Anrax himself had to supervise in the laboratories—the assembly of the heterodyning apparatus, all of it fixed in massive gimbals to allow universal movement.

The actual source of power, to pass through the graded lenses of the heterodyners, was deep in the underground city, controlled much the same as his former automatic defensive machinery. And this time there would be no traitor to foil a mighty endeavor.

Even when the array of tubes, electromagnets, and anode and cathode globes roped together by stout cables was finished, the work was not over for Cal Anrax. He had to calculate to a fraction the positions of Vinra and his home world so that no mistake could happen over that distance of 73,000,000 miles. It was a difficult calculation which needed the mathematical machines to check and double check. But it was done.

Two years and four months after he had mooted the project he was ready, deep underground with his followers in the special projection-laboratory, the television screens connected with the surface already trained on the tower and the moonbathed, brazenly clear landscape.

“We’re ready!” Cal Anrax breathed heavily, his eyes moving to the synchro-clock and his hands on the master switch. “In five seconds exactly.”

The deliberate seconds ticked by. On the fifth one the master switch closed. Instantly energies, terrific in violence, were released, absorbed as they had been through twelve months from the blazing sun itself. The laboratory quivered in violet flame and reeked with ozone.

Bolt upon bolt of energy slammed into the transformer chambers and were hurled thence to the complicated apparatus atop the giant tower.

Every eye fixed on the telescreen. And, suddenly, a lavender beam poured forth from that heterodyner, stabbed like a blinding amethyst searchlight into the starry sky and became lost in remoteness. The arid plain outside hazed with lavender electric interplay.

Six and half minutes to cross the gulf of 73,000,000 miles.

The synchroclock sliced onwards as the power remained constant, as the din increased to hellish fury.

What happened on their home world the Outcasts could only guess. They could imagine the tumult, the inconceivable upheaval which must have suddenly descended out of a clear sky...

But at last, timed to the second, the visible evidence of their labor was there. The heterodyner atop the tower dimmed as the first conglomerated mass of air and water from the home planet came.

It spewed out through the center of the apparatus—a titanic tumult of ice shards which struck the mountain range and rebounded in an avalanche. It became greater, mightier, blotting out the screen, the tower, even the skies themselves. Even down in the underworld the assembly heard the incredible roar of

frozen matter thundering down on their dead world.

Cal Anrax cut the power and smiled like a ghost.

“A world has died, and another has been born anew,” he said quietly. “With the dawn we shall see what has happened. I fancy that by now Vaxil knows the cost of trying to dominate a planet.”

The others, even Iana, were silent. The terrific power of the science they had just witnessed had left them subdued and just a little incredulous...

To the dawn was six hundred hours, and when it came the Outcasts saw more things than a rejuvenated world. Indeed they had hardly gone to the surface and looked out upon a desert turned green, at a distant inland sea, at dense clouds drifting across the sky from the condensed moisture, before other matters took their eye.

Across the sky, just below the clouds, angry as buzzards, swept massive space war-cruisers, bearing the insignia of the home world.

CAL and Iana, standing at the sheltered top of the underground funnel, half way up the mountain side and therefore high above the flood waters, watched the fliers for a while as they searched ceaselessly. Then finally they turned and vanished in the clouds.

“Cal, they guessed,” the girl whispered, catching his arm. “They’ve come to look for us, to destroy us if they can. They must have come while we were below during the night. They had ample time.”

“They’ll never detect us though,” Cal answered, thoughtful eyes on the sky. “They must have a refueling base somewhere near at hand. They wouldn’t send just a few cruisers. There’ll be a whole fleet I expect, if they got away in time... A base!” He snapped his fingers. “That gives me an idea. Come on back below.”

Iana accompanied him to the main laboratories when they arrived in the city again. He went to work immediately with the X-ray telescope, probing through the rock barrier and clouds in all directions, scanning the void above and at the antipode. At last he settled the scanner-lens on the moon and operated the controls swiftly.

On the mercury-sunk mirror the hard, dead surface of Vinra’s small satellite came into view, and upon it—facing Vinra—were a mass of minute black oblongs in orderly rows.

“There they are!” Iana cried excitedly. “A whole armada of them!”

“Yes.” Cal Anrax frowned. “Enough to cause the devil of a lot of trouble if they *do* find us. We’ve got this world going now, and with clouds and water and vapor it will keep going, because we’ll add to it synthetically and stop evaporation. It is our heritage and we’re going to keep it! One thing is pretty sure; those machines there will contain the cream of the warriors from our home world. If they can all be wiped out to a man there would remain only a few refugees and maybe scientists to master, if we decided to rule our own world again as well as this one.”

