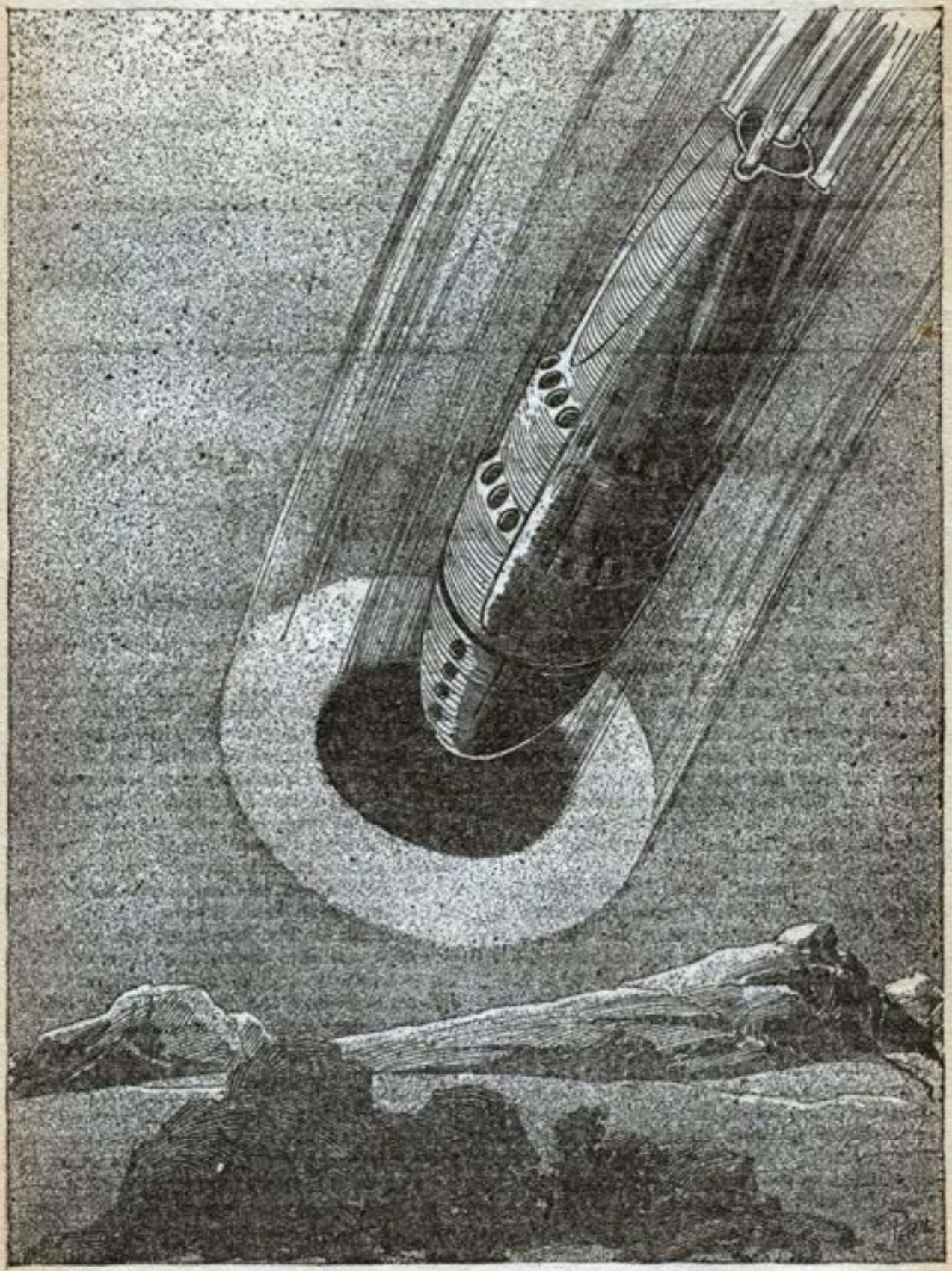

(Illustration by Paul)

And the rocket roared so that our plunge became a screaming whistle.

WORLD OF THE MIST

By LAURENCE MANNING

PART ONE

PROLOGUE

● Last year I happened to have to spend a month in Singapore waiting for a ship. A month is a long time and I made a few side trips about the Malay Peninsula by way of diversion. One week I spent visiting Penang—an interesting island—and since my hobby is sailing, I hired a small boat to sail about in. Outside the harbor some miles is a lonely lighthouse, and the keeper and I struck up a sudden friendship. His name was Jellicoe—a florid, quiet sort of man, with a radio hobby. He had a short wave sending station there and had I don't know how many interesting things to say about it. I'd brought some whiskey with me, to tell the truth, and the first thing we knew, it was night and he put me up on some rugs on the floor. We got to talking through the warm night and after a hesitating minute, he showed me a manuscript.

"You write?" I asked, interested in a fellow author.

"No . . . . that was . . . . well, dictated to me," he said, his face dim in the shadows. "Read it!"

"Well . . . . so I will . . . . but wait a while. Who dictated it?"

"Oh, it's a queer story. It came in on the radio about a month ago. Never had a message come in so solid and free of static. Yet it wasn't very strong. Anyway, I picked up a station that said it was a . . . . well, you can laugh . . . . a *rocketship!* And, one thing leading to another, I got a pencil and a pad of paper and wrote down what I was told. I know shorthand, and afterwards I typed it all out . . . . but read it . . . . *read* it . . . . and don't say a word until you've finished."

I started to read, and after the first few pages I looked up at Jellicoe rather thoughtfully. He backed his chair further into the shadows and waved a hand weakly, as if in defence.

"I'm not mad . . . . at least, I don't think so! You read the thing and talk afterwards!" he insisted. So I did. This is what I read.

● There are two things that our readers have been clamoring for lately more than anything else—one is more of Laurence Manning and the other is more interplanetary stories.

We are pleased to give you both in this story. Mr. Manning's ability to compose space tales has been proven by his highly-successful "Asteroid" stories of a couple of years ago, and we believe that you will find this "yarn" well up to the standard he set at that time.

However, the present story "has it all over" the ordinary interplanetary tale for the reason that it goes much deeper into the mysteries of the universe, way beyond the bounds of our present science into the realm of the highly imaginative and propounds logical, though extremely fantastic theories that will hold you spellbound.

Perhaps only two words are needed in this "blurb" to arouse your interest in this story, and they are, as we insinuated in the first paragraph—"Manning" and "Interplanetary."

CHAPTER I

A Curious Proposal

● Were everyone to receive his just deserts in this world, I should not have this story to tell. I have no real place in it. I haven't the brains nor the imagination to take a real part in it. All that can be said for me is that I am the son of a man who knew how to accumulate a fortune—his only son, in fact—and perhaps one other thing, that I place less value on my money than most men of considerable means. Yet even this last is probably due to the accident that I have never married and have neither wife nor children to inherit what I possess when I finish with life and go—wherever I shall go, if anywhere. Cogger Bent says that I am all wrong about my own worth.

He says that I have such hazy jumbled notions about scientific principles that I am apt to suggest impossible explanations upon every occasion. He agrees that this helps none at all usually, but whenever it is necessary to accomplish the impossible my suggestions sometimes point the way to a solution.

Cogger Bent is my friend—I'm proud to say it. Perhaps you might not think so just to look at him, for his poor twisted body and inefficient limbs are things to pity. But the brain behind that long pale face that pinches itself into a sardonic grin when it is not frowning is a brain that has few peers on earth. It is a terrible thing to have around—a brain like that. Ordinary friends are incapable of being told sudden shameful truths about their own behavior—they resent such brutal frankness. Cogger is frank, if you like. But then, to make up for it, his criticisms are as much constructive as they are destructive. I would do most anything for Cogger—I believe I would die for him and think nothing of it. That in itself is an attitude of mind I have acquired from association with him. He has for the thirty years of his life lived painfully under threat of death. As a baby, he recovered from infantile paralysis with a heritage of weakened body and heart. Life to him is not particularly a boon, and death nothing to be feared. Of such circumstances are heroes born and heroism must be slightly contagious, for I, in spite of my cowardice (which I have felt many times) and my fear of pain and suffering (which I have actually known but little) seem to find myself engaged upon adventures, like a very Ulysses. But then, neither Cogger nor I would ever have done anything had it not been for the third member of our clique —Wadsley Billing.

And, of course, if I am to go back to first causes, Wadsley would never have dreamed of such an insane undertaking had it not been for the death of poor Kitty. Kitty was his wife and when I say both Cogger and I were head over heels in love with her—hopelessly, mind you, for she and Wadsley were happily married—then you may get some idea as to what kind of an angel she was. Somehow I can't bear to think, much less write, of her death. It seems so long ago and sad. Moreover it has nothing to do with this story—except to start it.

Poor old Wad was in a bad way for a month—mooning around with a long face and fidgeting at each new task he took up, as though nothing were worth doing any longer. He would have gone on living alone in the apartment in 118th Street near the Drive had we not put our feet down and made him sell the furniture in one lot and surrender his lease. Cogger and I had too large a place, anyway, what with eight master bedrooms and ten servants. So we captured our friend and brought him up to Briarcliff in the big Rolls and within twenty-four hours noted a change in him for the better. His huge barrel of a body didn't slump so hopelessly, but began to take on backbone again; his strong, ruddy face ceased to express the lackadaisical emotions of a ball of putty and his jaw muscles grew firm—while his steel-blue eyes hardened and seemed to carry more wrinkles at the corners than formerly. But best of all, he actually contradicted Cogger twice on the second day and Cogger, hunched up with his chin on his knees, winked at me solemnly to make sure I was noticing the miracle.

Kitty's death had half-infected our friend Billing with something religious about life after death. Well, as a matter of fact, I had a vague smattering left over from a proper childhood—enough to hesitate before I made any remark upon the subject. Cogger's eyes glistened and his face reflected some inner irony. I expected one of those devastating pieces of verbal dynamite and was surprised when he said nothing whatsoever. Wadsley looked around at us.

"Oh, I know!" he exclaimed irritably. "You think I'm talking nonsense and you're afraid to say so for fear of hurting my feelings. Don't worry! I know it's nonsense as well as you. Only . . . . well

. . . . it's such a nice theory—sort of flattering to our poor human egos. As if we were too important individually to just pass out of the picture forever, like . . . . like Kitty." His voice trailed off and he turned to stare out the window at the dead autumn landscape. Cogger grunted.

"Why not test it, then, instead of just wishing?"

Wadsley didn't pay any attention. I was too amazed to answer. There was a moment's silence before Wadsley swung around to stare at his friend.

"What did you say?"

"Why not test your nice anthropomorphism—see if it might really be true?"

"Don't be a damn' fool, Cogger!"

"As a matter of fact, why shouldn't I? What's wrong with damn' fools?"

Wadsley shook his head wearily. "I can't go in for one of those idiotic arguments today, old chap."

"Then answer my question." Cogger's face suddenly was frowning and serious. I rose to my feet. "You know you're being silly," I pointed out. "That's the trouble with all religion—you can't test it. If you did, it would cease to be a religion."

"Yes," added Cogger quietly, "it may turn out to be a fact, possibly."

"All right, a fact," I conceded. "Now suppose we were to get some guns and see how many pheasants we can bag before dinner."

Then Cogger winked one eye at me, perfectly serious, and I sat down again. "Spirits," said Cogger, "and ghosts and souls and angels and gods—or for that matter, devils, fairies, genii, houris, gnomes, elves, and apparitions—have been reported upon by impartial observers many times in the world's history. They may all be imaginary, of course, but I think it's possible they exist—or that things like 'em exist—somewhere, and can be seen sometimes by men."

"Oh, for God's sake stop rotting," rumbled Wadsley wearily. "Under what possible conditions could the impossible exist?"

"Under no possible conditions, of course. The impossible can exist only under impossible conditions," replied Cogger placidly.

"You're talking Greek—or nonsense."

"Think so? You have that ego you were speaking of, haven't you? The conditions you enjoy are perhaps the only conditions that can be enjoyed, eh? Suppose there were a place where all the laws of nature were different?"

"Let's get the guns, Trench," turning to me. "Anything's better than this!"

"We-e-ll" I replied cautiously. "Cogger's a queer chap, you know. He's been stewing something around in that mind of his for the last day or two. Let's get it out of him. If it is nonsense, after all, what harm? It wouldn't be the first time."

"Good man," grinned Cogger, still motionless on his chair. "And it isn't altogether nonsense. Look here, you've probably read various speculations and imaginary stories about the fourth dimension, haven't you? Well, they're all pretty fallacious—not even possible. A four-dimensional creature, supposing one to exist, couldn't see or feel us, nor we him, any more than we could see a two dimensional being spread out on that floor. Imagine him—a foot wide and six feet long—but without any thickness whatsoever. Not just thin, like a layer of molecules. Not merely too thin to see. But really and truly without any thickness. Ten million of him piled one on the other would leave that floor just as bare as it is now. How are you going to see him or hear him or sense his presence? You couldn't. No more could a four-dimensional being get into touch with us. There wouldn't be any point of possible contact."

● Wadsley stared contemptuously at him.

"What on earth of it?" he demanded.

"Nothing, maybe. Or something, if it should turn out that way. Wait and listen. You're a mathematician, Wad. How many variables are there in figuring the Einstein equations for space and gravitation?"

"Ten, I believe. You should know better than I."

"Ten, eh? Ten variables are possible in space. How many are possible to you, would you say?"

Wadsley frowned. "Three, of course. East and West, North and South, and up and down, putting it roughly. Oh, yes . . . . a fourth variable, time. Why go into this school-room baby talk?"

"Patience, my fine scientist with an ego. I'm coming to you presently. You spoke of possible conditions a while back. Well, you meant, did you not, four out of the ten possible sets of conditions? Let's just put your question in its proper form. 'How can the impossible exist,' you asked, 'under the conditions obtaining within these four variables we call dimensions.' Now when you put it that way, you see, the question and answer are obvious."

"But you just said," I suggested, "that a four-dimensional creature couldn't be seen, heard or felt."

"And so?" his face became suddenly impish and wise. I felt a sudden unreasoning anger.

"And so what on earth of it?" I retorted, imitating the inflection of Wadsley's voice.

"But how about a three dimensional being," said Cogger, more inscrutable than ever. "If we gave the dimensions numbers, suppose ours are one, two, and three and suppose a world of creation existed in dimensions four, five, and six? We could see them and touch them very easily if we could translate ourselves into their dimensions. In other words, they might exist and it could be proved whether or not they did exist."

Wadsley's jaw squared to the battle and I was warm for argument, noticing all the while how diabolically clever Cogger was and how shrewd his tongue. I more than half knew he was inventing the whole conversation for the express purpose of rousing Wadsley's spirit—yet here I was hooked by the same lure!

"*Proved!*" almost shouted my large friend. "Will you kindly tell me what possible means of contact you have? Even suppose one of your two imaginary sets of dimensions are identical; suppose we, in one, two, and three, look along dimension three. We can see there nothing that is not in dimension one or two or both. A being who existed in dimensions three, four, and five might exist there but we have no means of contacting four and five so we would fail to find him. How could you prove anything about it?"

"We'd have to change our own dimensions—our frame of reference—first," pointed out Cogger and then frowned portentously. "You're trying to argue about it. Don't. Try to help me imagine the thing, instead. It's your great fault, Wad. Always disproving things instead of taking them at their face value and sizing them up in relation to all the known facts."

"But look here," I ventured. "If you're really serious, tell me what possible means —or impossible, I suppose I must add— you would use to change our set of dimensions. It can't be done. Nothing in creation can bend a direction!"

"Easy there, Trench," said Wadsley. "Gravitation does that, you know. Not but what you're right in your general meaning. But as a matter of fact, there is one thing—one only—that can warp dimensions. Now how are you going to make use of it, Cogger?" and he grinned irritatingly down from his six-feet-three.

"We-e-ll! Mass will do it. More mass will do it still more. And mass acts as the inverse square of its proximity, old chap. I'll venture that East is a little less Easterly than usual if you are lying on a thousand tons of lead."

"Huh! About one millionth of one millionth of a second! A millimeter in a trillion light-years!"

"All right, all right! Don't go off the deep end about it! Only admit, at the same time, that I've answered your question and proved my point. Now if it were possible to concentrate the mass of a mountain into a cubic foot, you'd perhaps warp your dimensions clean out of their axis. And if you did that, you might swing yourself

into an entirely new set of dimensions. And when you got there you'd still be three-dimensional and if there were any other three dimensional matter in those dimensions, you'd see it."

"Well," grumbled Wadsley, "let's not put too fine a point on this tissue of possibilities. All this is conceivable, but you said something of tests, I believe?"

"Ah! Let's get down to cases! Gravitation will bend our three dimensional existence. It does so, in fact, and space, as we know it, is finite, though unbounded. We have merely to concentrate enough mass and get close enough to it. Everything has its breaking point. Enough gravitation will not merely bend our dimensions, but strain them to the breaking point and we shall be shifted into a new set of three dimensions."

"And supposing that that be true, which it is not, necessarily, although it might possibly be, just what miracle will concentrate gravity for you?"

"No miracle. Neutrons!* A cubic yard of neutronic matter. It would be in the order of billions of times the weight of our earthly substances. If a yard of earth weighs a ton, then a yard of neutron would weigh a billion tons. Its tiny size would enable us to get close to it—within a few feet. Our earth weighs billions of billions of tons, but we are four thousand miles from its center. Gravitation depends more or nearness than on mass, you know!"

Wadsley laughed aloud. "You'd gather this neutron here on the floor, I suppose? It would sink through the floor—through solid steel, in fact—as a pebble sinks through water. Your neutron would end up at the center of the earth, Cogger!"

"Unless it never were on the earth at all!"

"What do you mean?"

"We would have to build a laboratory out in space at some distance from the earth—a rocket ship, perhaps, speeded up to three or four miles a second and about a thousand miles off the earth travelling around it in an orbit like a little moon. On such a ship neutron would not have its great weight, but could be held in place with steel girders—there might be so little gravitation that a thread would hold up a mass that on earth would weigh many tons."