“That’s right,” Iana nodded quickly, as he stood in thought. “Two worlds instead of one.”

“And it can be done.” Cal Anrax looked at her tensely. “It *can* be done. Why didn’t I think of it sooner? That heterodyner of ours! The power can be easily converted by altering the rate of vibration. I can change it from hetrodyne into pure force—*disintegrating* force!”

He swung, studying the power gauges. “Not much juice left in the power plant but it may be just enough. I’m going to risk it. No time to consult the others. This is up to you and me—so come on.”

He went hurrying out and along to the projection-laboratory, began to calculate swiftly with the adding machines. Then he started up the power. Iana watched him make the power conversion, shift the position of the gimbaled projector by impulse vibrations.

Then he closed that deadly master switch.

The roar of the power was only brief—not more than thirty seconds. It had hardly died away before its effect became evident. In the relay screen linked to the distant telescope, the moon with its base of warrior machines suddenly cracked in four pieces! These in turn split with terrific violence, hurling their meteoric fragments to the four corners of the screen. The change in gravitational balance was evident a few seconds later on Vinra, too.

Cal Anrax and the girl clung to the switchboard as the laboratory swayed sickeningly up and down, as they heard outside the roar of disturbed air and pounding ocean, then the lesser sound of feet running down the outer passage.

Ralix and the other scientists burst into the room in anxious inquiry.

Slowly the disturbance abated. Cal stood upright again and turned to face them. Quietly he explained what had happened.

“I destroyed a moon, and them, before they could find and destroy us,” he finished. “It would have been them or us for it. Now we have another task. While this world settles down to its rejuvenation we will travel back to the mother world and deal with those who remain. Our machines are well equipped with weapons now and the motors have been reset for just such a moment as this. Ralix, make the necessary arrangements. The sooner we depart, the better...”

The physicist nodded, motioned to the others and hurried out...

BUT for all their high hopes they found upon returning to the home world that there was a barrier which even the science of Cal Anrax could not break down. Indeed they suspected at first as they flew over the dying, almost water-denuded planet—a few hastily gouged canals visible to eke out the dwindling supply—as they beheld the shattered cities and deserted airways—that those in the space cruisers had been the last of the race, until in one isolated spot they saw a queer semitransparent hemisphere partly above ground. In fact the spot had at one time marked the entrance to extensive mineral mines.

Believing the composition was glass, and in no mood for trifling, Cal drove his leading space flyer straight at the dome—but instead of going through it he severely damaged the forward rocket tubes instead. The whole machine rebounded violently and landed on the rough ground below.

“What is it?” Iana demanded, as she and the others crowded at the ports and stared at the hemisphere intently.

“Force!” Cal answered laconically. “Something I hadn’t reckoned with.”

He peered through the dome intently.

“I think I can see men down there,” he murmured. “But I can’t do anything about it. Take a look.”

The others moved to his higher elevation at the forward port and looked long and earnestly. There *were* men visible, apparently at a switchboard, or dotted about in various parts of what was a kind of control room.

“Vaxil must have taken fright after the seas and most of the air were snatched away,” Cal said.

“We’ve seen the hasty canals he’s had made—but they didn’t do him much good apparently. Then he must have used this idea to protect himself and his surviving cronies from further wrath to come. A force shield isn’t a vast scientific problem, anyway, but it *is* a vast one to break it down unless you know the exact electrical formula which makes it up.”

“You mean that we can’t get at them?” Iana asked, in obvious disappointment. “That we can’t make them surrender this world?”

“Just that. A journey in vain. Obviously Vaxil and his men have closed themselves in to be sure of safety.”

Cal Anrax paused, then smiled as though a deeply significant thought had crossed his mind.

“By doing this they may have saved us the trouble of having to deal with them,” he added. “Scientific law. We can only tell when we make a return visit. For the moment we can do nothing but return to Vinra.”

He was the leader and the decision was made, so the others passed no comment. He closed the switches and, due to the faulty rocket control forward, the machine rose in jerks to the limits of the thin atmosphere, began a spasmodic climb into the void.

“Trouble in those forward tubes,” Cal said with a worried frown. “The compression is faulty.”

“I’ll take a look at it,” Iana volunteered, and opened the main firing door.

Hardly had she done it before a terrific explosion, the release of superheated gases, belched forth. She never even knew what happened.

The whole universe went out in blinding sparks and a welter of gradually subsiding pain...

CHAPTER VII

Trip Through Space

BY SLOW DEGREES Grant Mayson returned to consciousness. The details of the Council Room drifted in upon him, and with it the realization that the others had recovered, too, and that the girl Iana was standing a little apart, smiling at them.

“You believe now?” Her voice was quiet, but anxious. “You have seen what happened. I died in the explosion on that space cruiser. I remained a mind without a body, unconscious in the infinite, until the law of chance and your electrical apparatus brought me accidentally back into being. The multillionth chance. Now you know—know many things, indeed. You men of science have wondered why Mars, my home world, is arid and has canals, why Vinra, or Venus, has dense clouds and yet no moon. The answer lies in the story I have told you by telepathy—a story which was enacted millions of years ago.”

“Yes, we believe,” Stephen Balmore said, in an awed voice. “It was the most wonderful thing I have experienced—a telepathic trip into the dim past, the study of a science so mighty that it staggers the imagination. You other gentlemen are satisfied, I take it?”

Grant and the remaining four men nodded promptly, then Grant added:

“I would suggest that one of us records the full story for the sound tape immediately so that these other members of the Council may know the full details... For the moment, Iana, what are your intentions?”

“I want to go to Venus,” she said seriously. “The people on that world are my own, my race. You have not the telescopes to probe through those clouds, and my knowledge is not great enough to show you how to make one. But I *can* show you how to build a space flyer.”

“And would that be something!” Grant exclaimed.

“What do you think, sir?” he asked of Balmore. “Is Miss Iana free to act as she chooses, and am I still in favor?”

The head scientist smiled, “I think that we all realize that we are in the presence of a Martian scientist from a past time. We six are convinced. The others will be when they know the story. Yes, Miss Iana, you are free—on my responsibility.”

He paused, a troubled look on his face.

“A problem?” the girl asked quickly.

“Yes, you might call it that. You are of Mars—and later of Venus—that we know. Yet you look” exactly like any clever, educated woman of our own world here. In view of the general belief of science—on this planet anyway—that life on another world cannot be even remotely similar to ours, it seems odd that you should resemble us so closely.”

“Yes, perhaps it does seem odd,” the girl admitted, reflecting. “I can only assume that bipeds evolve fairly similarly on worlds of one particular system. An inhabitant of Sirius’ system might be really different.”

“Evolution has been more than kind to you, anyway,” Grant murmured, studying her.

For a second she seemed to grasp the meaning behind his words, interpreted the look in his eyes. Then with a little smile she turned back to Stephen Balmore.

“Do you think, doctor, that the Government of this country would grant me the facilities to build a space machine?”

“I don’t see why not. Apart from the story which will be specially recorded for the President, we are a scientific race, though of course we are amateurs compared to you. But we believe in scientific progress, and for that reason I think a chance to visit Venus, and maybe other planets, will be too tempting to miss. It would be a large feather in America’s cap, too!”

“I suppose that is saying you have enough science to carry it out.” Iana smiled. “Anyhow, I hope you will use your influence. In the meantime, until I get definite news, I’ll stay in my same room and work out the exact details for a space machine, ready for your engineers. For my information I want only one repayment—to join my race on Vinra, a race which must have grown to vast size from the original twenty. Some of them would have got back to the planet after that explosion, I’m sure. In fact I believe it only involved me.”

“I’ll do all I can,” Balmore promised. “And you, Grant, had better come with me and explain as well. You’ve shown a grasp of science rather unique in connection with this problem.”

BALMORE’S guess was right. The President not only agreed to the construction of a space machine, but was eager to see the project a success. Easily he swayed Congress to his own way of thinking and, following his lead, the public made the girl a heroine of science to the accompaniment of fetes, charity bazaars, and theater appearances.

There was no more struggle necessary in order to establish her. She had arrived, was proclaimed a

genius, placed in the care of the Scientific Association, and then given *carte blanche* to exercise her skill for the general advancement of the profession. . . And she did.

Under her personal supervision a spaceship began to take shape in Pittsburgh, Grant handling the business end under orders from Balmore.

Between times, with the easy generosity of great knowledge, the girl handed over to the State scientific secrets which to her were trifling, but which to America—and the world in general if America chose to be generous—meant vast improvement in everyday life. Special drugs for illnesses, new uses for radiant energy, weapons of defense. They all had their origin in her brilliant, fertile mind.