"And this rocket ship would take your billion tons of neutron from where? You'd have to make your neutron by atomic bombardment up there in space, Cogger. Moreover you'd have to take up with you a little more than a billion tons of matter from which to make it—to say nothing at all of the energy required to perform the task. The thing just can't be done."

"Don't rush me; I'm thinking this thing out as I go along," answered Cogger, and he was silent for a time. It was then that I ventured to make a remark which Cogger insists was inspired idiocy.

"How about the atoms inside the sun," I suggested. "They're stripped of all but one or two layers of electrons, according to Jeans. They might not be exactly neutron, but at least they are many times denser than any substance we know. All we would have to do would be to invent the perfect heat insulator and get inside it. We wouldn't be roasted, for the heat couldn't reach us, but we'd have plenty of gravitation nearby!"

● Wadsley grinned at me, but Cogger's eyes rested upon my face sadly and with a vague, mystic expression. He murmured something, for I could see his lips move. Then he said it aloud. "Suns explode. We know very little about such things."

He went on: "Suppose that large suns occasionally build up such heat and pressure that near-neutron is actually formed in their cores. At some point, the strain is so great that the sun explodes. Off into space race all the electrons that have been squeezed off the protons. They lie on the surface of the sun. The surface is driven away more rapidly than the core, but the core might be disrupted as well. Imagine the thing, man! Everything is driven out of the way of the core of that sun! It

*Atoms in a solid mass.

finds nothing in space on which to feed for its enormous valence. On it travels, year after year, picking up a few ions a century, perhaps acquiring a layer of satisfied protons all over its surface in the course of millenniums. But inside, the great mass of that asteroid would be nuclear. Well . . . . if that were so . . . . our rocket ship has only to find such an asteroid out in space and make use of it. There are such things in space—look at the companion of Sirius! Ye-e-s! I believe that's the answer. Out of the mouths of babes and sucklings, eh, Trench? Never mind! You've helped to finish as fine a piece of theorizing as I've ever run across. Look here, Wadsley, do you realize that this thing's without a flaw? It all may be true! And if we can get hold of a piece of nuclear or near-neutronic matter out in space, we can actually see for ourselves what happens when a dimension is violently bent—perhaps even broken!"

"And the ghosts and gods?"

"Oh, that was just the start of the thing. As a matter of fact, I merely started out to show you how stupid such drivel could be by trying to defend their existence. You've been brooding too much and I thought some sanity might result from my little insanity of argument. But it's got beyond that now, fellah! Let's consider this thing practically. We need a rocket motor to drive a ship out into space. We'll be in the ship and spend the voyage looking for pieces burst out from the insides of stars. How'll we tell 'em when we see 'em? Well, we could shoot bullets at every meteorite we see. Then we can sight on the bullets. If it's dense enough, it will pull the bullet noticeably out of the direction of fire. That can all be worked out. Of course, we may not find anything but the usual iron and nickel masses that fall occasionally to the earth. What of it? We will have had the fun of building a ship to fly out into space. Maybe we'll get killed. What of it?"

"Hmm!" responded Wadsley. "The rocket ship, with Trench's money, might be possible—after twenty years of work. As to the getting killed part of things, it's more probable than anything else you've happened to mention, but I've no particular objection. Rather a lot of work and expense for the sake of two suicides."

"Three!" I snapped. "Think I'd be left out?"

"What on earth do you want to die for?" asked Cogger, raising his eyebrows. "You've health and wealth."

"But only two friends," I replied.

I have tried to give almost word for word this curious conversation. Thus started an adventure—strange and improbable. Nevertheless, it happened and all that was said that day had a bearing on the happening, as you shall see.

CHAPTER II

Into Space

● The next two years passed like a dream.

In the late autumn of 1931, we were ready to start on the wildest and most improbable adventure I had ever imagined. I shall cover only a few of the highlights of this period. First off, my job was to provide the money. I had converted all my late parent's holdings into cash and the cash into government bonds. The total came to a bit over twenty millions. Cogger said it might be enough! That was in September of 1929 and took three weeks. It was scarcely over when the great crash came and I congratulated myself upon my prudence. From then on I was a mere observer—an interested one—and privileged only to sign checks and sell bonds as needed.

I remember the first session of planning very well—Cogger hunched up in his chair and drawing out formulæ and applications while Wad paced the floor and demolished them one by one, ending up with a compromise of workability—then over to the huge drawing board to jot down the accepted ideas with a pencil that flew like lightning. They began at the beginning, that session—I copied down the first figures on the drawing board: Reaction × lbs./per sec. × ft./per sec. × 1/32.2.

"But our rocket ship will be propelled by gas," objected Wad, and then they were off. I listened uncomprehendingly for half an hour and went out for a walk. When I returned, it was dinner time and the board was covered with figures. Wad was writing down an equation and I stood watching.

"That seems all right," he said. "Now we have something to start with."

"Is it finished?" I asked.

Cogger grinned. "As soon as Wad has it written down you can climb on the paper and travel to space. That equation will get you there—only make sure you don't forget to change the sign if you remove a bracket, or you're liable to fall!"

I grinned sheepishly and copied down the figures. I may as well present them here, for though they mean nothing to me, possibly some of my readers may be interested. Incidentally, the equation looks almost solid enough to bear a man's weight up into space! This was it:

$$R = 2AP\sqrt{1-\left(\frac{P_2}{P_1}\right)^{\frac{s-1}{s}}}\ \sqrt{\left(\frac{2}{s+1}\right)^{\frac{2}{s-1}}\ \frac{s+2}{s-1}} \quad (\text{LBS})$$

After dinner I made my plea for elementary enlightenment and Cogger waved his hand at the drawing board. "Forget all that," he said. "That is just an exact definition of the job we must do. It represents the pressure inside the chamber where our fuel is to be burned—that is P_1 in the formula—and the pressure of the atmosphere, P_2. That A is the area of the nozzle out of which the gases rush. The s is an exponent and will probably come out to about 1.3."

"But what is the use of such a complicated formula?"

Wad laughed. "Plenty use, fellah! We can design a rocket on paper and then calculate by this formula whether it will work or not, without ever going to the bother and expense of building it!"

"But . . . . what fuel do you use?"

"Well . . . . that depends on whether weight or size is more important. Oxygen will have to be taken in any event, but if size doesn't matter, the fuel to mix with it will be hydrogen. If the bulkiness of hydrogen is too difficult a construction problem, then we might use gasoline, or perhaps benzol."

"Just one thing more," I pleaded. "What will the power you develop actually do . . . . I mean, what will it push against?"

"The rocket, of course!"

"No, but out in space there's nothing to get a leverage on."

"Oh, I see. This fuel will be all burned up. It will weigh thousands of tons and when burned will be thrown violently away from the ship. The ship will recoil in the opposite direction—*comprenez?*"

"Yes," I said thoughtfully. "Thanks." And I left the room quite convinced that it was all a trifle ridiculous. Still, I was prepared for anything when Wad and Cogger got together.

It was just as well that I was. Within a month, I had paid out more than fifty thousand dollars and half of the big garage had been transformed into a workshop. A huge lathe and milling machine were set up there under the direction of two mechanics—they had moved into two of the empty cottages on the estate with their wives and families. A small concrete shed had been erected and a plant for liquefying air was being installed, while another concrete shed in the middle of an open field had been built for making tests. Then began months of patient testing. At all hours might be heard the hissing roar of a rocket in the testing shed and more than once a deafening explosion, with its aftermath of excited post mortems performed upon the shattered remnants. I took my part in all this, for it was something I could understand. The search was for the greatest possible reaction from the least possible amount of fuel and it ended after a few months with a large egg-shaped chamber from which projected a flaring nozzle six inches long.

Then we began upon our search for the proper material. Tool steel firing chambers burned out in thirty seconds or less. Nichrome was little better. Tungsten was actually considered, but when I

learned the cost, I asked how we could manage to pay for a full-size rocket, if we should make a model work. Wad nodded. "Besides, how could we mold it to shape?" he asked, and Cogger reluctantly agreed. "But what *shall* we use?" he asked.

We tried everything and all failed. I can feel even now the thrill that came when we had our first success. It was a chamber of plastic fire-brick, reinforced with embedded steel wire, and it burned for fifteen minutes without mishap. When it had cooled and had been examined, it was found entirely unharmed by the ordeal of heat.

Then we turned to tank designing and this was quickly settled by the use of high-carbon steel in welded sheets with bulged ends. Problems of fuel feed and control had been worked out during the chamber tests and we were ready to start upon our first working model. In less than a month it took shape in the shop. The model stood ten feet high and a foot in width and the chamber held a quart of water in its pressure test. Its lift had been calculated at two hundred pounds and its weight at fifty, leaving one hundred and fifty pounds effective pay-load. "I only weigh one hundred and thirty," drawled Cogger. "The dam' little thing would lift me if I were fool enough to go up on it."

But instead, we put an altimeter, a camera, and a parachute on it, and shot it at dawn on a March morning. It hissed up out of sight like a light ray and every servant on the place had field glasses while the chauffeur tuned up the big car ready to give chase when it should be sighted. This was not until three minutes later when one of the mechanics who was sitting in the top of an old pine that stood on a little hill commenced shouting and waving his arm. I clapped my eye to the telescope I had mounted in the field and after a minute I saw it too—far off to the west—just a dot of black dragging a parachute slowly down through the air. I made sure of the direction, which I calculated would fetch it down across the Hudson, and we piled hastily into the car and drove furiously to the new Bear Mountain Bridge. Once across we stopped for another observation and I caught a glimpse of the parachute now low over the next hill—not a mile away. We made the distance in one and a half minutes and were in time to see it land in the woods where we found it after twenty minutes of moist tramping. It was barely damaged at all and the altimeter had recorded heights on a drum. This we examined breathlessly and read 80,000 feet!

"We figured 100,000 feet before allowing for air resistance," said Wadsley in elated tones.

"Well," said Cogger, "that seems to be that."

That night the three of us gathered in the living room after dinner and discussed things in general. Wadsley was excited in a morose fashion. "I'm for building a large ship and landing on Mars!" he began.

"Could we?" I asked. "I mean, could we get there and come back?"

"Who said anything about coming back?" demanded Wadsley and strode over to stare out at the starlit evening. What he saw there I do not know, but a shadow fell over our gathering—a shadow that had been missing for the past few months of intensive work. I sighed. Poor Kitty!

● Cogger was pouting out his lips judgmatically. "Let's not be foolish. We can leave the earth easily enough, but to land on Mars will require ten times the size of ship needed just to leave the earth. Then to rise up again from Mars—why a hundred times as much fuel might be too little!—to say nothing of keeping liquid oxygen cold during the months the voyage would require."

"Size is merely time and money," grunted Wadsley without turning around.

"Perhaps. Perhaps not. But frankly I don't see anything thrilling in a journey to Mars compared to some other things we could do."

"What on earth do you mean?" I gasped.

Wadsley interrupted. "I suppose you refer to that tissue of dreams we discussed the first night of my arrival here, eh? Well, act your age, Cogger! We have an actual possibility of going to Mars now. It will take a few years more, but the main job of invention is done."

"Meaning, I suppose, that while the rocket ship can be built, you don't think a journey into a new set of dimensions can be made, eh?"

"Oh, don't keep up the pretense! You're just rotting and you know it!"

"Hm'm! You don't doubt that gravitation bends our dimensions?"

"No."

"Nor that if we could get a great enough gravitation we might bend them to the actual breaking point?"

"Oh, no. It's absurd, but it might be true."

"Then you must doubt the possibility of finding a mass of dense nuclear matter, eh?"

"Of course—and I doubt that anything would happen if you did."

"Well, as to what'd happen—you'll admit it would be worth while trying! As to finding dense meteorites—that's a different story. You know something about meteorites that have fallen on the earth, of course. Did you know some of them were cold on arrival and that some of them were warm? Yes? Well, did you know that some of them were so unbelievably hot that they set woods on fire a hundred miles away? That mean anything to you? No, don't argue yet; listen. Did you know that meteors striking the earth sometimes sank out of sight—right down through rock and sand? There's one in western America that is miles deep. The big one in Siberia is also deeply sunk. Just what speed was required to penetrate so far, Wad? Is there any speed in space that would account for a fall here rapid enough? Doesn't the penetration suggest the way neutronic or nuclear matter would act? The heat—like the inside of a sun! The penetration—like the density of materials inside a sun! Perhaps some of our meteors are actually the very kind of thing we're looking for."

Wadsley turned around. "I suppose you're serious. You've raised some points that can't be answered, of course. Maybe there are ghosts—we can't prove the contrary. It simply isn't likely. Why imagine them?"

"Good man! Then you'll agree to my proposal. It's simply that we build a small rocket ship to take the three of us up about five miles a second and so that our ship will act as a tiny moon rotating around the earth. There must be thousands of meteorites doing the same thing—ones that almost hit the earth and were caught by its attraction so that they now race about it in narrow orbits. Once among them, we can cruise slowly about and see what is to be seen. That's all I ask—a few months spent up there and then return again. If we fail, then let's build a big rocket and have a try for Mars, if you like. At least it would be good experience for such a venture. What do you say?"

"Oh, all right. It will be a sort of trial trip. 'Twon't result in anything, of course, but I'm game. Doesn't make much difference to me, anyway."

So it was decided—off-handed and casual! Cogger gave me the list of purchases the next evening and when I had got estimates in, I found the best I could do was over half a million dollars. There was five hundred tons of sheet steel, among other things, and we set aside a twenty acre field for construction. In a month it looked like a factory, with dozens of workmen and donkey engines and cranes and machinery in all directions. For ten months the work continued and gradually our vessel took shape, standing upright in a cradle of steel lattice that towered four hundred and twenty feet into the air. Of course, my neighbors were curious, but when I assured them the structure was temporary and experimental, they were relieved—and after all, I own nearly a thousand acres and was not exactly spoiling any view. Had we revealed the real purpose of our work, we

should have had crowds and reporters, but we carefully refrained from telling anyone. Not even our two master mechanics knew just what we were building. They received fifty dollars extra every week for the express purpose of quenching curiosity. Naturally enough they must have suspected—but fifty dollars a week was worth a great deal of suspicion—especially in 1931.

The ship proper was fifty feet long and twenty through and it was surrounded by a "booster" vessel that was twice as large, making the whole thing a hundred feet high and forty in diameter. When the "booster" had exhausted her fuel, the idea was that the smaller ship would turn on power and complete the journey alone. The "booster" would then, according to theory, gradually slow down and fall back to earth. "And we must be careful to aim east," Wadsley pointed out, "so that it will fall into the Atlantic Ocean and hurt no one." Cogger asked what would happen if it should strike an ocean liner. "Chances are millions to one against it!" replied Wad. "Besides, we have to take that risk or not go at all."

I may state here what I learned only after exhaustive questioning. Some of my readers, at least, will require elementary details in order to understand what was being done. The speed we needed was five miles a second. We could acquire this at a rate of "three g," which I found meant about 100 feet per second added speed for each second of firing. To reach our speed would take 265 seconds—or, allowing for air resistance and other unknown factors —about five minutes. The power in a pound of mixed fuel (benzol and oxygen) was sufficient to raise itself and an additional quarter pound at this acceleration for a period of three minutes. The additional quarter pound represented two ounces of structure and two ounces of pay-load. Thus the "booster" vessel would carry the space-ship proper as payload and the relative weights were as 18 ounces is to 2 ounces. But this pay-load was a ship of some three hundred tons and it in turn having been given a starting speed by the "booster" of 100 ft. per second × 150 seconds, or 18,000 feet per second, then commenced firing and was capable of doubling this speed by exhausting its entire fuel. Actually, it would use only half of its fuel to acquire the necessary five miles a second. The remaining power would be saved for slow maneuvering in our orbit about the earth and, finally, for retarding our speed for the fall back to earth.

● As to that fall, the ship had wings like an aeroplane that could be projected from its sides. The return to earth would be one long glide without power and the landing was a subject that frightened me when I thought of it all—which was oftener than I wished. Of course, the ship would have lost nearly all its weight —four-fifths of its three hundred tons would be fuel—but even so, landing a sixty ton glider is not easy. Moreover, we might not be able to land anywhere but on the ocean—perhaps miles from land. When I expressed my fears to Cogger, he only laughed. "We'll take along a parachute each," he said. "Then if the landing looks dangerous, we can bail out and watch the ship crash while we float down in safety."

So, you see, everything was thought of and provided for—so much so, that I gave up trying to understand all the engineering details and confined my interests to the cabin where we would actually eat and drink and breathe for the long months of our trip. It wasn't a large cabin, incidentally—not more than fifteen feet across and ten feet high. The ceiling was narrower than the floor and both were in the form of smooth circles. The material was aluminum and the three bunks, the three chairs, and the single table were of the same metal, combined with basketwork where needed. Very plain and serviceable, you see. Three portholes of heavy quartz gave a view of the outer world and a door gave access. The walls were double—about two and a half feet of dead space between—and the cabin door opened on an air-tight vestibule. It

was necessary to close the inner door and open the outer before one could reach the outer air.

Water tanks were set in the space between the walls and fed by taps to the cabin. For food, we had a great reservoir of canned goods and a refrigerator, but no stove. As for air, rows of holes at the ceiling-line connected with pumps that forced air into the cabin. Along the floor were more holes, and pumps drew air out. Overhead was the air-cleaning and purifying plant and this was supplemented by drawing oxygen in small quantities from the great tank of liquid oxygen under our feet. Indeed, as Cogger explained to me, the oxygen tank could never be closed, or it would build up such pressure that it would explode. A vent had to be constantly left in the tank and from this the oxygen gas escaped as the liquid below boiled. We merely used this waste oxygen for breathing.

"But Cogger," I asked at once, "won't the oxygen in the tank all boil away in a few hours, then? We won't have any left when we want to put on power for our return."