And the space cruiser grew, made to house eight people—herself, Grant Mayson, Stephen Balmore, and the others who had submitted to her telepathic effort. To them, willing in the first place to believe, she had handed the supreme reward, the realization of any true scientist's dream—travel to another world.

The machine was finished early in the following year. Departure was in two days. Their particular work completed, Grant Mayson returned with the girl to the apartment in New York given to her by a grateful Government, but unlike other occasions Grant delayed leaving her. There was not another day's work ahead to impel him home to rest. He felt he had the chance to talk to her at last, away from other people and distractions.

"Iana," he said quietly. "I've come to know you pretty well in these last months. For all your knowledge, it hasn't made you cold and impersonal. You're warm—decent—good natured, like a million other girls who haven't got a shred of your ability."

"Well, thanks, Grant," she laughed, handing him a drink from the side table but declining one herself. "For a scientist as good as you are that's quite a speech!"

"I—I want to ask you something." Grant hesitated and looked at her over his glass. "Do you think—? Iana, I'm in love with you!" he finished rather desperately. "I have been ever since that day I found you in the laboratory. I'm—I'm not a demonstrative sort of chap, you know. Scientists rarely are. But with you—well, now you know."

The girl's face became serious as she studied his lean, earnest features. Tall, untidy as usual, he stood watching her.

"I respect that love," she said at length. "I really do, Grant. But there is a barrier between us. The barrier of different worlds. We're as apart as the ends of the Universe."

"I can't believe that, Iana. I—"

"But it's true!" Her simple insistence quietened him. "I have loved only one man with all my heart, longed for the day when we could be married. That man, as you will have guessed, was Cal Anrax, the scientific wizard."

"But that happened millions of years ago! You can't love him now!"

"To me it was but yesterday. That is one reason why I want to go to Venus, to see what his genius made of the race, to see the monuments he left behind. I might even find a man of my own world who is a descendant of Cal. Then—then I believe I could be happy."

Grant sighed and put down his empty glass.

"I'm jealous of that fellow," he confessed. "He was a genius, I admit, but he's only a memory. It makes me feel as though that memory comes between you and me. And it's tough—especially loving you as much as I do."

Iana was silent, reflecting. Then she laid a hand on his arm.

“It is too soon to deal with this problem,” she said gently. “I must see Vinra first. Please leave it at that—for my sake.”

Grant looked at her, at her lovely face so close to his own. A struggle mirrored on his gaunt features and passed.

“Very well, Iana. For your sake.”

NEW YORKERS in particular and the world in general gave the space flyer a terrific send-off. The journey began at ten in the morning, and the departure was traced by television transmitters, newsreel cameras, reporters, and every other conceivable means of transferring on-the-spot news to those who were not present.

Then, to the six in the control room—except to Iana who was accustomed to space travel—the wonder of the journey was the prime factor. Balmore, scientist ever, spent hours checking notes first hand on information he had formerly gathered through telescopes. The other experts each absorbed the grandeur in his own way.

Grant felt that he ought to do the same, yet for a reason which puzzled him the journey was not a thrill. He was conscious, somehow, of the rather ridiculous feeling that he had done it before somewhere. Perhaps through the telepathic dream of Iana. But then, so had the other scientists, and yet they were fascinated now.

Finally he settled down to a kind of routine interest in events, watching Earth shrink and Venus expand in all her argent, cloud-girt splendor. The girl herself handled the controlling of the machine, resting at given intervals and using the robot pilot to take over.

So, finally, the gulf was covered and they nosed at last into the density surrounding the planet. Anxiety and earnest watchfulness settled on the party as the girl eased the machine down through the impenetrable vapors. Upon her features was an expression of worried interest, the look of a person expecting a dream to come true.

The air screeched outside the thick hull and the clouds seemed to go down for miles. At last they burst below them, to find themselves no more than a thousand feet above ground. Instantly Iana leveled the machine out, looked below in puzzled wonder.

There was no sign of civilization, or anything remotely like it. Only jungle—vast, crawling jungle—a smothering, steamy immensity of trees, vines, dense verdure, impenetrable beyond belief.

“I don’t understand,” Iana whispered, flying the machine on in a straight line. “There must be some sign!”

So she declared over and over again, but her belief was not realized. They completed a circuit of the planet from east to west, and then from north to south, without finding anything but vegetation or deep azure sea.

Or, at least, *almost* without finding anything.

They came more by accident than anything else upon five eroded stone columns in one clear patch of jungle, and here Iana decided to bring the machine down.

Through the windows they could see they were on what had once been a terrace, but all formation of it beyond crumbled tiers and cracked colonnades had vanished before the snaking, eroding plant life.