"The loss in that tank—which is designed to reduce loss to a minimum—is five per cent every twenty-four hours," he replied. "Figure it out: losing 5 per cent every day, our reserve of oxygen will shrink to half in 14 days—two weeks. In a month, it will have shrunk to one-quarter; in two months to one-sixteenth. Two months should be enough time. We are taking over 100 tons of oxygen. We'll use up not more than fifty in reaching and establishing our orbit around the earth. The remainder, after two months, will have shrunk to one sixteenth—or three tons. These three tons will be ample to break us out of our orbit and start us falling back to the earth. Moreover, the oxygen supply can be checked every day. The minute it gets dangerously low—back we start, whether it is two months or two weeks!"

I have given these points in some detail, for I want it understood clearly that this adventure actually happened. So far, of course, it can be explained. But as for what comes later—I will need any credulity that may exist in your minds! The rocket-ship was finished at last and we set the date for our start, as I have stated at the beginning of this chapter—October 23rd, 1931. Our steel structure, four hundred and twenty feet high, leaned at an angle of ten degrees toward the east. In it our ship stood, and launching wheels fixed in its walls slid up on heavy steel rails. When we put on power, we would be automatically directed for the first two and a third seconds of our flight. After that, Wadsley at the controls would take over manually. We were to rise until we reached a height of three to four hundred miles, at which point we would gradually flatten out into a circular orbit. Thereafter, at slightly less than five miles a second, we would (if we wished) forever circle the earth. Even after we had all died, said Wadsley, we could let our ship continue in its orbit bearing our dead bodies—and not a bad tomb, at that. While he spoke, he stared abstractedly up at the sky and after a moment shrugged his shoulders and turned back to his work.

It is well to understand the whole maneuver beforehand, for when we had actually accomplished it, there was literally nothing to see or understand about it. On the 22nd of October, I paid off all our servants, except for the two mechanics. They remained during the afternoon and were instructed to stand by until we had left. Thereupon they were to receive one thousand dollars each from my lawyer in New York and forget the whole affair. "And leave your address with him," I added. "We'll be back in a few months, if all goes well, and may want you again."

"Ah-er, Mister Trench," began one of them, "maybe when you get to Eur . . . . h'mm! Perhaps you'll want to cable for us in a few days. Something might go wrong and you'd need repairs."

"Thanks," said I, secretly delighted at learning that he thought our destination was Europe. "We won't cable you, whatever else we do. Just leave your address

with the lawyer, and don't worry. Mr. Bent and Mr. Billing have thought of everything."

We had agreed to start at an hour before dawn, so as to be unobserved. This meant rising at four o'clock, and chilled and shivering we gulped hot coffee and brandy and got into our silk and leather jumpers, designed both for warmth and durability. The walk out to the launching stand was a gloomy one, and the stars seemed unusually bright and the night startlingly quiet. A light snow had fallen and gave the landscape an otherworldly look. We did not speak until we got to the ship. Then Cogger drew out of his pockets an object which he struck suddenly against the silvery hull. There was a tony sharp explosion at which I jumped. "I christen thee 'Space-steed!' he said.

"But—a christening—you should have used champagne!"

"Not at all," he replied. "I used a vacuum tube—more appropriate!"

Then we climbed up the steel ladder and let ourselves into the cabin. In a pile on the floor lay our loose equipment—bedding and spare clothes. Three bolts set in the floor had been used to lash the pile in place with rope. We fastened the inner door and Wadsley flicked on the light switch while we found our places each on his bunk and strapped ourselves in tightly. Wad's bunk was beside the control board and he could run the ship with one hand while lying there.

"Ready?" he asked and, receiving no reply, added, "Starting in ten seconds—get set—fire!"

For a brief instant there was nothing. Then my bunk trembled and a faint roaring sounded. I felt heavy and stupid and lay there minute after minute until Cogger, who was watching the instruments, gasped out, "The booster's empty, Wad!" Then Wadsley moved a lever and there was a fury of sound under our feet as our small second vessel put on power. For little more than a minute it continued and then Wad pulled back the lever and there was silence. There was more than that, for my heart rose up into my mouth and I felt suddenly empty. I knew what it was; we had no weight. I thought I should be ill, but lay there quietly and after a minute or two felt more accustomed to it.

In the meantime, my two companions had unstrapped themselves and were floating about the cabin cautiously as they tried to make observations to ascertain whether we were in our calculated orbit. Each motion of foot or hand seemed to send them careening madly about and it was fully five minutes before Cogger reached a port and held on with one hand while he focussed the sextant fixed there. After a few minutes he said, "We're not far off our orbit, Wad, at the worst. I should say it's safe enough to rig the cabin for space conditions and then check up afterward more exactly."

"Get off that bunk, Trench, and give a hand!" said Wadsley by way of reply.

Suddenly the cabin was flashing with light. We had risen into sight of the sun.

CHAPTER III

The Nuclear Mass

● I tried to get to my feet. You know how you give yourself a push with your hands to get off a bed? Well, that push that should have dropped me to the floor shot me rocketing to the ceiling instead and I bumped my shoulder there and rebounded back to the floor where I landed on the soft pile of bedding on which I managed to get a grip and so kept from bounding ceilingward once again. That was my initiation into space conditions.

Cogger laughed at me. "While you're there," he directed, "slip this rope through one of those metal eyes in the floor!" and he flung a length of rope gently at me. I managed to catch it and make it fast. It stretched from the floor diagonally to another bolt near the port at which Bent was standing. Wad was fishing another length of line from a cabinet set into the wall and this he tossed to me and I fastened it in another of the

rings. We worked on in this fashion for half an hour and at the end of that period our cabin resembled what might have been the web of an insane spider. Criss-crossing in all directions ran the light ropes and over and along them we swung as we went from port to port looking out on the empty medium in which our ship raced along its unresisting course.

Stars showed out of two of the ports. Through the other streamed the blinding rays of the sun—a small hard ball of fire with a rosy corona of flame around its firm outline. But by shading my eyes with one hand, I made out the earth below it, or rather the ocean. It was featureless, of course, at that height, but as I looked, I saw between continents of cloud the dark masses of land far to the east. It was Europe, though I could not have recognized it. The earth spread out huge below us—occupying almost a quarter of the visible sky. Even as I looked, the distant landscape changed, for with our speed, we would circle the planet every hour and a half. And as for the sun, it passed overhead with even greater speed, for we travelled east and this added a thousand miles an hour to our speed relative to the sun. In the first "day" (that is, twenty-four hours) we circled the earth sixteen times, but we enjoyed seventeen sunrises—the first over the Atlantic, the second over New England, the third over Chicago, and so forth. But to tell the truth, I did not see the first two or three, for I felt terribly sleepy and lowered myself gently onto my couch. I could not stay there, I found, for even the pressure of my lungs in breathing pushed me gently up into the air where I floated until I reached out a hand and pulled my body back against the couch. Finally, in desperation, I fastened myself tightly against the top of the couch with straps and a blanket and the pressure was so comforting that I fell instantly asleep and did not waken for several hours.

When I arose, I was hungry and proposed breakfast to Wad and Cogger, who were each at a port checking our orbit with minute pains. They both agreed and I broke open some canned beef and crackers and brought some cheese from the refrigerator. For drink we had cold coffee and I complained at the absence of a stove, but Cogger pointed out that the provision of electric current would require a great deal of weight, and as for actual fire, we would not have enough oxygen to permit its waste. The cabin itself was warm enough. We were flooded by the hottest kind of sunlight for more than half of each period of an hour and a half. When the sun passed behind the earth, we could, if we grew chilly, close all ports and so preserve our warmth until the sun should again come into sight. Practically, our temperature grew too warm and we were compelled to shut out the sunlight most of the time while Wad rotated the hand weight so that one side of the "Space-steed" which had been brightly polished was kept sunward.

Somehow it seems thrilling—or as if it should be thrilling—in the telling of it, but at the time I recollect feeling rather bored after the first forty or fifty hours. It was monotonous there—staring out of foot-wide ports at black "sky" studded with stars. The stars were smaller than on earth, but brighter and showed more variations of color. The sight of the earth itself was rather interesting, of course, and since part of the ship's equipment was a movie camera, I spent some time in mapping the entire surface—the mosaic made from these pictures is a strip that extends from the arctic circle to well below the equator. Clouds interfered frequently, but by perseverance I got clear pictures at one time or another of the whole field. For food we had bread and crackers, canned meats and fish, vegetables both raw and canned, milk from cans, water from the tap, a little wine and an occasional glass of brandy. Eggs, butter, and cheese were in the refrigerator, so that we did not lack for variety or wholesomeness. We slept when we felt like it, though one of us kept watch always as a matter of precaution. All in all, it was a quiet and uneventful life, in spite of our unusual circumstances.

I must mention one piece of strangeness, the way water and liquids acted. You couldn't pour them out at all, for they would rebound from the glass if you held one under the pressure tank, and float all around the cabin. The "cans" of liquid had been made of rubber and fitted with rubber necks. Our "glasses" were also fitted with rubber necks. To "pour," you squeezed the liquid from one container into the other. To "drink," you sucked through a straw. It was strange at first, but soon became commonplace.

And so, by introductory steps, I come to the actual search for which we had come—meteorites. We had been there two or three earthly days—about seventy hours—before we saw our first one, for they were hard to see. It was a small black dot that passed us at terrific speed and was visible for perhaps two and one-half seconds. The nearest it came to the "Space-steed" was ten miles. I had seen the thing, as a matter of fact, while busy with the camera. Wad and Cogger had each had their eyes glued to small telescopes and so had missed it entirely.

"But it was going in the opposite direction around the earth," objected Wad. "Suppose they all go that way?"

"Impossible!" returned Cogger. "Must be some going in every possible direction—east, west, north, and south at any given moment. It would simply depend which side of the earth they approached when captured by its gravitation. What is more likely is that we are too high or too low. Let's keep watching a bit farther out." So we did and saw nothing for ten hours. Then we decided to try a little closer to the earth, and in the first half hour we counted thirteen—one of them quite large, perhaps a hundred feet through. They seemed to be mostly at a level about ten to twenty miles nearer the earth than our orbit and, after due calculation, Wad went over to the control board and turned on the power for precisely three quarters of a second, using an automatic relay for the purpose. The "Space-steed" gave a coughing bark, the floor trembled, and it was all over.

We rushed to the ports and observed nothing different, for our slight change of speed and direction could not be related to any fixed object except the earth far below. Nevertheless, our direction had changed and in the fourth hour thereafter Cogger gave an excited little yelp.

"There's one ahead! 'Bout a mile or so and we're catching up, I think. No we're not, we're . . . . no I was right, I think. Our speeds are almost the same."

● Wad rotated the gyro wheel so that the ship turned sideways to our course and two portholes bore on the object before us. Then we watched the pursuit. The sun rose and set twice before we caught up with it—ever so slowly—until at last we saw a small ten foot boulder a bare hundred feet away. It was ragged and broken and black, like the hopeless derelict of space that it was. We drew still closer to it until at last a slight jar told us that we had touched.

Wad had left the port and was busy opening a large closet set in the wall. From this he drew a diver's suit of heavy rubber, with helmet and oxygen tank complete. He tested the tank and then donned the outfit. Over to the door he climbed, looking grotesque among the spider-web ropes, and closed himself into the air-tight vestibule. I craned my neck at the window and Cogger, after a moment, turned the gyro until our port looked out at the meteorite. And there it was with Wad astride it! He caught our eyes upon him and waved clumsily.

I gave an exclamation of horror. "He'll be carried off on it!"

"Oh, no," said Cogger with a lift of one eyebrow. "We've captured that meteorite. From now on it will be always with us—you see if it isn't."

I peered out once more at Wad. This time he was holding on with one hand and striking the meteorite with a small hammer. A piece flew off and he grabbed for it and missed. I watched the chip sail up and up at perhaps two inches a second. It passed out of sight. But Wad had broken off another by then and, more suc-

cessful this time, scrambled over to the open outer door of the "Space-steed." I could not see him, but heard him in the vestibule closing the outer door and presently the inner door opened and he entered the cabin.

"It's only meteoric iron," he said when we had helped him out of the helmet, "but it's quite exciting to get a specimen this way!" and he held out the small jagged piece to me.

The meteorite remained outside the port hour after hour. "You know," I remarked, "if we collect a dozen specimens, we'll have drawn in a dozen of those things to us. After a month or two, we'll have enough to make a small moon and we can set up housekeeping!"

"They *would* be awkward followers, at that," agreed Cogger, eyeing our captive through the quartz window. "Like dogs, you know. You pet them and then you can't get rid of them. We'll have to figure out a more sensible way of examining the things, Wad."

"Well, a bullet fired at one would show how the stuff chips off. Also, the impact would tend to drive it away from us and us away from it. After all, what would neutron look like?"

"Dunno," replied Cogger. "Let's see if we can imagine. There'd be the protons full of positive charges, and no electrons to balance, so they wouldn't attract each other. Of course! The stuff would be an impalpable dust held into shape merely by its own gravitation, wouldn't it?"

"But we're looking for the inside of a star that exploded," I reminded him. "That wouldn't be exactly neutronic—it'd be merely nuclear and very dense."

"No—each proton would lack three or four shells of electrons, though. That would give a terrific valence and they'd share their electrons. As a matter of fact, each electron would be surrounded by greedy protons all sharing it, eh? So the outer surface of that molecule would be all proton, or negative. Each such molecule would have an excess of negative charge and would repel all the other groups. We'd still have a dust—a fine minute powder."

"Then there's nothing simpler. Fire a bullet at it and the dust would fly up. No dust, no neutron," put in Wadsley.

"Not quite, Wad. One other thing: this star stuff has been lying around here for anywhere from a thousand to a billion years. It has come into contact with ions in space, and with small meteoric particles. There'd be at the best an outer layer of partially-satisfied protons surrounding our mass. A bullet wouldn't start dust in that. It would probably penetrate it, though."

"Good! A bullet won't go far into that fellow we have outside! We can easily tell the difference. Not," added Wad, "that I believe we'll ever find any of your semi-neutronic, semi-imaginary star guts around here—not for a minute!"

"Remember the history of helium, Wad?" drawled Cogger.

"Certainly—what of it?" he answered.

"First, the existence of the element was argued from lights seen in a spectroscope; then it was actually discovered. Half a dozen elements were only reasoned about. Physicists argued that they might exist. Subsequently, they were isolated and identified. That's what we're doing. Nuclear matter does actually exist inside a star. Stars explode. Maybe we'll find some of the 'guts,' as you put it. Nothing unreasonable about it all, is there?"

"Oh, well! I didn't say it was unreasonable—only unlikely."

"Then," I added, "let's get looking around at some more meteorites."

"Precisely," said Cogger, and moved over to a port where he had fixed a small telescope. Wad went to another port to watch from there and I proceeded to prepare a meal, for none of us had eaten in hours.

● We saw plenty of meteorites after that. Most of them were tiny, and some too far away to risk wasting fuel to go after them. They were travelling in every conceivable direction around the earth and some at frightful speeds (relative to the

"Space-steed") so that I became nervous.

"What happens if one hits us head on?"

"We're done for, that's all. But don't worry, Trench. Chances are millions to one against it. It's true there must be many millions of meteors out here, but there's also millions of miles and we occupy, head on, only a circle twenty or so feet across. Still, the thing's possible —there's no denying it. If it happens, it happens—and that's an end to the voyage."

Wad grunted somberly from his porthole and I drew what comfort I could from odds of millions to one. Then Wad announced a likely meteorite and we put on a little power and got within half a mile. Cogger went into the vestibule with the rifle and closed the door behind him. After a minute there was a slight soundless shock. "He's fired," said Wad. "We can't hear it, because there's no air out there."

We watched the meteorite through the glasses and Cogger must have fired several times before I saw a tiny silver streak show on the black mass in the glass. I realized that the bullet had struck and glanced off. We were closer by now, too, and the rough jagged outline spoke iron from a quarter mile off. Cogger came inside and took off the helmet. "Ordinary iron," he said. "Let's find another!"

And so it went for two earthly weeks or more. A dozen times one of us put on a space-suit and fired the rifle at some tiny mass of matter, but always with the same result. It was necessary to balance the recoil of firing by shooting the same number of bullets in the opposite direction. We fell into a regular routine and I was beginning to count the days to our return. Every three quarters of an hour the sun sprang up from behind the earth —all blinding bright—and every three quarters of an hour later it sank down out of sight again leaving us to look out on the blazing pin-points that looked little like stars do from the earth.

And then I was aroused from a sound sleep suddenly by Cogger's voice. "Come and look, you two! What is it? A billiard ball? No, it's too large—what in God's name can it be?"

We clambered across the ropes and got to ports where we could look out. It was just before sunset and there—no telling how far off—was a grey, shining ball. It was perfect in outline—smooth and round. Cogger had got the range finder from the optical box and adjusted it hastily. Then he took the reading and looked up in amazement. "It can't be!" he muttered and did it all over again.

"That thing is ten miles away!" he announced. "It must be six or seven feet in diameter! Will you kindly tell me what a carefully manufactured globe is doing out here—a globe six feet through?"

We didn't answer, for we were occupied with staring at it through our telescopes. Then the sun vanished and the round outline of its mass occulted the stars until my telescope wavered and I lost its position in the darkness.

"Well," grunted Wad, "work your imagination on that one, my fine fellah!"

Cogger rubbed his forehead briskly with a handkerchief. "Let's see," he began. "It's too big for a cannon ball. Might have been a huge gun that shot a cannon ball out into space here, you know. But it's too big for anything in recorded history."

"Try again," suggested Wad sarcastically.

"Wait a minute . . . . why, of course!" exclaimed Cogger. "A globe is no strange shape in space. What price the stars and planets! The thing is a tiny planet, that's all. Started off in life as a liquid and has solidified slowly. So it assumed the natural globular shape in cooling. Why not?"

"Possible. Much better than your first attempt. But its size, man! It would cool too quickly."

"Might be a loose dust, rather than a liquid. Then it wouldn't have to cool at all," I suggested. "It would just settle into a ball under its own gravitation."

"Which would be mighty strong, wouldn't it!" grunted Wad scornfully. "Don't rot, Trench! A cloud of dust

would stay in a cloud for a million years."

"Ah-ha!" shouted Cogger in the darkness. "Eureka! A cloud of dust it is, my lad! The stuff's nuclear! That would take care of your gravitation, Wad!"

"What! Are you . . . . by the Lord, Harry, you may be right!"

We waited impatiently for three quarters of an hour until the sunlight returned and then rushed to our telescopes. The grey ball was still there—and had drawn a mile or two nearer in the darkness. We discussed putting on power, but Wad pointed out that at this rate we would catch up to it in a dozen hours and might as well conserve our fuel. When it was a mile away, we went out into the vestibule one after the other, where we opened the outer door and tried pot shots at it with the rifle. But watch as we might, we could see no perceptible hits on its surface, even through the telescopes. "Proves nothing," argued Cogger optimistically. "In fact, it fits the theories. Those bullets are actually penetrating the stuff—you see if they aren't. And of course we can't see a bullet hole a mile off."

But as the hours passed, we seemed to be gaining speed toward the mysterious object. Finally, when we were only a few hundred yards from it, there could be no doubt of this. Cogger had been checking our course anxiously in the range finder and suddenly he swung around and shouted, "Get on to those controls, Wad! We'll bump hard at this rate!"

Wad stared a second before he comprehended and I rushed to the port, where even to the naked eye, the smooth grey ball seemed to be rushing toward us. Our captive satellite floated with us as we went, just aft the port. Then as I looked, I felt and heard the vibrant roar of a second's firing. The "Space-steed" trembled and the neutron ball slowed down and began receding. But the startling appearance was the sight of our six-foot meteorite, which deserted us at last, brushed past the quartz porthole and plunged a few seconds later against the mysterious globe now a quarter of a mile distant. The shape of the globe was distorted by the impact and the meteorite buried half its bulk in it, as though it had been soft putty. I seized the telescope and observed that a minute cloud of dust had risen at one point and that here what seemed to be a soft pliable lead covering had been torn and exposed its ragged edge. And at this point, I thought I saw bubbles forming.

Cogger had also observed the happening. He shouted for Wad to come to the port, which he did, crawling through our rope thicket. "See! shouted Cogger. "This might be dangerous stuff to touch against, but that blessed meteorite will make a fine solid point to which we can anchor the 'Space-steed!' "

Wad looked a few seconds, nodded, and climbed back to the controls. A split second of firing started us slowly toward the mass and Cogger kept his eyes glued to the range finder. "You stay right there, Wad!" he called. "Just before we strike, I'll signal you to put on a burst of retarding power—probably not more than a half second—just enough to break our collision."

● There was a two-minute silence and I watched the approaching mass until it seemed just upon us. Still no signal could be seen and I was growing nervous, while the whole porthole was darkened by the ten foot hybrid shape beside us in space. Then, with a bare two yards to go, Cogger snapped out "Fire!" and a brief bark from the motor answered him. There was a faint scraping sound, and at the same time I saw an enormous spark of static electricity leap from us to the meteorite. It startled me.

"Here we are, you doubting Thomas!" said Cogger, proudly making his way to the locker where the space-suits were stored. We helped him into his helmet and closed the inner door on him when he squeezed into the closed vestibule. Then Wad and I clung to the port to watch, rotating the ship slightly so that we could get a clear view. After a second or two, Cogger's form appeared within arm's

reach just outside our window. He clambered cautiously over the black meteorite and seemed to be studying the substance in which it was embedded. I saw him point one finger at the place where the nuclear powder was exposed to the meteor and I observed a tiny mass of bubbles there—like sulphuric acid working on zinc. Then he paused suddenly and his gloved hand rested on the meteor as though feeling its temperature. Finally he reached over and touched one finger of the glove to the dark grey powder and brought it before his goggles to study it at close range. We waited wonderingly, supposing that he would scrape up a sample of the powder and bring it in for analysis, but instead he jumped as though he had been bitten. I saw him frantically brush his finger against the meteorite and then rub his gloves together as though to remove something. Then he turned about and climbed out of sight and we heard the outer space-door open and close.

The inner door opened like a cyclone and his frantic motions induced us to rush to his assistance. As soon as his helmet was off he cried out, "Get a knife! Get a knife!" and he beckoned to be assisted out of his space suit. I went for the knife and I heard him yell at Wadsley. "Don't touch those gloves, man! This stuff is high-power, sure-fire, touch-me-not *death* —I tell you!"

We cut his gloves off at the wrists, dropping them at his orders into an aluminum dinner plate. Even in that short time I saw what he meant. The gloves were swelling up like toasted marshmallows and turning yellowish green. There was no smoke nor fumes, but a minute frothy bubbling. As we watched, the gloves grew and grew until before we knew it they were the size of a football —both of them merging into one shapeless mass. And still they grew. I felt strangely sleepy and at the same time so excited (as I thought) that I was panting for breath. I looked up to see both my companions similarly laboring with their respiration and sweat stood on Wad's brow.

"Is there something—(gasp)—wrong with the air?" I asked.

Cogger looked up at me and clapped one hand to his forehead. "Dolt! Idiot that I am!" and he made his way to the air supply regulator against the wall and turned a handle. "Get on a space-suit, Trench! You'll have to throw that stuff out at once—don't ask questions, man! Hurry!"

I did. I was ready in less than sixty seconds and raised the plate in my gloved hands, sidled cautiously into the space vestibule, and managed to open the outer door when Wad had closed the inner one. I gave the plate a heave and saw it careen out steadily minute after minute away into space. When I returned, I demanded the meaning of it all.

"The meaning was just plain ordinary death, that's all!" said Cogger grimly. "That nuclear matter — why it's *greedy* for electrons. It's only one billionth of the size it'd like to be! It'll take electrons out of your finger as soon as anywhere else—out of your eyes, your *brain*, if it can! It was busy combing with the rubber in those gloves and not content with that, it grabbed our atmosphere here in the cabin. We'd have suffocated if I hadn't turned on fresh oxygen. I had you throw it out before it could eat through that aluminum plate. It seems to go slower on metal than on other things, but if it had touched the floor it would never have stopped until the whole ship was transformed into whatever damned element it is—must be something beyond the ordinary periodic table altogether — a super-radium sort of stuff."

"But why did you ever bring it in here, fellah!" demanded Wad.

Cogger turned to him. "Listen! I touched one finger to it. That's *all!* Understand? There couldn't have been more than a few grains of dust that clung to it. I thought such a small amount wouldn't matter, but when it started burning my finger, I changed my mind."

Wadsley turned to the porthole and gazed reflectively out at the great lump a few feet from his eyes. "Well, fel-

lah! Here's your dense nuclear star-guts. You've captured it in fair fight—conqueror with the bow and spear and all that. Now that you've got the stuff, what are you going to do with it? Seems to me it's about as useful as a hungry tiger in a chap's bedroom.

"Hm'm! Well . . . . I made certain preparations, as a matter of fact, against the chance that we actually did find some. But . . . . I didn't quite realize how peculiarly poisonous it is to do business with. Let's have a meal before we start trying things."

"And suppose the hull of the 'Space-steed' just brushed against it!" I put in nervously.

"Yes," agreed Cogger. "We ought to take care of that eventuality first."

CHAPTER IV

Through the Ring

● We broke out a new space-suit for Cogger out of stores (his old was ruined) and we all three went out, one after the other, and stood upon the 'Space-steed' to observe how she was lying. We found that, fortunately, she was in contact with two projecting bosses of the iron meteorite and seemed solidly enough balanced there. We each carried an automatic pistol belted outside our suits. Wad drew his and fired a shot the recoil from which sent him up, slowly spinning, until he was a hundred feet away. Slowly he began falling back, and I saw with alarm that he would touch the ball of nuclear dust! Another shot from his pistol, however, brought him over to the space-ship and he rebounded sharply from it and fell against the safe iron of the captive meteorite.

We had worked out a crude language—a few simple signs—for conversing in space. Wad now raised one thumb, signifying that everything seemed all right. Cogger stepped into the open vestibule and closed the door. We waited for five minutes before he emerged carrying three short beams of aluminum. These he fixed with bolts to form a tripod, so that the "Space-steed" was held on three points against the iron of the meteorite. With this extra precaution we all returned inside.

After we had made our meal—too excited to notice what we were eating—we held a brief discussion as to the first experiment. There was a noticeable gravitation in the ship now, due to the close presence of the mass of nuclear matter. It felt unbelievably comfortable, though we only weighed a small fraction of our normal earthly poundage. "Well," said Wadsley, "here we are beside this miracle stuff—but we still seem to be in the same old set of dimensions. No change that I can notice."

Cogger frowned fiercely. "Not yet. It's not very much star nucleus, Wad. And it may not be dense enough—probably isn't. Still . . . . if we could get right into contact with it . . . . ."

"But if it touched us we'd not live an hour!" I prompted.

"True! So we won't touch it. In fact, I planned that we would never touch it when I made preparations."

"What *are* these preparations you talk about?"

"Some things I've stowed in the dead space between the ship's inner and outer hull. Now, wait a moment . . . . yes . . . . we'll try a pipe first, I think. Look before leaping."

"Did you bring any pipe?" put in Wad, looking vaguely around the cabin.

"Yes. Between the hulls. Let's get on our suits and see what we can do."

"But . . . . just how?" I asked, being puzzled to imagine how anything at all could be done with such dangerous stuff as we had outside.

"We'll drive an aluminum pipe through the soft nuclear mass. Then in the twenty minutes or so that will remain to us before the metal is eaten through, we'll be able to look through the pipe and . . . . well, light waves may be bent—oh, anything! We'll try it and see, that's all."

So we did. It took some time, for first we had to plug the pipe, then get it awkwardly through the vestibule (for it was ten feet long) and finally drive it through very carefully. Not one particle of dust could we afford to get on our suits, remember! And as for the driving of the pipe, it was a strange business. You may imagine us wielding a sledge hammer, standing on the embedded meteorite, eh? You'd have had us flying off violently into space with each blow, doing it that way! The way Wad went at it was to hold on to the pipe end and hit blows with a light hammer and even then he lost his balance several times and once his hand slipped and the hammer landed on the pipe unheld, so that he bounced up into space and had to fire his automatic to come back. As a matter of fact, I was surprised that hammer blows had any effect. The hammer weighed almost nothing, you see. It worked, however. Cogger told me afterwards that the mass of the hammer was there, even if its weight didn't make that mass apparent.

Finally the pipe poked through at the other end and the plug had to be taken out—all covered with neutron dust and bubbling with heat. It was a cover plug and fairly loose. Cogger pushed it off with a light rod of aluminum and then let the rod (contaminated, you see) fall on the grey surface where it stayed—beginning to decompose almost at once. Our job was done and at the clean end of the pipe, which projected eighteen inches, we clustered and one after the other peered through it. We could not talk to each other, fastened up in space helmets as we were. Cogger and Wad took what seemed altogether too long a time over their turns. Finally I was able to clap my eye to that three-inch orifice. I expected, of course, to see the dark background of space with stars set in it—exactly what was really there.

But I didn't! I couldn't see anything at first. Finally I made out a sort of glow rather like looking up at the surface of the water when you are diving. The dull light was purplish blue and in quiet motion. There could be no doubting the mystery of the thing. The inside of the pipe showed plainly for a foot or two—dull silver sheen and all. But toward the end of the pipe generally the things you saw were not what you knew must be there! I stood up and looked over the top of the meteorite to make sure that the old familiar sky was still in place—I was that much rattled!

Then Cogger brought a stick of balsa wood from the ship—ten feet of it. This he began poking methodically down the pipe and beckoned to Wad and myself to observe it when it emerged from the other end. We went around gingerly and after a few seconds out it came. We both seized hold and drew it carefully through. The stick slid easily into the pipe; it was not bent or twisted in any way; evidently the pipe was straight and open. In constantly increasing amazement, we soared back by means of revolver shots bringing the light stick with us. Here was mystery on mystery! The stick passed through, but vision—*something* happened to vision! Of course we could not express our thoughts to each other, but after a few moments of stillness, Cogger went back through the vestibule and returned with a sheet of paper. By signs, he indicated that I was to hold the paper over the other end of the pipe while he would fire a bullet through. I wanted to argue about it, for if the balsa stick went through, why not a bullet? But there was no way I could talk out there in the space-helmet, so I went around and held the paper over the open hole, being careful that no part of my body would be in the line of fire. This was not easy, for the only thing I could hold to was the end of the pipe itself. My body would constantly float by imperceptible degrees back toward my hand where it held the pipe-end. Time dragged on minute after minute and I was becoming cramped in my position when Cogger appeared beside me and beckoned. I let go the paper, wondering why he had not shot his bullet, and followed him inside the ship where we removed our helmets.

"Why didn't you fire?" I asked at once.

Cogger raised his eyebrows. "I did, fellah! Fired six shots!"

"But . . . . but the paper . . . ."

"I know," he cut in. "Mysterious, eh? The thing's impossible, of course—rank silliness, eh, Wad? Only, you know, it really happened so . . . . what's your guess?"

● We sat in silence for a few minutes. Cogger grinned around at us until finally Wad burst out, "Oh, act your age! I can guess my way through the puzzle as well as you can—the thing that stumps me is how to make use of it!"

I was more in the dark than ever. "What puzzle?" I asked. "It's plain enough to me that that pipe is queer, but . . . . what of it? We knew something strange would happen, so why be surprised?"

"Slay him, Wad!" grinned Cogger. "Can't you see that the bullets and light go through the pipe in one fashion and the stick goes through in another?"

"Surely. I suppose space is bent in the pipe, as you said it might be. The stick goes through slowly and follows the bends. The bullet goes too fast and strikes the side."

Cogger gaped at me and even Wadsley stopped racking his brain to stare. "Everything just exactly backward," he commented and went off once more into his silence. Cogger explained. "If the stick followed the bends it would never have come out the other end—but continued on out of sight into another set of existences. That's what the bullet did. That's what light seems to have done. Why, Trench? Well, consider what we were doing—getting close to a dense mass so that gravitation would be enormous. Now gravity increases as the square of one's 'nearness' (if I may put it that way) and also according to the mass. What's mass? Well, you know the latest theories, surely! Mass increases as the square of its velocity. Anything travelling at the speed of light, for instance, would have infinite mass. Well, take light itself—it has mass though its physical existence, if there is such a thing, must be the tiniest mote in creation. And the bullet, its mass is enormously increased by its speed. The stick, on the other hand, barely moved a foot a second. This dusty nuclear stuff outside is evidently not quite dense enough to break dimensions. It can only do so if the factor of speed enters . . . ." he turned to Wad. "That's about the way you figure it, isn't it?"

Wad nodded. "And not only that, but if we want to skip off into some new set of dimensions, we must do so at a thousand feet a second or more, Cogger. I've got that far. But how are we going to arrange the details of that? That's where I'm stuck. How about you?"

Then out came the slide rules and the small draughting board and I lost the thread of argument. I busied myself preparing the next meal—a ten minutes' job—and when I called "Come and get it!" Cogger and Wad had done their figuring.

"It's really the simplest thing in the world!" exclaimed Wad.

In answer to my indignant demands for enlightenment, he paused between bites to give an outline of the plan. First, a metal frame large enough for the whole ship to pass through. Second, draw the ship back a few miles and plunge forward at high speed right through the frame, which, of course, would be surrounded by the nuclear dust. And there we'd be, said Wad, and went on eating with simple gusto.

"But wait a m o m e n t!" I cried. "Where'll you get your metal? Are we going back for it? We'd never find this meteoric stuff again in a million years—we might never find another meteorite like it, for I think we've been exceedingly fortunate."

"Of course," grunted Wad through a mouthful, "must make our test now . . . . cut the outer hull off the ship . . . . just the right size . . . . inner skin plenty strong . . . . pass another package of cheese, will you, Cogger?"

And that's what we did. With our enormous reserve of oxygen and gasoline, we

easily rigged two copper tubes from the tanks which burned furiously where they joined. It was a crude oxy-acetyline torch. We took turns cutting away the welded system of trusses that joined the inner and outer shell of our ship and then cut free the tapering nose and stern of the outer hull. The central portion—about ten feet of it—was what we planned to use. We capped the nose and tail back on the inner hull, which they fitted without intervening space, so that our ship was nearly as strong as before, but without an airspace between. The total diameter, however, was some five feet less outside than it had been, so that our entire ship could pass through the aluminum ring we had cut out. This work occupied about ten earthly days and was easily, though laboriously, completed.

Our next task was more difficult. It would be necessary to insert our ring through the core of the nuclear meteorite. Of course, that would be impossible, so we attempted the equivalent—to pile all the nuclear dust around the metal ring. The difficulty was that from the time we started, not more than an hour or so might elapse before we plunged through the gravitational field so created. After that interval of time, the dust would have eaten through the metal ring and we would be no better off than before we started.

"How many extra space-suits are there?" asked Wad suddenly. I replied that we had provided for an extra one each, but that Cogger's had already been used. "Two left, then," he grunted. "Well, we might take a chance, eh, Cogger?"

"Hold hard, fellah!" was the startled reply. "We'd have about sixty seconds—maybe two minutes at the most before we'd have to get out of those suits and throw them away if that dust got on 'em!"

"H'm-m! Well, how about shovels, then? We could shovel carefully and then throw away the shovels."

"Not enough time. We'd never finish," I remarked. "The first shovelful would have eaten through the aluminum ring before the last was placed on."

"Sa-a-y! We've ten feet of ring!" said Cogger suddenly. "Don't need more than five. And the tail end of the ring is of less diameter than the fore-end. How about cutting the ring in two, shoveling the stuff on the largest piece and then inserting the smaller ring inside it to double our time allowance?"

"Well—it might do," spoke up Wad. "It's about all we can think of with our limited supplies here. We'll give it a try, anyway."