“Well, Iana?” Stephen Balmore asked at last, disappointed.

“I don’t know,” she muttered, getting up and rubbing her head in a puzzled manner. “Not a trace nor sign of my race, and I just can’t imagine why not. I expected a completely civilized world, and instead we find this!”

“We’d better go out and see what there is,” Grant suggested. “Come on.”

CHAPTER VIII

Dead Worlds

CHANGING into tropical attire, they armed themselves with protonic guns and provisions, then stepped out through the airlock into the jungle. Silence, crushing heat, eternal vegetation which seemed to grow and die even as they moved. There was nothing else. No sign of anything that lived or breathed.

For over two hours they searched assiduously amidst the ruins of the once beautiful, gigantic structure without finding a single sign, inscription, or clue to help them. At last Iana gave a despondent sigh and sat down on an eroded column.

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“Sheer waste of time!” she confessed. “My race has utterly vanished...”

“Is it possible that they went underground?” Grant Mayson reflected, frowning. “Perhaps the vegetation proved too much for them and so they went below?”

The girl gave him a quick look, then the hope born in her eyes faded.

“It would have taken more than vegetation to defeat Cal Anrax,” she said seriously. “There must be some other explanation. Perhaps we have the wrong place.”

She got to her feet suddenly, struck by a thought.

“Of course!” she cried. “They probably returned to the home world! Cal said we would go back, just before I was killed. Perhaps he did that. Maybe they found a way through the force globe Vaxil and his scientists created.”

“We can but look,” Grant acknowledged. “You agree, sir?”

“By all means,” Balmore nodded. “Mars it is!”

Happier at the thought that she had perhaps found a solution, Iana led the way back to the ship. Within ten minutes they were hurtling upwards again over the jungle, through the clouds, and out once more into the depths of space.

Most silent of all as the journey got under way was Grant. He sat in the small chair by the forward port, a look of profound preoccupation on his features.

“What is it, Grant?” the girl asked him presently. “Something seems to be worrying you?”

“Hardly a worry—a puzzle,” he said, glancing up at her. “While I was on Venus, on that broken down terrace, I felt that I knew exactly where your race went, and yet I couldn’t quite place it. Is it possible that there were mental presences there affecting my mind? Trying to tell me something?”

The girl reflected.

“If that were so, Grant, why didn’t all of us sense it? Myself especially? I certainly didn’t notice anything.”

Grant got to his feet and sighed.

“Something queer about all this.” He rubbed his jaw pensively. “I feel like a man grasping at shadows, and yet who really knows the answer. Like a man who has had amnesia and who finds memory coming back to him at the sight of familiar signs and places.”

The group in the control room was silent for a moment, puzzled. Then an extraordinary expression passed over Iana’s face. She seemed to come to the very verge of saying something, but it died again into moody speculation, even unbelief.

“I suppose that space travel affects everybody in a different way,” Balmore said, fishing for solutions. “It must affect the brain strangely. That’s all that’s the matter with you, Grant.”

“I guess so.” Mayson nodded and smiled. “Forget it! I’d better nail myself down henceforth to helping plot the course.”

And he did, tirelessly, but Iana noticed that there were times when his eyes were looking at the cosmicharts unseeingly, when his thoughts were obviously millions of miles away...

Mars, deserted, red, sprawling with its rusty red deserts, loomed up as a landscape after some hundred and thirty hours of steady travel.

It was late in the Martian afternoon when they came within a thousand feet of the surface, the pale sun hanging out of the colorless blue sky.

“If ever a world died, this one did,” Iana murmured sadly, piloting the machine onwards steadily across the waste. “Can you picture it as a world of oceans, landscape, mountains, soft winds and warm sunshine? Wiped out, because Vaxil wanted it all for himself!”

“Do you blame Cal Anrax for what he did?” Grant asked, his gaze on the endless waste of dead sea bottom below.

“I never did and never shall. Cal did right. He knew all our own people had died, that only Vaxil and his Easterners were in possession of the planet. It was just retribution. But it looks as though my guess was wrong.” The girl sighed. “None of my people came here from Vinra, obviously—unless they have domiciled underground.”

SHE flew the machine steadily onwards for over an hour, her eyes fixed on the unvarying sameness of the landscape. At last she gave a little cry and pointed ahead. “There! See that? Like glass?” Grant, Balmore, and the scientists peered ahead at a shining half moon projecting from the red sand. “That’s the force shield,” the girl explained excitedly. “The one we found.”