"All right," I agreed dubiously. "But for God's sake, you chaps be careful, won't you? This whole idea grows wilder and wilder as we go along. Suppose we get it fixed up and do plunge through at a half mile a second or so—what will we come out in on the other side? How'll we ever get back? I'm not at all sure that we ought to jump right into this thing. As a matter of fact," I added, "I move we call this whole thing off and go back to earth!"

Wad pounced on me. "What!" he demanded. "Leave this just when all the impossibilities have been overcome?—when we've actually had the colossal luck to find a dense meteorite—chances one in ten million, perhaps!—when on top of that, we've discovered that it actually does warp dimensions to the breaking point—makes a bullet vanish—makes starlight vanish! Why, man, I'll see you half-way to Hades before I'd give up now!" and he stood glaring indignantly down at me.

Cogger grinned wryly. "The zeal of the convert exceeds that of the teacher!" he remarked. "But I'm glad, Wad, old fellah! And you ought to be ashamed of yourself, Trench."

"But where are we going, Cogger?" I expostulated. "And how are we going to get back?" and I peered nervously out the port-hole at the great shining aluminum ring we had cut away from our outer hull, floating silently against the quartz pane.

"We-e-ll! Of course . . . . no, I can't answer those questions. Where was Columbus going? His crew wanted to know

that—mutinied to force him to return to safe old Europe. He didn't know—thought he was going to China, as a matter of fact. But he went on and discovered something new—rather important, don't you think?"

"But, Cogger! He knew he could sail back, don't you see? We can't *do* that! Just for one thing, this ring covered by nuclear dust is in our present set of dimensions—and not in the possible other existence we would charge into. We'd never find it again. Then for another thing, put the case backward; suppose we were going to change from some other existence into this present one. Suddenly we are there, and suppose that we were to materialize right in front of a meteor going at half a mile a second—suppose we materialized in the middle of the earth? We'd not live a second! What would be the use of it?"

"By George," said Wad, "the man's right! It's takin' a long, long chance!"

● Cogger's eyes twinkled. "Zeal cooling down, fellah? All right, then, let it go. Only we'll fix up this double ring of metal covered with nuclear matter and just see what we can see, if you don't mind. That's the least we can do."

"And . . . . after that?" I questioned nervously.

"Then we'll go home and, maybe, build a rocket ship that'll take us to Mars or some other common ordinary every-day sort of place. We'll sober down and visit Venus — just three steady conservative scientists!" And Cogger grinned. "After all, it was expecting too much—to really trip off into a new set of dimensions! Too much . . . . yes . . . ." and he fell silent and sighed. We were all silent for a while. Wad's brow became furrowed deeply. "Oh, I don't know," he grunted finally. "After all, what of it? I'm game to go, Cogger, only . . . . well, Trench here has some rights." Cogger looked up at these words, but my imagination had been busy painting possible sudden deaths and I was adamant. "Absolutely nothing doing, if my vote has any weight," I said grimly, and there was an uncomfortable pause. Then Cogger suggested we get started on fixing up the ring, at least, and then we could set off for home.

It was a difficult job. We had to make the shovels out of sheet duralumin and the least detail had to be planned out well in advance, so that once we started, there would be no dangerous delay. We sliced the ring in half and had two metal bands five feet wide which we tucked one inside the other to make one band. Its diameter was about twenty-five feet. That of our ship was twenty. So far it was plain sailing. Next we had to fasten this ring to the iron meteorite and rig a tripod of three metal beams to support the ship against the ring at a great enough distance to protect her from the dust. These beams had to touch the ring loosely so that we could pull away quickly when the time came. Last of all, we made thick aluminum boots for ourselves which we donned over our rubber space-suit legs and were ready.

Cogger, Wad and myself, armed with shovels, stood on the iron meteorite and commenced shoveling, furiously and at the same time, carefully. Each shovelful of dust had to be laid carefully on the smooth aluminum of the ring so that it would not rebound too violently. Minute after minute we worked, tramping gingerly in the stuff. It was only about six or seven cubic yards in all, but it took us more than ten minutes to get it done and by that time my feet were growing uncomfortably warm. Cogger was not satisfied and insisted on spreading it out as evenly as he could and this took another five minutes, by which time the very skin was blistering and the metal overshoes I wore were swollen and formless things. We had miscalculated sunset, on top of all, and were plunged in darkness before we were half through—the starlit, glimmering darkness of space. We could see, but rather poorly. I saw Cogger finally throw his shovel violently away and Wad and I followed suit. Then we reached the metal tripod that held off the ship and here we all three of us kicked off our

sizzling, bubbling boots and dragged ourselves to the vestibule.

Wad was first in and I followed. Cogger appeared last and I gave a great cry, for his right hand was ten inches thick and the rubber glove white and frothy. We rushed to his assistance and cut the glove at the wrist, above the infection, and Wad held it with the scissors and went into the vestibule with it to throw the thing away. I had Cogger's helmet off by now and his first words were "Get me the surgical box—quick. Can't you see, man? It's got my finger!"

I moved quick, I can tell you, and—fortunately it was only at the tip—I removed his middle finger at the second joint. It was a clean operation and could not have taken three minutes, from start to bandage. Wad took the tray with knife, bandage and finger and threw them all after the glove. As for Cogger, he grinned through the pain, took a half tumbler of brandy through a straw, and said, "Let's see what's doing! That ring won't hold up, forever, you know!"

We made sure that he really felt up to it—it was remarkable in so frail a man, but courage is always a remarkable thing—and then rushed to the port. In the darkness we could see little. One thing, however, was plain. The stars shone brilliantly all around that mass beside us. But through the twenty-five foot circle enclosed by the nuclear dust no stars shone. There was light there—the same dim, formless purple that we had seen through the three-inch pipe. Wad brought the electric torch and we aimed its powerful beam through the hole in space. Absolutely nothing happened. The side of the metal nearest us was lit up brightly, but inside that five-foot deep tunnel the purplish light continued as vague and dim as ever. I wandered over to the other portholes and looked out upon the sky. I could see below me the huge outline of the earth blotting out all stars implacably. It seemed to me that it was larger and occupied more of the horizon than usual, tonight. And then, as I looked, the great shadow drifted slowly sidewise and stars rolled into view. I was startled, knowing that the ship must have moved, but wondering why. At the same time I found myself pressing against the rope supports of the cabin as though—yes, precisely as though I were going to fall up into the opposite wall of the vessel.

Wad gave a cry, inarticulate and alarming, and Cogger shouted, "Get to the controls, Wad! Hurry! We're falling onto the earth!"

"Why should we?" I asked. "Nothing's happened, has it?" But they were both too busy to answer me. The next few minutes were completely mysterious at the time, but afterwards we reasoned the thing out and I know what happened. Wad, in the dark, was trying to rotate the gyro wheel that should swing the ship around tail towards the earth. Once in this position we could put on power and break our fall. But the attraction of our metal ring loaded with nuclear dust proved too great. We remained as we were, falling sideways down toward that ever-looming shadow that was swallowing the whole heavens below us. When Wad finally gave the job up as hopeless, we knew we were already in the atmosphere for its resistance was like deceleration and pressed us in the direction of fall.

"The wings!" cried Cogger. "Give me a hand, Trench! We'll pull this lever and project our wings, then we can glide down in safety."

I got to his side after nearly choking myself in the maze of guide ropes and together we heaved on the wing lever, but could not budge it. We called for Wad to help us and he flicked on the small emergency lamp and added his great weight to ours. We tugged and strained with the desperation that only panic can give to muscles. The lever gave perhaps an inch and then threw us back again. Cogger stopped and stood panting a moment.

"No use, fellah!" he said to Wad. "Don't you see? The atmosphere is pressing against the wings as we rush down. We'll never get them stretched out.

Trench, old man, I'm sorry . . . . I'm afraid we're done for!"

I rushed in a panic to the porthole and peered out at the now starless darkness and noted a faint silver line at the curved rim of it. The sun was rising. We would never see it! We were, due to our greater air resistance, now falling more slowly than the nuclear mass, which was one or two hundred yards below us. Below that —fearfully close!—lay a sea of clouds and I knew that at most a few miles below the clouds the solid rock awaited the fearful impact! Our speed was terrific and the air stream boomed and screamed against the ship's nose, which began heating up the cabin to a stifling temperature. A second passed and another and we were among the clouds. The sun was rising and the landscape below lay revealed—flat brown country, though in what continent or latitude we had no means of telling. My heart was pounding at the back of my throat, choking me, and I turned to clasp the hands of my two companions for the last time.

But Cogger suddenly leaped to the controls which actuated the air rudder and cried, "Idiot! I'm not fit to be killed! Why, we've a chance—don't you see! Get to the ports, you two, and give me the exact direction of that metal ring covered with star-guts! Fool! Ninny! Why didn't I think? If we can plunge through *it* we won't plunge into the earth at all, but into . . . . some other set of dimensions!"

My slow wits did not begin to get the idea, and I turned to the porthole in hopeless disbelief. There were only a few seconds left, now, before we would strike. The ring was almost a quarter-mile off and falling straight before us, as nearly as I could tell. The chase continued down and now I could make out slight valleys and ridges in the landscape and a little clump of palm trees. Suddenly Wad cried out. "Give her full power now, Cogger!" And the rocket roared so that our plunge became a screaming whistle. I saw the ground loom instant and fearful. I saw the metal ring strike flat, so that the open end of it faced us welcomingly. Then I glanced away (with fists so tightly clenched that the nails cut my palms) and glimpsed Cogger's white, set face and beyond him a reddish glow from the superheated metal nose of our vessel. Then the light of the rising sun was suddenly quenched and I gulped out "Oh God!" and shut my eyes—waiting—waiting. . . .

(What happens when the space-ship plunges through the metal ring into what should be another set of dimensions? Learn all about it in next month's thrilling conclusion!)

MAN WILL REACH MOON

IN an article distributed by the United Press on July first, Dr. Heber D. Curtis, observatory director at the University of Michigan, stated that no one can really tell whether there is life on other planets or not, despite conjecture, until someone actually goes to one to either verify or disprove this fantastic conception. It would be narrow, however, to suppose that our solar system is the only one in over a quintillion (one followed by eighteen ciphers) possibilities. Dr. Curtis believes that in the next two centuries, sometime, man will devise some kind of a rocket-ship, powered by trinitrotoluol, popularly known as TNT, that will make the round trip to the moon.

Even the two-hundred-inch super-telescope now being constructed for a California observatory will not be able to definitely determine whether there is life on any of our sister planets, according to Dr. Curtis. "A two-thousand-inch telescope, could one be made," he stated, "would not enable us to make out any works of a creative nature on the surface of a neighbor planet."

However, Dr. Curtis also granted that no astronomer is able to prove that there is no extra-terrestrial life, so the question will be open to debate for a long time to come.

(Illustration by Paul)

"It looked like a silvery sort of ship—or maybe an artillery shell."

WORLD OF THE MIST

By LAURENCE MANNING

PART TWO

Conclusion

● We suppose that the first installment of this short novel in our last issue did not contain a great deal of the story itself, but acted rather as an introduction and tried to convince the reader of the possibilities of the astonishing occurrences to follow in the conclusion.

And when we say astonishing, we don't mean just *barely* astonishing. Any of our regular readers must admit that Laurence Manning has never "let them down," and you will find that he has not changed this course in the present yarn.

To call the ideas put forth here "unusual" would be like calling Hades a "warm" place. It is Mr. Manning's belief that any world of another dimension, out of our universe altogether, would really be *alien*, in every sense of the word. "Different," "strange," "odd," "unusual," or any other word we use every day to describe something out of the ordinary we come in contact with hardly conveys the meaning of "alien," as applied to science-fiction themes.

Here we find all the thrills and excitement you could ask for, and at the same time the logic and originality required in our New Policy.

WHAT HAS GONE BEFORE:

● As the story opens, we find our three friends, Cogger Brent, Wadsley Billing, and Trench, who tells the story in the first person, discussing the possibilities of the existence of another set of dimensions, co-existent with our universe—whereby two things can exist in the same place at the same time, though non-existent to each other. They decide that only neutron, which is solid proton and therefore millions of times denser than any element, would be effective in warping space with its enormous density enough for anything to pass from one universe to the other. Neutron cannot exist upon the earth, because it would fall instantly to the center of the world, as though rocks and metal did not exist. The three men get together, and with the fortune belonging to one of them they build the first space-ship, planning to go into space to look for some neutron in some small body that had broken out of an exploded sun, the only logical place where it could originate. After a short search, not without exciting incident, they finally locate such a body, though it is only a few feet in diameter. Poking a tube through the body, they are able to perceive a peculiar glow that did not exist anywhere in our universe, and they plan to take part of the ship's outer hull to form a ring, through which they can pass into the other universe. This is necessary, they learn—for to plunge into the neutron would mean certain death. Contact with the neutronium caused an absorption of electrons that destroyed the elements we know, and Cogger lost a finger in finding this out. At the last minute, Trench loses courage and convinces the others that it would be suicide to go through in any case, for they could never get back. Just at this time, the ship, which was traveling in an orbit around the earth, starts falling toward the ground, and the huge ring surrounded by neutronium with it, below. The only way they can save themselves from a crash which would result in instant death for all of them is to plunge through the ring into another universe. As we leave Part One, the ring has almost hit the ground and the ship is about to plunge through it. *Now go on with the story:*

CHAPTER V

Truly Alien

● This nonsense about a dying man seeing all his past life in the half-second before his life ends—well, I thought it must be true. Time is a relative thing. A second—an electron in one second makes a hideous number of complete revolutions about its proton. To it, no doubt, if it could think, each revolution would seem as important as that of our earth going

around its sun. I saw through my tight shut eyes vivid snatches of school days—little incidents I had completely forgotten. As I flinched from the certain imminent crash that would flatten myself and my friends into unrecognizable pulp, I found that, although thought seemed too chilled by terror to flow freely, there was ample time in one second for long trains of desperate wishes and fears. Surely it could not be *more* than a second? I counted the pulse roaring its beat into my ears—how fast could a heart beat? But I had counted ten! Twenty! Thirty!

I opened my eyes, unbelieving, and saw Cogger's pale face lit by a rosy glow that came through the port-holes. It was the face of a man snatched from Hell and thrust bodily into Paradise! The lips were parted as in ecstasy and his eyes—once before in my life I saw that look in a man's eyes. It was years ago on a visit to Monte Carlo and the man—a Frenchman—had just won two hundred thousad francs at roulette. Uncomprehendingly I glanced at the port-holes, but through the quartz I could make out nothing but a light reddish illumination. Could Cogger see something I could not? But what could there be to see? We had been rushing straight down to our deaths and—nothing had happened! Wad was at one port-hole, his face pressed to the glass. My reason told me indignantly that we were all three of us dead, but something kept whispering into my mind that what had happened was a lot more mysterious and unusual than that. Then I thought of the bullet that had failed to come out of the other end of a ten-foot pipe, and with an inarticulate cry of half-belief, I stumbled to a port-hole to stare out.

All about me as far as I could see was practically nothing! This nothingness was of a light rosy tint and extended to infinity. But at the bottom of the glass, far to the rear of the "Space-steed" was what I suppose might be called land. It was like a dark plain and in it sparkled and pulsed a faint glimmering light. As I looked, it was rapidly receding—for all the world as though our vessel were rising up from it! Yet how could that be possible? Less than sixty seconds ago we had been rushing down towards the earth. There had been a short burst of rocket fire to drive us even more rapidly to destruction, as I imagined. Now we were rising again and with no change of direction! And as this mysterious earth drew further and further away, I noticed that it grew fainter until at last the rosy color came between my eyes and the mystery. I saw that we were travelling at high speed, not through nothingness, but through some sort of mist.

At last I found my voice. "Cogger!" I demanded hoarsely. "Wad! Both of you tell me what . . . . where . . . . what in God's name has happened to us?"

And then I heard Cogger sigh incredulously and saw him in the half-light come toward me among the spider-web of roping. Wad chuckled at his window and turned toward me. "Cogger," he said, "what do you make of it? D'you notice that we have weight again?"

"Yes . . . . a bit puzzling, too," he replied. "Of course, this mighty red stuff outside may be a sort of gas—must be. It'd slow us down as we plowed through it, I suppose, at our speed. That must be the answer, Wad, for the pull is toward the nose of the ship."

"Yes, but we're leaving that black plain behind at full speed. D'you suppose it has no attraction for us?"

"In Heaven's name, you two," I shouted, "tell me what it all means!"

"Oh, come, Trench, you know we've burst through into some other set of dimensions, surely?"

"I wondered," I muttered, passing a hand bewilderingly through my hair. "Of course, we must have. Then you actually had the luck to hit the earth right in the middle of the ring of nuclear matter, Cogger? That must be it, of course . . . . but Good God, where are we going? And where are we?"

Cogger laughed aloud. "Where," he replied, "is a word we shall have little use for, I'm thinking. *Where* in relation to *what?* We've not a thing to go by—no

sun or moon or stars—no up or down, apparently. By the way, I wonder how fast we're going?"

"But how can you tell," I retorted sarcastically. We've nothing to judge by! Fast in relation to what?"

"This mist outside—don't be sarcastic, Trench; you haven't the wit to carry it off. Hop over and take a look at that air speedometer, will you?"

I did, sullenly enough, and was almost indignant when I perceived that it read 900 miles per hour. I called out the reading. Wad grunted, by way of reply, "And how about the pressure gauge—can't tell anything without that." Our instruments, of course, were outside the hull and only the dials showed inside. The air pressure outside, I observed, was a little less than ten pounds to the square inch. "And much good may it do you," I added.

"H'mm—a sea-level speedometer, isn't it?" muttered Cogger. "Well, I figure roughly a quarter of a mile a second—no use being more accurate for the present, but I'll note down the readings. We'll take 'em again in ten minutes."

Wad, meanwhile, was examining the fuel gauges. "Everything seems normal," he reported. "We can get along for six months or a year with this oxygen supply, if we don't have to use our motor."