“Still there, after all these millions of years?” Balmore asked incredulously. “How can that be?”

“Why not? The generating force would be derived from the sun, and an energy under certain conditions can remain fixed for millenia. Yes, I’m sure that’s it.”

Clearly the girl was too eager with discovery to bother deeply about the scientific issues. She maneuvered the ship downwards in a sweeping curve and they came to rest not a quarter of a mile from the dome.

To clamber outside into the thin, cool air, stumble in the loose sand and light gravity towards it, was

but the work of another ten minutes. Then they stood in silence peering through what was apparently clear glass—a fact disproved when Balmore touched it curiously then jerked his hand back with numbed fingertips.

“Force is right!” he breathed. “And look at those men down there! Are *those* your people, Iana?” he asked wonderingly.

A fixed expression had come to the girl’s face. She leaned as near the dome as she dared, staring down with the others into some kind of control room. Below was a group of men, oddly attired, standing or sitting before the switchboards of machines. With the passing moments they showed not the least trace of motion. They might have been carved in stone.

“Well?” Grant asked finally. “What goes on?”

“Why is it all such a problem?” the girl asked helplessly. “One of those men down there is Vaxil—the second from the left there. The others are his immediate henchmen, members of the very Council which sent Cal, and me, and the others away as Outcasts. Millions of years have passed, and yet these men still stand just as they were on the very day Cal and I looked through this dome together! Why? I just don’t understand it!”

There was a long, perplexed silence in the Martian quietness. Then Grant drew a deep breath.

“I believe I understand,” he said slowly. “Look, Iana, didn’t Cal say that they had perhaps signed their own death warrants?”

“Why yes! He did say something like that.”

“And he was right!” Grant looked around keenly at the interested faces. “These men sealed themselves up completely in a globe of force—maybe they did the same for their whole underground setup with its people—to save themselves from further attack or disaster from possible repetition of sea and air snatching.”

Grant drew a deep breath.

“*Completely* sealed themselves up, mind you!” he repeated. “Now, to refer back to one of our own oldest scientific laws on Earth, we remember *this*, and I’m quoting now from a statement once made by Sir James Jeans in his *Mysterious Universe*: ‘To achieve thermo-dynamic equilibrium, in which no increase in disorganization can occur, in which entropy is constant and complete, we must isolate some region where no energy can either *enter* or *leave*! Under these isolated conditions the energy will be bandied back from matter to barrier and back again, and the shuffling—the only possible limit of energy interchanges—is soon complete...’ That’s the quotation, as well as I remember it.”

The girl pondered.

“You mean they just shut themselves up in a living tomb?”

“I do, yes. Good scientists though they were, they were too anxious for their safety to consider the deeper issues. They sealed themselves inside a globe of energy and in a very short time the energy reached its maximum number of changes. Entropy was complete. They all became fixed as they were, incapable of movement, neither dead nor alive. They achieved a condition, unwittingly, which parts of the Universe have already achieved—complete thermodynamical equilibrium.”

“That, of course, is more than possible,” Balmore admitted, “though I am not at all sure how you arrived at the solution so easily.

“If we wish to awaken them, doesn’t it suggest another scientific law?”

GRANT MAYSON repressed a shudder and slowly shook his head. "We can never awaken them," he answered quietly. "All we can try to do is find a way through this energy barrier. Once we do that, and thereby produce new atomic energies in a state of perfect equilibrium, we start entropy going again also. Everything down here will pass away into dust and a new state will begin—the state we will have started. It will mean that we have, introduced a random element. . . ."

He paused and turned.

"After all, Iana, it's up to you. This is your world, not ours."

She was silent, gazing down pensively into the depths.

"You've guessed right, Grant; I know you have," she said at last.

"To enter through this dome would do no good. Down here there must be a race transfixed by the law of absolute entropy, the race which followed Vaxil millions of years ago and which has been held in scientific thrall ever since.

"Let it stay that way—a kind of monument to scientific greed—and error! It would benefit none of us to look below. Everything would just disappear, and this world is dead anyway. Hollow caverns are of no use to anybody. I would not find my own people, the race left on Vinra, so of what use is it?"

She turned away despondently and Grant fancied he caught the glint of tears in her gray eyes. In three strides he caught up with her as they moved back towards the space cruiser.

"Your people went *somewhere*," he said seriously. "They would surely have left some kind of record. If we went back to Venus we might yet find some trace."

She gave him a long, steady look. "You really believe that?"

"I definitely do! In fact, I think that if we returned to the same spot on Venus I might be able to find the answer myself. I am sure I nearly did it last time, though I don't know why. This time might cinch it."

Her eyes took on that curious, wondering light he had seen once before in the space machine when he had told her of his strange mental recollections. She gave a quick nod.

"All right, we can but try it."

She hurried her pace toward the vessel in sudden eagerness.

CHAPTER IX

United at Last

SURE ENOUGH, once the return journey to Venus had been accomplished, and that solitary clearing with the broken colonnades had been found again, Grant felt once more the same curious sensation as before steal over him. "Makes me feel rather like a water diviner." He was grinning, as the girl and the scientists watched him prowl about slowly. "I've got that 'I've been here before' feeling mighty strong, such as many of us experience sometimes. There ought to be something here which—"

He broke off, made a sudden dive forward across the terrace as his eye caught sight of a curious bronzed panel forming the front facing of one of the terrace tiers. He dropped on his knees, fingered it urgently, pressing on the ornamentations.

Abruptly, with a faint click, it shot to one side and left a dark, drafty aperture.

“But—but how did you *know*!” Balmore whispered, dumbfounded.

“I just did,” Grant replied. “Come on.”

He flashed his torch beam through the opening, pointed to ancient bronze steps leading downwards and in another moment he had scrambled into the opening and on to them.

He helped Iana through after him, and the scientists followed eagerly.

When they had all gained the steps they stood looking round a monstrous metal-lined inner cavern, all traces of decay and mildew kept at bay by the constitution of the metal.

Dimly, at the limit of the torch beam, a floor could be discerned.

“Some kind of vault,” Iana said, her voice echoing. “And you found it, Grant! I just can’t believe it.”

He began to descend the steps slowly. When he reached the bottom he stopped abruptly and slowly rubbed his forehead.

“That weird feeling of having been here before,” he whispered. “I never felt it so strongly. There’s got to be a *reason* for it! Just a moment. Let me try something out to see if it explains it.”

The other travelers waited in tense interest as he went forward, his torch beam flashing about the emptiness until it alighted on a massive metal table. On it were two bronzelike boxes with highly complicated combination locks.

He stood looking at them, his face drawn and pale with vast mental effort. Silently the others stole forward and watched him. There was not a sound save their tense breathing.

Then, as though he were alone, Grant reached forward rather nervously to the first box and began to move the combination dial with his fingers.

Left—right—left again. Until at length it clicked under his fingers and the lid sprang open.

Within was metal foiling. He stood looking at it, apparently too dazed to seize hold of it. Iana and Balmore could see a mass of hieroglyphics—but to Iana they evidently meant something for she dashed forward and, whipping the foiling up, trained her torch on it.

“Grant!” She was suddenly breathless. “Can you—read this?”

He shook his head bemusedly.

“But *I* can!” she cried. “It’s in my own language.” She bent closer.

“It’s a record of what happened!” she went on urgently, her eyes going down the closely written lines. “And Cal wrote it!” she finished, studying the signature.

“What does it say?” Balmore demanded, his eyes shining.

“There’s a lot of it... He describes several important inventions... Yes, yes, here he pays a tribute to my memory! He is very unhappy without me, he says. But—here we are! He writes: ‘To continue to live on this world of Vinra is impossible. Below, the material is too spongy to permit of building a complete city, and above we have produced a too fruitful landscape! The water and air stolen from our home world brought with it spores and seeds which have settled and grown. Here, with violent sunshine and heat for seven hundred twenty hours, changed conditions, and extreme humidity which prevents any cold

during the night, amazing growth has taken place.

““For all our efforts we are powerless to prevent the slow strangulation of our cities by plant life. Departure is the only answer. I am writing this record prior to our evacuation and shall place it in a sealed vault which I know will be proof against devouring vegetation. A second box beside this one for the record will contain all the prints for the inventions I have named. Some day somebody may come here and make use of these ideas. We have decided to go to the third world. Young and deadly perhaps, but tractable and not consumed with avid life. I think we may master it—”

THE girl stopped, her eyes wide. “Earth!” Stephen Balmore ejaculated. “The third world! They went to Earth at the finish!”

“The very world to which chance brought me!” Iana looked about her with shining eyes. “Oh, now there is so much that I understand! So very much! You are of my race! I belong to you! Do you not realize that it explains away the mystery of how life began on your planet? Explains too why the other worlds are empty? Grant, do you begin to understand, too?”