I was stupefied and half out of my mind with the situation in which we were placed. I could not understand how those two could calmly set about their duties. "Do you realize," I said hoarsely, "that even if we keep alive for a year—which I doubt—we can *never* escape? *Never!* We can never again see a human face or hear voices. We're as good as dead this minute!"

Cogger laid a hand gently on my arm. "Easy, lad! Take it easy! Best lie down for a minute and get your nerves calmed a little. Think, man, think! How much better off were we back on the earth? When we were born we were sentenced to die after a period of years—probably not more than sixty. You've lived a goodish few of them—lots of men die at twenty, remember! Now you find that you're near the end—well, what of it? You might have had malignant cancer and have been sentenced by doctors—you might have fallen out of bed any night in all your safe comfortable life and broken your precious neck! And as for human companionship—you've got your two best friends—Wad and myself. Use a little philosophy, lad!—and reflect on what we have done!" His voice grew excited. "In all history nothing that remotely approaches this has been done by the human race! We're the first. What if we *do* die? We'll have seen and learned something that—well, there's no telling how important it may be. Moreover—don't give up the ship! I don't see just how we can get back to our particular scale of existence—but who says we may not find a way in half a year? Even in a month? First, let's find out what sort of a place this is and what laws of nature govern it. After that, we'll be in a position to do some planning. The only chance we do have, I must say, lies in keeping our eyes open and our brains at work!"

● It was sickeningly hot in the cabin—but the metal nose of the vessel was no longer glowing. As I sank into my cot, I called Cogger's attention to this fact. He nodded. "Our speed was reduced by about half—somehow," he said thoughtfully. "Only thing I can think of, it took speed as well as that ring of gravitation to break our old dimensions. Of course, you can't have something for nothing, so our speed vanished—somewhere. Funny thing, though, that there was no shock! However, let's thank Heaven for present mercies. It's time I took another speed and pressure reading. You lie still a few minutes."

I tried to, but the instant I closed my eyes my panic left me and with it my despair. I realized that I was enormously curious all of a sudden—and hungry to boot! I promptly sat up again and exclaimed "By Jove!"

"What is it now, fellah?" asked Cogger.

"I begin to get the idea—and I'm all right now, Cogger," I replied meekly. "I want to help—I can get some food, at least. I say, this *is* going to be a bit exciting, isn't it?"

"Hurrah!" shouted Wad from his observation port. "Trench is beginning to see things the right way! Exciting, you call it! And how! Shades of Newton!"

I have tried to give in some detail the above events. They were the first ten minutes we spent in the "Fourth Dimension," as I call it. Wad points out that it may be the tenth or, more likely, a combination of any three of the ten possible dimensions. Cogger just grins, and says he prefers to call it the negative existence, though he admits that to limit the possibilities to two—positive and negative—is perhaps needlessly conservative. Just for one thing, he wants to know where the purple glowing liquid is that we saw through that pipe. It wasn't what *we* found when we crashed through. Is that a third existence?—one that awaits explorers who can travel with the speed of light? But I'm far ahead of my narrative.

Cogger's second reading was taken and out came the slide-rules and pencils. He and Wad decided that we were losing speed rapidly—but in a puzzling fashion, for the mere presence of gas at known pressure outside would not fully account for it. They took a third reading and a fourth, and still the discrepancy was there, and "perhaps that black landscape *is* helping to pull us back," suggested Wad, whereupon Cogger looked worried. And then, after about three-quarters of an hour, we began to get into thinner "atmosphere." Our view extended for hundreds of miles, as nearly as we could guess. There was nothing to see except the thinning rose-tinted mist, but this grew so attenuated at last, that it seemed to be open space. In a few minutes we looked clearly and unobstructedly for thousands of miles. There was nothing to be seen except a distant reddish glow which bounded every horizon.

"You know what it looks like?" demanded Cogger. "Looks like the inside of a gas bubble. We've come almost a thousand miles, haven't we? Well, on a guess, I'd say that the gas walls of our bubble are a thousand miles thick and that this space inside where we are looks about a thousand or two thousand miles across."

"By the way, the pressure outside has dropped to nothing," observed Wad from the instrument board.

"If we only had one visible fixed point to navigate from!" sighed Cogger.

But we hadn't. An hour went by during which it was difficult to tell whether our speed was steady or lessening. We could not have told whether we might not even be standing still. Two more hours passed in the blankness of that existence. There was light outside from the distant walls of rosy mist—but it was faint and nebulous. Only the extreme clearness of the intervening distance made it visible to us. The inside of the cabin was pitch black except for the faint reflection from our faces. We ate food in silence and ever and again our eyes sought something on which to rest. I never realized how comfortable it is for the eyes to settle upon definite objects—I assure you it is as tiring to look upon nothing as it is to never sit down. My gaze would return shudderingly back to the gloomy interior of our vessel, like that bird that returned again to old Noah in his Ark, because there was no other place to rest the soles of its feet.

Then Wad announced that, since we had no means of knowing how long it might be before we arrived anywhere, two of us must sleep while the other kept watch. I volunteered first watch, being sleepless anyway, and the others strapped themselves into their cots and left me to my thoughts. It was a weird watch I kept—looking at nothingness and watching for something to appear. *Any* Something. At the end of my four-hour vigil, it seemed to me that the wall of rosiness *behind* us was slowly coming closer and I awoke Cogger.

He listened to my report in silence and

then turned on the small flashlight to examine the gyroscope he had set going to record our direction. The light woke Wad and they both sat around and argued the possibilities for a while. I prepared a meal and was thinking of going to sleep when their excited voices from the ports called my attention. "What's up?" I asked, with a yawn.

"Look now! There's no doubt about it, Wad," Cogger was saying.

"Nope! Sure enough. Come here, Trench; we're travelling back toward the place we came from."

I came quickly enough, and even as I got to the glass, I could see that we were again entering the mist. Cogger reported excitedly that there was an atmosphere outside of a pound to the inch and "going up!"

"Great Guns, man!" shouted Wad. "Wings! Wings! Hurry!"

Cogger gave him one look and then the two of them scrambled like mad-men over to the lever that was designed to push out the aeroplane wings with which the ship might glide to earth. It struck me that there was no earth to land on, but then I remembered that black, mysterious, light-shot landscape we had risen from and I hastened to add my strength to theirs. After a minute of straining, we succeeded in opening the lever completely and locking it in place. Cogger at once made for the controls that guided the ship in atmosphere and Wad mopped his forehead and peered out into the pink opacity in which we fell.

"Near thing, that! If we'd failed, we should have had to chance a power landing and no hope if it went wrong this time—to say nothing of using up all the oxygen we have to breathe for the next few months!"

"Air speed five hundred miles an hour —pressure eight pounds!" called Cogger. And as he spoke, he moved the controls and my knees gave under me as the ship answered the helm. "Don't know where we're going," he said, "but here we go! Keep a sharp watch, you two!"

For an hour we plunged in a swift glide through the thickening fogginess. Strain our eyes as we might, we could see nothing below us. Cogger, from the controls, called out instrument readings occasionally. Our speed dropped slowly to less than two hundred miles an hour and the atmosphere outside increased in pressure to twelve pounds. Then Wad and I saw a thin black pillar a few hundred yards ahead and shouted warning together. The ship banked sharply and bore to starboard of the thing so that we got a close view. It was extraordinary. I judged it to vary from one foot to ten feet in thickness and it rose interminably out of sight above us. But that was not a sufficient surprise, though a pillar of black glass (as it appeared) might seem to require explanation. The thing that made us catch our breaths and rub our eyes in bewilderment as it flashed past us was that scarcely fifty feet below our level the solid pinnacle ended abruptly in mid-air! There could be no mistake. We could see it quite definitely. Our exclamations and descriptions so intrigued Cogger that he brought the "Space-steed" around in a complete circle and we again approached the thing lower down. Right beneath the jagged and incredibly unsupported base of the pinnacle we soared and Cogger breathed a sigh of amazement.

"Mystery number one for the new life!" he said.

I immediately expostulated that the pink gas outside and the black landscape far below us somewhere were mysteries as well, but "No!" said Cogger, shaking his head decidedly. "A landscape argues merely that matter has a surface—gas of any color is entirely within the laws of nature. Only when a law of nature is definitely broken are we faced by real mysteries. That pinnacle should fall—would in any planet of our set of existences, so far as we know. Here it stays up in the air! How? Why? No gravity? Well, we're falling—or I think we are. Why we and not it?"

"Maybe . . . . maybe its h a n g i n g from something above it," I hazarded.

Wad grumbled ponderously and spoke up: "Nonsense! We've been up there. There's a universe of pink gas surrounding emptiness. Any support that dam' pinnacle might have would be local—though it *might* be as much as a mile distant, Cogger. Not likely, but remotely possible—a sort of cantilever on a pillar with that thing hanging from the end of one arm. Let's cruise around to make sure, for we'll need to be mighty dead certain of any new natural laws!"

We circled about in mile-wide spirals for twenty minutes before I saw something dark show in the distance. I lost sight of it again instantly but Cogger swept the "Space-steed" about for a few minutes and it came into view once more. Here was what we saw—a solid mass of what seemed like black glass, shaped like an elongated potato, having support neither above or below! Wad and I clutched the window and stared as long as we could keep it in sight.

"But it can't be true!" I gasped.

Cogger's laugh rang out in the dim cabin. "You prefer to doubt your eyes, Trench?"

"No . . . . but perhaps . . . . oh, perhaps it has just broken loose from above and it's falling. How could we tell? Maybe we're falling faster than it!"

"H'mm! That would be even more extraordinary! More likely it is lighter in weight than this pink gas outside and is rising!"

And then, at last, there came in sight below us the flat boundary of "landscape." But to our amazement, it was now all a glowing white. Nearer and nearer it approached and we judged we were two miles above it and falling slowly.

"Air's denser outside," said Cogger curtly. "Almost seventeen pounds to the inch. Speed's dropped to a hundred and fifty—that'd be landing speed for this ship back on the old earth!" And the interior of the cabin was now brilliantly lighted from the reflection of the great white glow beneath our vessel. Here was puzzle upon puzzle.

But we had no time for mere observation—what we wanted was a level landing place and a little to our left as we glided down I observed a milk-white sea! Wad came over at my call and together we observed the long parallel rollers that swept slowly against a flat shore. The extraordinary thing was that water, shore and all flooded out milky light—for all the world like a pane of frosted glass. The "Space-steed" lands normally at a high speed. We much preferred water to land, since the liquid would break the force of impact, although permanent built-in landing wheels projected slightly from her hull. We chose a strip of quiet "water" near the beach and Cogger manoeuvered to bring us down fifty yards from shore. He circled out and around and we felt the ship swoop and then level off. In another second she would touch the white water below.

But instead, there was a grinding jar and a shock that threw us violently from the windows. Even Cogger was hurled from the controls. Through the hull we could hear a steady scraping sound and could feel the ship sliding along sideways! My shoulder felt as though it had been dislocated, but I felt it tenderly and was relieved to find it only bruised. Wad was groaning softly in the bow of the ship. Cogger was silent.

What could have happened? Had we hit a submerged rock? But there was no feel or sound of water about it at all! Even as I knelt there I felt another jar and the ship became steady, save for a monotonous pounding on one side of the hull. I stumbled over to Wad and dragged him to his cot. He was bleeding from the nose and I staunched this with cold water as well as I could and went to Cogger. I found him mumbling vaguely to himself and sitting up rubbing his head where it had struck the hull. Him too I got on a cot and bathed his head, finding a large swelling above his right ear. He said he felt sleepy and this alarmed me, for I had visions of brain concussion. I immediately fetched the brandy, pouring half a glassful out and making him drink

it. After that I persuaded him to stand up and walk about, which he did unsteadily for a few minutes—but whether this was due to the blow on his head or the strong spirits, I could not decide. He was soon feeling better, though he complained of a headache, and no wonder!—after all we had been through.

Wad, I decided, had broken his nose and cut his lip. He was still unconscious and I took advantage of this to examine his mouth and found two front teeth broken. I removed them with my fingers and sprayed the gun with adrenalin from the medicine kit, leaving him to recover his senses when he might.

Cogger was peering out of the porthole. "Well, Trench," he said, "this is the greatest mystery yet—or I think so. That stuff out there isn't even liquid. It can't be. If you are through with Wad for a minute, just slip on your space-suit and step out there. I want to see a sample of this ocean!"

"Not liquid!" I exclaimed, staring out at the long vista of waves sweeping toward us. "Nonsense! I'll go out and get a sample with a bucket or I'm crazy as you seem to be!"

"Well . . . . you *may* be right, but you'd better take along an axe as well, fellah, for I've been watching it for the last five minutes and if it is water it's the queerest stuff I ever saw by that name!"

I got on my suit and entered the vestibule, which was on the landward side of the vessel. Here was a vista of glowingly white plains—unbroken as far as the eye could see by tree or shrub—a few rounded hillocks provided the only variety to the deadly level. I climbed down and felt it hard as rock beneath my feet and stooped curiously to examine it. I took the axe from my belt and struck lustily at a slight prominence, hoping to pick up a sample, but the axe rebounded violently without leaving the slightest mark. Indeed, the violence of the rebound was amazing and I almost lost my grip on it.

Rather doubtfully I walked around to the stern of the "Space-steed," noting with relief that there were no more than a few dents in the solid hull. Now stretched before me the "sea" and I had my first shock, for the level of the "water" was a good three feet *above* the land! The waves struck and rolled *down* to the shore, finally rippling back *up* the short slope to make ready for the next wave! I stood entirely still for fully three minutes staring at the thing before I could make up my mind that I was seeing correctly. Then I reached forward and touched a wave as it came down. My forefinger instead of getting wet was pushed violently back by the "water." I remembered Cogger's amazing notion and was suddenly convinced. The axe was the only way to obtain a sample of this strange "ocean!" I struck suddenly with all my might at it and the axe rebounded so violently that it flew back over my shoulder and (my hands gripping tightly) made me lose my balance backward so that I tumbled full length on the painfully hard ground. My helmet rang like a gong with the blow and when I climbed back onto my feet I determined to let Cogger figure this thing out for himself, if he wanted samples.

I spent a few minutes examining the position of the ship. She lay now several feet down the slope from the "ocean" and seemed steady and safe for the present. No damage of a serious nature had occurred so far as I could see until I thought to examine the landing wheels. Then I observed that these had been broken clean off and were entirely wrecked. The ship's hull close by showed severe dents. Thoughtfully I paced back to the vestibule and re-entered the vessel.

Wad was sitting up holding a handkerchief to his face and mumbled his thanks to me for my ministrations. "Where's your sample, Trench?" asked Cogger. I told him of the seeming impossibility of obtaining any and he whistled, his eyes suddenly large. "And you say the ocean is higher than the land! *Wh-e-ew!* But there *is* gravity here—I can feel it!" and he stamped his feet on the cabin floor. "Not a great deal, maybe. Let's try the spring scales." He busied himself a minute with apparatus

and then whistled loud and long again. "A quarter of an ounce in five pounds! I say there, Wad, you get well dam' quick! Gravitation about one-three-hundredth of earthly gravitation. Water runs up hill. Black pillars stay up unsupported in the sky. Land and water are both hard as glass and strong as steel. Light comes from underneath the ground. Here's a set of puzzles to stagger a man!"

CHAPTER VI

Shapes and Mist

Wad was feeling well enough to go out and take a look, so he said, and in a few minutes we all three were standing outside looking about us. We again were amazed at an ocean that failed to flood down on a shore lower than itself. Cogger stood close to the upward slope of "water" and suddenly started climbing it. He slipped back twice and then beckoned to us to aid him. We pushed him up as best we could until he stood on the crest of a "wave" and started to climb down into the trough beyond. But the wave broke on the beach and he came tumbling at our feet. Wad thereupon drew his automatic and fired three shots at the wall of water two feet from the muzzle of his weapon. We watched closely and saw the lead spread out in a sheet where it struck, without penetrating the least fraction of an inch! Thereupon Cogger signalled to us to come away.

He led us "inland," if such an expression may be used in so outlandish a scene. We gazed about us with interest that, in my own case, was vaguely uncomfortable and more than a little fearful. Flatly rolling downward, the landscape descended to a rounded depression and stretched away featureless thereafter. But as we walked over the hard, unyielding surface, we found many minute irregularities. In one place there were thousands of rounded hollows a few inches deep. We all three of us studied them. It seemed to me that they looked most of all like a boulder-strewn bank of clay I remembered in my youth. I had pulled away the small boulders to roll down the bank and the cup-like holes left were for all the world like these I looked at. Cogger knelt down with the glass of his space-helmet only a few inches from the ground and when he staggered to his feet again he turned to Wadsley and pressed a fist into his palm, removing the fist and holding out the cupped palm significantly. Quite evidently he had been impressed with the same thought I had.

We walked along a few hundred yards more until we reached the bottom of the slope and here we saw the first of our "pipe-holes," as I thought of them. They were almost circular and sank down vertically out of sight. Two were a mere three or four inches across, but fully a dozen, scattered at three or four yard intervals, were twice as large. What they could possibly be was more than I could imagine. Were they, like worm holes, occupied by some form of living thing? Cogger lay down to thrust his arm shoulder deep into one, but shook his head and got back on his feet, having evidently found nothing. The faintly pinkish atmosphere seemed to give a reddish hue to the cavity, which was lit by the diffused light that seemed to permeate every solid substance in this mad existence. I peered down the largest, and thought I could make out (thirty feet or so down) a branching of the hole into two smaller ones. But it seemed entirely empty.

More and more puzzled, we walked on and circled a gentle mound to see on the other side of it a fan-shaped spray of black glass standing two feet high. It seemed not only to have sprouted from the ground, but to be a part of it—made of the same monotonous material. At one place it was less than a sixteenth of an inch in thickness, and Wad, who carried the axe, hunched his huge shoulders and swung a terrific blow at the frail film. It would have killed an ox—that blow! What saved Wad was the fact that I was standing close beside him. The axe rebounded exactly as violently as it had struck and I felt Wad's body strike mine and we fell to that hard unyielding

ground together. I felt a sharp pain in my side and groaned into my silent helmet. When we had got back to our feet I stared in disbelief—the fragile sheet of black glass had not been in any way affected!