“Yes,” he said slowly, “I think I do. We have come to the end of the odyssey. The complication of space and time has unfolded to us in the strangest possible way. And yet—why not? Universes go in circles; microcosm and macrocosm are in circles; orbits are in circles; life itself, even history. Above all things I realize *one* amazing fact—*I am Cal Anrax!*”

“But that’s impossible!” Balmore ejaculated.

“I tell you I must be, doctor!” There was sudden ringing authority in Grant’s voice. “I dared to think of the possibility for the first time when I felt myself drawn irresistibly towards Iana, when I was so jealous of the long forgotten Cal Anrax because of his scientific knowledge. Then I remembered things. Of all people, I alone understood Iana and her efforts with a formula! No person without some inherited connection could have grasped it so readily—”

“And there were other things,” Iana hurried on, catching Grant’s arm. “The way you kept saying over and over to me that you felt as if space were familiar to you, that you were not making the journey for the first time. That was when I too first dared to hope that you might be an unthinkably distant successor to my beloved Cal. But I had to be sure first.”

“There can be no doubt of it now,” Grant! said quietly. “I finished the theory of thermodynamic equilibrium which Cal had in mind for Vaxil and his minions. Only a continuation of ideas through one individual mind could have prompted that. And, too, I *knew*, with everything in me, that somewhere—in a remote past—I had concealed records of scientific discoveries. Standing in that terrace outside memory came floating to me—the memory of a secret vault, a special slide—seen as though in a dream.”

“And none but the mind of Cal could have understood the combination of the lock,” the girl finished. “See this lock for yourself. It is in our own symbols, not Earthian. Yet you understand them, Grant! Oh, Grant, this is more wonderful than I ever dared hope! I lost my race, only to find it around me on that wonderful world of Earth! I lost Cal, too, only to discover that he lives on, that his scientific spirit lives again through you. Never since my rebirth have I been so happy. You *are* Cal, yes, in a different fleshly form. And—and yet, not so very different, either. You remember I once told you how much you reminded me of him?”

“My science is not quite so good as his was.” Grant was smiling now. “Maybe the skill became blunted by the interval of time. Maybe it was even lost altogether in the struggle to master the vagaries of Earth in the early days. Maybe—lots of tilings.”

“Do you imply from all this that you are Cal—reincarnated?” Balmore asked slowly.

“Certainly I do. So excellent a scientist as you must admit that reincarnation is not only possible, but logical. It happened in Iana’s case that an identical reincarnation took place because the self-same atomic configuration came into being twice over, by sheer chance.

“In my case a *majority* of atoms and electrons forming the original Cal regathered in the normal course of evolution over millions of years. I don’t doubt that I have lived hundreds of lives in between, all in some form or other reminiscent of Cal.

“In some of those lives I was doubtless a scientist and in other perhaps not. But the entity of Cal persisted through all the phases because he, so far as we are concerned, was the original pattern. Now I am here again as Grant Mayson in Nineteen Sixty-Four, entirely unaware of my past existence on another world until I *visited* that world and the telepathic memories started by Iana awakened me to the truth.”

“Correct,” Iana said gently, clinging to his arm. “So utterly, beautifully correct! I *know* it, as a woman, as one who loved Cal more than anything in life—and I don’t need cold science to prove it.”

“Fate or coincidence has been unusually lavish,” Stephen Balmore said reflectively.

ALTHOUGH Mayson answered Balmore, it was Iana on whom he kept his gaze.

“Perhaps,” Grant said. “Or maybe there is a destiny that shapes things after all, that the deepest wishes of our heart do mature in the end, no matter how many cycles pass between. Time, after all, is only an arbitrary measurement which is made by mathematicians so as to enable them to decide what happens in space.”

He broke off, smiling, and caught the girl to him. “Iana,” he said gently, “I shall not be the ruler of the world when we get back to Earth—not even of half of it. We shall try and colonize this world and Mars, of course, and we will have a hand in it. But otherwise I’ll just be Grant Mayson, scientist, maybe a bit better than most because of things I have learned and the secrets you have bestowed. But don’t expect greatness. You’ll be purely and simply Mrs. Mayson, wife of a young physicist.”

“Legally, yes,” she smiled. “In my imagination you will always be something infinitely greater than that. Not that I shall worry. I shall go back to Earth knowing that my own folk are around me, that they are of my flesh and blood after all, that the secrets I have handed on—and those contained in this other box here—are only treasures to which they are entitled. I am no longer a girl of Mars, or Venus, Grant—I’m a woman of Earth!”

The End.

Notes and proofing history

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