Cogger placed the muzzle of his gun close to it and pressed the trigger. Lead sprayed out sideways where it struck and flew off. Yet the sheet was ridiculously thin to have such resistant properties! Wad shook his great helmet and tramped on, we following. We passed several groups of the mysterious deep holes and came at last—on a mounded hillock—to a raised flat table, the surface of which appeared to be water. We could see the ripples play across its five foot width, just as if blown by some sudden breeze. Cogger set the example of reclining against the slope, so that our heads were right beside the little "pool." We stayed here some minutes and I fell into a deep reflection upon all we had seen. I had a vague feeling that it was all very logical and that the explanation was a simple one—yet for the life of me I could not imagine it. There was something vaguely familiar about it all, yet where could I have seen or dreamed of such a dead, monotonous landscape? For that was the chief characteristic of it all—the complete and entire absence of life.

Then I felt Cogger's hand strike my shoulder sharply and I glanced at him. Wad and he were staring fixedly at the ground directly before my eyes and Cogger's finger pointed. I looked at the edge of the "water" and saw where the land sloped down from it—something moving!

It was a hole, an oblong hole rounded at both ends, perhaps half an inch wide and an inch long. Very slowly and steadily this hole moved down the slope, the sides expanding and coming closer together with a steady waving motion as it moved. And then I noticed the inside of that hole and shouted aloud into my helmet, almost deafening myself. I was looking at the inside of a snail! There could be no mistaking those characteristic spiral taperings—the thing was incredible, perhaps, but absolutely true! Then came the most extraordinary part of our whole adventure. The three of us stood up and looked about us and Cogger started back toward the "Space-steed"—started and then paused. His arm stiffened in a gesture and we followed the direction. I saw on the smooth dark surface a hole suddenly yawn—not two yards from me—a long narrow hole that vanished almost at once to appear again three feet nearer. *It was the exact shape of a human foot!*

In stifled awe I watched the footsteps appear and disappear until they mounted to our table of "water." Then two hand impressions showed on the bank and a mouth-shaped hole showed in the surface of the "water." Down into the opening I looked and could clearly make out the rounded contour of the back of a human head—the sides and bottom being formed of the same glassy material as the rest of the fantastic landscape, and shot with the glow of life that pervaded everything. The hole vanished and the footsteps went away in the direction they had come—the three of us remaining rooted to the spot with astonishment.

I looked around and saw that Cogger and Wad had already started back to the ship. I badly needed to talk about what I had seen and followed them hot-foot. We climbed into the vestibule and, once inside the cabin with our helmets off, burst into a babel of exclamation and inquiry. But we all knew, in a general way, what must be the only possible explanation—it was the implications behind that solution of the mystery that excited, as indeed they might. Cogger succeeded in getting our attention by holding his hands above his head and shouting. "Let's calm down," he said, when we were silent. "This has to be thought out thoroughly. Probably we have all the facts we need to determine the laws that govern nature here—from them we must invent a means of escape, if one exists. Trench, be a good fellow and get paper and pencil—we'll write down our findings so we can study them more carefully."

I hesitated, for it seemed rather a need-

less thing to do. "Our lives depend upon what we decide, you know," put in Wad suggestively. I hastened to equip myself as the recording angel of our fate and there was a minute of silence.

"Number one," said Cogger slowly, "by passing at high speed through a great gravitational field we have bent earthly dimensions to the breaking point and translated ourselves into some other set of three dimensions." Wad nodded.

"Number two: In this new dimensional existence, physical laws seem to depend upon our old world—solids there are empty here; space and atmosphere there are translated here into one consistent glassy solid through which light passes . . . . eh?"

"Whoa there!" said Wad nervously. "That's jumping at conclusions, isn't it?"

"The human foot isn't enough?"

"Well—perhaps . . . . yes, I think there can be no other explanation. It's a sort of inside-out of the old world we were born in."

"Isn't it more like a mold?" I put in. "When I was a boy we used to cast toy soldiers in lead—the snail we saw, you know, I'd like to have poured melted lead into him. It would have come out perfect!"

"Let's finish number two on paper, Trench," said Cogger. "You're right about the mold, of course, and I'm coming to that. Let's say: item, a cave under the earth is represented here by a lump of glass standing in the air. If the cave has no opening to the surface, then the lump of glass stands here without visible support. That covers those things we passed in gliding down here, you see."

"And the fact that you can't chip off a piece?"

"That adds right on to number two: item, the solids in this inside-out world are immovable from this world, but extremely pliable, instant and liquid as regards the motion of their counterparts in the old earth."

"That is, the air?" nodded Wadsley. "Well, now, that takes care of the ocean that is not water. How about the light that comes up through the ground here?"

"Item—no, I guess we should make this Number Three: This substance which is immovable and yet liquid transmits light from the old world we have left—from one set of dimensions into this! (Keep quiet, Wad, and look out that port-hole and you'll see the light is stronger far off to the West—it's our old sun showing through.) This seeming solid that looks like glass and is present only where earthly solids are not, must, for sake of a better name, be called the ether!"

Wad swung about, his face expressing the utmost curiosity. "You . . . . "you *mean* it, don't you, Cogger? It's almost too good to be true—I had a wild idea it might be, but I wanted you to say so first. God, this is adventure for you, eh, Trench!"

"I thought the ether was—well, just something invented—not really there."

● Cogger grinned. "Right!" said he. "It was argued that something must exist to carry light through space, for one thing. They called it ether for convenience. Now here, Trench my boy, we are puzzled by the way holes move around—by solids that are supported in air by nothing we can see. Know what we do? We reason that there must exist a substance that permits such things to happen. For convenience sake we'll call the substance matter!"

I grinned ruefully back at him. "I get it all right," I replied. "And you mean that the world we left is locked through the dimensions with this world, so that the ether has an effect on matter and matter has an effect on ether—then the thing that passes across the dimensions is what? Light?"

"Light, and maybe radio waves—we must tune in on London and New York when we get around to it. Yes, and more than that—position itself is dictated on this ether-world by the position of things in the matter-world. Position, of course, is just a reading in three dimensions. All three evidently pass to this world in the form of static forces, or something of the

kind. Yet we have dimensions here—three of them, too, and they seem about the same as ever. I'm not sure how far this simple theorizing will take us . . . . Well, never mind! Let's check up on this as far as we've gone."

Wad called out from the port-hole, "Not much checking up needed! Compass says it's west over there. Well, the light's leaving here and moving in that direction. The ship's chronometer ought to be set to about sunset (if we knew the latitude) and then let's see how many hours to dawn. But I can guess the answer beforehand; not much doubt you're right, Cogger."

He stood staring sadly out of the window and the light threw his cheek into high relief. I could see the muscle quiver at his jaw. As for myself, I do not pretend to be made of iron. The sudden realization that we were once more in touch with the old familiar world was a blow—a shocking blow. There is nothing, I believe, more terrible than a familiar thing in a new dress. A human being who has become a maniac is more frightening and shocking in every way than the strangest of devils. I gasped all at once. "We could find our way to where New York is, couldn't we?—and stand on Broadway and see—not the people, but their insides, down below the surface. We might even go to a show on Broadway—in a theatre!"

Cogger laughed without any mirth at all.

Wad stared out of his window. "And we couldn't talk to them, nor make them see us—no matter how much we needed to. But we could see them, after a fashion—we could see where they were. That's all. We never will see men again—nor trees nor rivers nor cows—nor the sun coming up of a summer morning. I . . . . I wonder . . . . ghosts, perhaps, feel as we do—if there are any ghosts, that is . . . ."

I went to the other window. It faced "east," that is, toward approaching darkness. The misty atmosphere spun away into the distance and the glow of light fell on it with strange effect, making it seem almost solid in spots. As I stood there, I noticed that the mist was no longer all pink, but assuming faint tints of pearl and purple. Moreover it seemed in vague motion—a swirling meaningless blur that increased each moment. The ground had now lost all light and stretched dark and glassy out of sight. It was a strange dusk and a touch of pity for myself brought water to my eyes. I thought I was seeing things that could not be there and rubbed my hand against the lids and looked again. No, it was there all right—a green tree! Or was it a tree? Even as I looked, the branches streamed slowly away and left a telegraph pole, complete with cross-bars and insulators! As I gasped at this, a low hill rose up beside it, grassy and gentle and on it two broad bushes grew and spread.

My shout of disbelief brought Wad and Cogger to my side and, breathless, we watched the whole landscape assume character. For it was a landscape—trees and shrubs and hills and (away off) a great mountain with a snow cap. And animals were moving about there! Then a small hill close beside us humped up and the mist of which it was formed streamed out into a great neck on which perched an absurd little head. A huge dinosaur moved on ponderous legs! Its neck fell slowly to the ground and became a man—dressed in the slit doublet and ruffs of Elizabethan days. His whiskers were in perfect trim and his hand toyed daintily with a sword that swung from his belt. He minced along a few steps until the head sank soggily into the shoulders and the body down into the legs and the whole became a moss covered boulder which rested quietly on the ground!

We could not speak—my own throat was so dry I only croaked when I tried to. For twenty minutes we watched the maddest insanity we had ever dreamed. Two elephants charged together and became a tree with a mushroom head; cliffs, gorges and mountains were constantly shifting and rolling in all directions—with trees and animals sprouting unconcernedly

all over them. But to us the most startling thing of all were the human beings. We saw savages with tremendous jaws and long arms that almost touched the ground, Russians, Italians, Chinese of all ages and costumes—Americans in modern dress—men and women. Horses and carriages, oxen, a locomotive and, for a second only, what was evidently an automobile. But over every shape was an unrealness. It was as if they had been molded in wax and the wax was constantly melting.

Then gradually the shapes grew dim and vanished. We stared out over the darkness, faintly pink. We rushed to the westward window, but here nothing could be seen but the distant glow—now very faint—where the light was receding. I was trembling violently and stood staring stupidly at my feet when Cogger handed me a glass of brandy. I downed it and felt better. Cogger lit the cabin lights and laid out food.

"Come, you two!" he said sharply. "Nothing ever existed that didn't have a natural explanation. We'll solve this business, never fear. I'll admit it looks pretty queer just now, but it will seem simple enough, I'll bet, when we understand it!"

We ate a little food and felt better. No one talked of what we had seen. Somehow, there was absolutely nothing to be said. We eyed one another rather sullenly and after a while climbed into our cots. The others were silent, probably asleep. But I found my side pained me where I had it in my fall that day. No matter how I turned and twisted the pain was present and penetrating. I felt hot and feverish and got myself some water which I mixed with canned lemon juice and then lay down and shut my eyes determined to sleep.

Perhaps I did. I like to think so. For if what happened were *not* a dream, then I do not quite know what philosophy of life I should hold. But it was a dream, all right—it makes no sense otherwise. Here is what happened:

● I seemed to be floating in pink mist, upborne like a chip in water. The mist below me was rolling and shuddering into shapes and colors as it had the evening before in actuality, but now the shapes stayed longer and in some way I could understand what it meant. That tree there was formed of pink mist which had for many hundreds of years been pressed into that shape inside a real tree down under the dark glassy ether floor. The real tree, perhaps, had died, fallen and decayed so that the mist had been released into the general atmosphere. But upon occasion it remembered the tree shape and assumed it again, perhaps out of habit? I was not sure, but one thing was certain—all this mist was intelligent! It knew I was looking! All the shapes—animals, reptiles, mountains, vegetables, and other forms of created matter—they all observed me. I felt that they were discussing me, in some wordless way and wondering what I was. I felt thin wispy hands and branches trail over my features as I lay there helpless—they were examining me!

I tried to shout out for help, but could not. Instead, I found myself awake on my cot and bathed in cold sweat. I got up, my side one great throbbing pain and Cogger awoke with a grunt. "Good God!" he said.

"What's the matter?"

"Been dreamin', I guess. What are you up for?"

"My ribs hurt—might have smashed one today. What . . . . what were you dreaming, Cogger? I had a nightmare myself!"

"Eh? Let's look at the ribs! . . . . *m'm* . . . . yep, one's broken, I think. What'll we do for it? I'll bandage it and trust to luck, I guess—nothing else to do. Hurt much, old lad?"

"A bit . . . . go easy on that bandaging. But what did you dream?"

"All nonsense . . . . about the mist, you know, and the things we saw in it. And you?"

"Say, Cogger! Did you? So did I! Good Lord, do you suppose . . . . ?"

Cogger laughed. "Don't let your imagination run off with you, fellah!"

And then Wadsley gave a choking scream and sat up wild-eyed. And he'd been dreaming, too, he said. The three of us brewed a brandy punch and sat up to wait for dawn. We talked . . . . as much as we dared. It was a curious conversation, for none of us really said a thing he thought until at last Wadsley did it.

"This mist," he said. "You know, Cogger, it's intelligent!"

Cogger grunted and I gasped.

"Has to be! How else could it remember and again build up the form of earthly things? You'll admit those forms we saw weren't just coincidence?"

"Oh . . . . I suppose so. But don't jump at conclusions, now! A mirror shows pictures of things it has seen—so does a camera. Neither one is intelligent. This mist—well—it may have a mechanical explanation, too."

"Pretty far-fetched and besides . . . . just what did you dream, Cogger?"

Cogger was silent, his lips compressed firmly. "Let's not go on with this!" he said. "First, I want to get out that radio of ours and rig a detector tube to vibrations, like a phonograph. Then we'll put the vibrator against this black stuff outside and see if it really *is* ether. After that . . . . well, then we can start talking some more."

He set to work at once, with the cabin light dimly glowing, and Wad helping him. I watched dawn through the porthole—if you could call it dawn, that is. There was no sun—only a pinkish glow to the east and then an occasional streak of white light showing in the black glassy ground. Finally the ground began to show white and I knew that in another set of dimensions the sun had risen. I glanced at the other port just then—facing west—and saw suddenly once more those familiar and outlandish shapes we had seen at dusk. The light was growing stronger and by the time the three of us had our noses pressed to the glass the visions were fading and day had come.

"H'm! The shapes only appear at dawn and dusk," I commented.

"And only on the side away from the light, if you've noticed," added Wad.

"Reminds me of something . . . . oh, yes! Ghosts are supposed to vanish at dawn— at cock-crow. Curious, isn't it?"

"Balderdash!" said Cogger, pressing his lips tightly together. He resumed work on the radio.

CHAPTER VII

Slim Chances

● Cogger had the radio ready an hour after breakfast. We all put on spacesuits and went out to try it. It was a simple arrangement—a weighted magnet hung from a metal rod. The rod rested on the solid "ether." Any vibration in the ether would "lag" in translating itself to the hanging magnet. Exactly the same thing is done in a phonograph, where the needle vibrates against the "lag" of the heavy needle arm. The vibrations were translated into current which went through the radio tubes and came out the loudspeaker as sound. Only we used headphones wired to our helmets.

And as a matter of fact, they did just that. Squeals at first, then a telegraph station was turned in and the *dot-dot-da-dot* came through like a thunderclap. "Must be some little station close by," I thought. Cogger turned the tuning dial and presently we caught some queer jargon in the low wave-lengths. Sounded like ships talking to each other. After a few minutes we caught some music—faint and distant—but we couldn't make out the station. Cogger picked up his apparatus and took it back to the ship, we following.

"We won't get much until tonight," he said. "The hull of our ship rests on the ground and we should be able to tune in right here inside the cabin. Meanwhile, our point's been proven—no doubt of it. This black landscape is the ether and it is outlined and given positions by matter which we can't see or feel—which exists

entirely in another set of dimensions. So what?"

"Well, let's get out that paper and pencil and see how far we can go," suggested Wad, and I nodded. We read it out loud together, the three points. "One thing's left out, at least," I said. "We feel some sort of gravitation here. I weigh about a pound, I suppose. Does gravitation go through all the dimensions?"

"It's a good point," nodded Cogger. "Of course it can't be gravitation. I suspect it must be the centrifugal effect of the earth's rotation. We are somewhere near the tropics, I'd judge. I noticed palm trees just before we plunged through. Well, at the equator, centrifugal force would be about one-three-hundredth gravity. Of course, it works 'up' from the earth, but to us that means 'down'."

"But centrifugal force . . . . would that act the same way as gravity?" I asked, never having thought of it before. The others pointed out to me that this strange similarity was the basis of the Einstein theory of space and time.

"Now that settles all our points—except the main one," said Wad bluntly, and looked at Cogger as if for argument. He sighed in answer.

"This mist, eh? All right, let's try and see where we can come to. There's pressure here. That mist would be forced into every crack that exists in the ether. In other words, it would assume every shape that exists in our own world—tree, animal, rock, no matter. Once in, it couldn't get out until the shape melted down, until the animal died and decayed, or the tree fell or the rock tumbled down the mountain into the water. Before that happened it would be imprisoned in a certain shape, perhaps for years and years—even centuries. We've seen that it can remember the shapes and re-form them. So, I suppose, it has some kind of intelligence. Yet, remember, the stuff is a gas and you'd think it would be all one unit—not capable of forming separate entities."

"All right," said Wad, "but if it's intelligent, then it's alive. Live things must have food. What's it live on? There's nothing here—no matter at all—only the ether and the pink gas itself."

"Mightn't it live on light?" I asked. "All it really needs is energy to perform work, and it seems to perform precious little work, so it shouldn't need much energy."

"Well—let that pass. It's likely, anyway. You know what's really in my mind? This stuff, inside everyone, can't be seen in the other world—well—the world's full of legends and superstitions about ghosts and souls . . . . "

His voice trailed off. Cogger looked up and grinned. "So this pink stuff is soul, eh, Wad? One great big soul for birds and beasts and . . . . mountains as well as men. Maybe so. Never thought of a mountain with a soul. And as for men, they're supposed to lose their souls when they die. This stuff would stay there as long as the body didn't decay."

I shifted my feet uneasily. "Bodies that were buried or burned would have the gas mixed with all the other gas here," I pointed out. "And take the case of your mountains—why, there are savage tribes that pray to mountains!"

"And so what?" grinned Cogger, looking quizzically at me.

"Nothing!" I hastily responded. "It's all tommy-rot, of course. Still . . . . there it is, you know. This pink stuff is inside a man for sixty or eighty years. It's intelligent. Probably it would get to understand everything a man does—might even read his thoughts and try to control them . . . . but I don't see how we're going to find out."

"Of course, intelligent gas is a possibility, I suppose," mused Cogger. "It wouldn't understand speech, for that's a mighty cumbrous way of conveying ideas between grossly material humans. Thought itself is electrical, perhaps—unless it's chemical. At the best, this gas might have means of conveying thought or of reasoning upon observation. Probably an electrical means—though that's

sheer guessing. The point is, really, how to find out . . . . *h'm!*"

"Only one way, it seems to me," said Wad. "We can't contact 'em physically—so we'll have to do it mentally or not at all."

"What do you mean—dreams? I asked, and the other two stared at me.

"Well . . . . you may be right at that!" said Cogger in a surprised tone of voice. "We all three dreamed last night, didn't we? It's barely possible that we dreamed what the misty stuff wanted us to . . . . we can try that tonight. Each of us write down what he dreamed and compare them. In the meantime . . . . you and I, Wad, had better be getting to work."

"What doing?"

"Well . . . . it might be nice to leave a record back on earth of what we have seen and found here . . . . frankly, there doesn't seem much chance of our getting back, does there?"

Wad and I were silent. I had not thought of it in the excitement of the last few hours—but the unpleasant truth was there, right enough. "How'll we get it through?" I asked. "Radio?"

Cogger nodded. "We have a small five-pound sending apparatus. Needs some current, but we can spare a little fuel and oxygen, I guess. It has to be fixed over, though, so that it makes physical vibrations. We can have it ready by tonight, I should think. There's nothing else to do, is there? Nothing to see outside—I can't even think of a possibility of our returning, just at present. Maybe something will occur to me later on—can't tell! Cheer up, Trench!" and he grinned at me. "We can't more than die, can we? What are you so glum about?"

I grinned back as best I could. "Just the same," I said "while you two are working on the radio, I'll spend a few hours exploring . . . . there *might* be something, you know."

● I got into my suit and stepped down to the black ground. I had with me a compass and determined to make quite a walk of it. The first mile was over familiar ground; after I passed the little pool I was in new territory. But the same monotonous landscape seemed to stretch away to eternity wherever I looked. I passed many rounded hollows filled with "pipe-holes" which I knew to be knolls thickly set with trees. I came once upon a flat place with square trenches and knew I stood in the street of some jungle village. On I walked, but when I turned around to look, I could see the high rim of the "ocean" in the distance and the little dot that was our space-vessel.

At last I came to a sharp depression of really enormous size. It was a mile or more across and looked like the inside of a cone. Far below me I saw the point, dimmed in thick pink fog. The cone was *pulsing* slowly and for some minutes I puzzled before I guessed that this was a volcano and that lava was rising and falling in its pipe—ready to run over, perhaps. The sight fascinated me and I watched it for many minutes. Then I noticed a strange thing: In the center of the great valley there was a spot where the thick mist kept away. It was clear there and after some study I decided that the clear spot was shaped like a ring. It might have been about fifty feet across and perhaps ten feet thick. It was an extraordinary sight and I determined that I should report it to Cogger, though what it could signify, I did not know.

Some hours had passed since I had left the ship. I began to feel hungry and noticed that the light blazing whitely from the black ground (I cannot seem to describe the effect—the ground remained black, even though the light shone from it) had moved considerably westward. I turned about and started for the ship. My suit seemed lighter than when I had put it on and I found walking easier. In an hour I was close to the ship and my side had begun paining me seriously once more. I climbed up into the vestibule and shut the door.

Inside, I took off my helmet and started to remove my suit when it tore between my hands. "Damn!" I said. "How did that happen?"

Cogger looked up and came over to feel the stuff. His face grew serious. "Why, it's paper thin!" he exclaimed. "How come?"

"I don't know," said I.

Cogger brought another suit and compared it with mine very carefully, saying, not a word until he had done. "Well," he said, "no more trips outside for us, I'm thinking."

"Why?" asked Wad, looking up from the radio set.

"This pink soul of yours seems to like 'em! It's eaten almost through Trench's suit!"

"That's queer . . . . you don't suppose it eats the hulls of space-ships, do you?"

I was over to the porthole in one panicky instant and peering down at the thickness of the hull that showed there. I couldn't be sure, but it seemed to me it was thinner than it had been. Cogger frowned. "The outer door of the vestibule was three-eights steel, wasn't it?" he said thoughtfully. "Get into my suit, Wad, and take a ruler."

In three minutes the door opened again and we helped him off with his helmet. He looked at us one after the other, very soberly. "Not quite a quarter inch left!" he said significantly.

Here was a new danger—imminent and rather terrifying. It drove all other thoughts out of my head. I felt physically ill and lay down on the couch for an hour's rest—rib or no rib. I imagine I dozed, for the next thing I knew I heard voices.

"Station WX2X, Penang" said a voice, and I started up and stared about me.

Cogger held up a microphone and spoke crisply into it: "Rocketship 'Space-steed' calling—can you hear us?"

"Repeat that—did you say Rocketship?"

"I did," said Cogger. "And is it good to talk to the earth once again!"

"Tell it to the marines," said the voice wearily. "God knows its hot enough and dry enough here at the lighthouse without spoofing. Who are you? WX7X?"

Well, Jellicoe, you know the rest of that conversation. Cogger talked to you and Wad talked to you and at last I talked to you and I started sending over this tale. I hope you're writing it all down and that you get it back to my lawyer in New York—you have the name and address, God knows we checked and rechecked that often enough. It's been two days and nights since we first spoke to your station. Cogger says we can't down the story and last night and tonight I've spent reading it to you—hope I'm not speaking too fast. Lucky thing you know shorthand, Jellicoe!

Now, I've just time to bring the story up to date. Things have been happening the last two days. We dreamed that night after I'd been out exploring—wrote our dreams down the next morning after we'd looked out at the mad shapes in the dawn. This mist might have sent us all the same dream—or it might be pure coincidence. But we dreamed the same thing, all three of us. We dreamed of *hunger!* An empty world, black and lifeless, with no food left. Nothing left but a mind in the mist. And suddenly a shiny metal space-ship landed and the hunger had something to hunger for and we saw the trailing tentacles creep and creep on the metal hull—that got thinner and thinner as we looked. There were . . . . other things! . . . . never mind them. Never mind anything more now, for I've only a few minutes to dawn and Cogger will turn off the power then.

I remembered that next morning—yesterday—to tell Cogger about the volcano and the ring of clearness set in the mist. His jaw dropped six inches and his face lighted up like a lamp. "Why . . . . why we're as good as saved!" he shouted. "Wad! Did you hear what Trench said?"

"I heard . . . . but don't be so quick on the trigger. I suppose it's our ring of nuclear matter—fatter and less dense than when it left us. But unless it is right at the surface—the very exact surface of the earth—it would be no good to us. Suppose we plunged through it and found ourselves back in our own familiar world,

but right in the middle of a boiling volcano!"

"Of course, of course!" said Cogger impatiently. "But don't you see, man? It is what has started that volcano! When it landed, the land was flat. Now there's a volcanic cone half a mile high there and the lava bubbling in it. Don't you see what has to happen? That ring is going to be spewed out again!"

"H'mm! Hope you're right! But even so, we'd have to reach it just precisely at the moment it *was* spewed out, as you put it. That'd take some fancy navigating!"

"Oh, well, that's true enough . . . . oh, man! The thing that has me going is the fact that we have a chance—any old chance at all! We aren't hopeless any more."

Of course, I didn't understand what they were talking about and had to have it said in words of one syllable (scientifically speaking). The idea is simply that if we can plunge at full speed through that ring just as the ring leaves the volcano, perhaps we shall be again translated back through the dimensions and will find ourselves sailing up with the smoke and lava through the open air. After that —well let's hope we land in the water, and softly. Let's hope anything . . . . but a few hours ago we didn't have anything at all to hope for and I'll confess, even if it does sound like a wild scheme to you, it looks darned attractive to *me!*

So maybe we'll see you soon, Jellicoe. By the way, *is* there a new and active volcano anywhere near Penang . . . . anywhere in the Malay Peninsula? *

Cogger is calling to me to turn off the set, old man. We're going to move the "Space-steed" over to the edge of the valley—volcano to you—where we can be ready to take off any minute. Well . . . . so long, old man, signing off! Don't forget to send this report to New York and look for us if there's a volcanic eruption on that island! Signing off!

*Note: I reported what had been in all the news dispatches of the last week: that an island off the coast had suddenly produced a huge volcanic cone and temblors had been felt. The island is within ten miles of the lighthouse, here.—Jellicoe.

EPILOGUE

●I laid down the last sheet of the manuscript and straightened my back. Jellicoe was up above putting out the light, I suppose, for the sun was rising like a big round furnace across the water. Presently he came down and looked at me in silence.

"Well?" he said.

"It's a wonderful yarn," I remarked. "Is any of it true, by any chance?"

"Some of it—at least! Come here!" His hand pointed to the north across the water. "Can you make it out at all? Just a faint bit of it? That's the volcano that erupted three weeks ago . . . . you must have heard of it? Quite an earthquake went with it."

"I was on the water of China," I replied. "Wait, though, I *did* see a mention in a Singapore paper when we landed. Wrecked a coastal steamer, didn't it?"

Jellicoe nodded. "That's the one. I felt this whole light shake—about three in the afternoon, it was. Of course I rushed to look and the whole top of the volcano seemed to go up in the air and spread out into a mushroom of smoke. That's all I can swear to, but . . . . "

"But what?"

"Well . . . . I think I saw something else. It looked like a silvery sort of *ship* . . . . or maybe an artillery shell. It gleamed for an instant as it shot up and out of sight westward. Over there," said Jellicoe and swung his arm across the straights toward Sumatra, invisible on the horizon.

"Of course," added Jellicoe savagely, "what could I do? I couldn't leave the light and . . . . would you have, even if you could?"

I thought a moment and scratched my head in honest doubt. "Damned if I know!" I replied. "Well . . . . frankly, no I wouldn't! It's too far-fetched. Of course, you heard nothing since?"

"Nothing," said Jellicoe and sighed. "Nor likely to," he added.

That should have been the end of the yarn. Perhaps it was, in a sense. We talked about it at breakfast. I remember asking Jellicoe, "Suppose those three chaps really were on the level . . . . suppose they had come down somewhere in the water near Sumatra, perhaps. What's over there?"

"Nothing at all. The quickest way back to civilization would be right here to Penang," he replied.

"How?"

"Oh, native boat—a proa, maybe. They'll cross the straights easily in weather like this—and for money enough."

I stood up and looked over the open railing. "There's a native boat coming this way now," I remarked. "Way off there—see it?"

Jellicoe was at my side in one leap, and I felt his body tense as he stared. Then he laughed. "Can't help thinking impossible things," he grunted. "We'd best have an eye-opener, if you've any of that good liquor left." I had and we did. An hour later I made my farewells and climbed down to where my skiff was hauled up on the shelving rocks. Jellico came down with me. We both noticed that the proa was coming closer in the faint steady breeze. I couldn't help seeing the thoughts show in his face and laughed. "Why not leave your blessed light for half an hour," I suggested. "We'll run over and look at that sail and then I'll run you back here—just for fun, you know."

I don't know what made him agree. I believe he risked the loss of his position, but perhaps it wouldn't have been much of a loss—wouldn't have been to me, I know! Anyway, the whole amazing chapter of incidents fitted together like a plot that had been laid out in advance. It wasn't believable—only it happened, you know. We shoved off and after half an hour's sail, we could make out three natives on the boat and one of them waved to us. We went right up and Jellicoe talked to them in whatever outlandish tongue Malays use. I heard him gasp after the first dozen words. "Good God!" he said. We sailed closer and I looked over her gunwale.

There were two white men lying on the boards at the bottom. One was small and emaciated. The other was a big man with his head in bandages. The Malays' jabbered at them and the big chap sat up and looked at us. He licked his lips as though they were dry and I saw that the hair had been burned off his head. The little man beside him was quiet, for the flies were on his face and not a muscle quivered. Then the native jabbered some more, though the white man didn't say anything. Jellicoe turned to me.

"They say the little man is dead and they want to throw him overboard, but the big man won't let them. They say we must take them both out of their boat or they'll kill the big man and throw them both over. They say that it is bad to have dead men on a ship and they'll pay back the passage money."

"That's lucid enough," I replied. "Let's get them aboard, then."

It was only a moment's work, for the three Malays seemed anxious enough to help. The big white man almost fell into the water—seemed to have no idea of what was going on—and had to be lifted. Then they threw his companion's body down beside him and the proa sheered off and swooped out of earshot.

"Who are you?" I asked our new passenger.

He made no answer. "Maybe he only speaks Dutch," said Jellicoe and tried him in that language, but without any result. He just stared at us and at the water. Then his eyes fell on his companion and he burst into slow gentle sobs, his shoulders heaving, but no tears showing in his eyes.

Our skiff finally reached the rocks by the lighthouse. Jellicoe and I got out and started to lift the smaller of our two guests. He was light and motionless, but his large friend was neither. After a stupid staring he bellowed at us and

seemed determined to "rescue" his companion. We soothed him, between us, and once more picked up the body of his friend and so into the shelter of the light. He wasn't dead, as yet—we found his heart beating, though his back had been severely burned and something seemed to be broken inside. We greased the back and laid him in cold compresses. Then we turned to the large man who had been rocking back and forth in a chair and down the throat of that one we poured a half-pint of raw whiskey—my last. He dropped into a slumber that stayed with him for twenty hours.

Not until then did I dare look at Jellicoe's face. "You . . . . it *couldn't* very well be . . . . then . . . . could it?"

He laughed uncomfortably. "Nonsense!" he said, but he didn't mean it.

"I suppose we ought to get them to the hospital on shore, eh?"

"It's the only chance for the little fellow," replied Jellicoe. "Besides, you don't want to miss your connections at Singapore."

I stayed that night at the light. In the morning we got together our things and Jellicoe decided he would desert his post—life and death, y'know, said he—and come with me to Penang. We found the smaller of our patients still unconscious, though resting a little easier. The large man roused at once and staggered to his feet. He stared at us a moment and then, quietly enough, "Where am I?" he asked.

"Near Penang—on the light. I'm Jellicoe."

"Jellicoe! Why you're the . . . . " He stopped abruptly. "Do you—er—use a radio?"

I could feel the muscles in my right leg trembling with suspense and stamped my feet to control it. Jellicoe's eyes glistened. "Yes, and I've heard some queer things over it in the past few weeks!"

"I'm Trench," said the stranger and held out his hand. "By the way . . . . I don't seem to remember coming here . . . . is my friend Cogger Bent here too? And Wad . . . . no, Wad's dead—poor old Wad."

We stopped him and fed him breakfast and took him down to the boat and cast off. When the main sheet was hauling fair and the skiff had a bone in her teeth, we let him talk once again, and I got the end of the story.

"We waited two days at the brink of that valley," he said. "Our hull was only an eighth of an inch thick at the last. Then the ring of clear space that showed in the mist had moved down almost the very bottom of the conical valley. Cogger said we'd have to chance it while we had any walls left at all—for the mist was eating into them steadily, you know. Well . . . . we took off, rocket's roaring, and got height. Then we plunged down faster and faster, straight for the tip of the depression where the ring showed like a crystal. We struck true—right in the center of the ring and there was a scrape and a jolt that . . . . well, it knocked me out for a half-second and when I opened my eyes there was sunlight hot in our portholes. Just for a moment we soared, then we fell into the sea—what a jolt! Knocked me out again. The water brought me to, water in the cabin and rising! Wad was near me and I tried to rouse him but his head was loose on his neck and . . . . I knew what that meant. He'd broken it. I got Cogger, though. He was up against the hissing metal hull—it was red hot before we struck the water. There was a two-foot tear in the ship's side and we squeezed out and started swimming. Cogger screamed all the time—water on his burns, you know. Then when he stopped screaming, we were close enough to shore so that I could drag him the rest of the way."

His head drooped and he muttered something tiredly. Then he fell asleep and was still asleep when he came to dock. We hired a native litter and they trotted him off to the hospital without waking him. As for Cogger, he vanished in another litter and Jellicoe and I after him in a rickshaw.

At the hospital they shook their heads over Cogger but thought he "might do, if he was born lucky." I found I must leave that to make my connections at Singapore and I never saw any of them again. Jellicoe promised to write me at New York later on, but he never did. After a long wait, I wrote him instead. Just yesterday, to complete the whole, my letter has come back, the envelope all marked up with such notes as "Removed" "Try Sumatra," "Unknown," and "Unclaimed." So I don't know what to make of the whole thing—I had a wild idea that I might have been hoaxed, until I thought of the burns on Cogger's back. But nothing has appeared in any newspaper or magazines—*nothing!* And if true, the affair deserves headlines a foot high! Should anyone be able to throw any light on the mystery, will he be so kind as to write me? And if these lines reach the eyes of you, Jellicoe, or Cogger Bent (if he lived), or Trench—well, you might let a fellow hear from you after he helps save your life!

THE END

"IN MY OPINION"

WE'D like to know just what you think of the stories in this issue. We want everyone to clip this little slip and attach it to a sheet of paper on which are listed the stories in this number of WONDER STORIES. Tell us how and why you liked or disliked each story. It will help us to give you just what you want if you will put your comments in this form, separate from your regular letter to "The Reader Speaks." Roses and brick-bats thankfully received. Please be sure to sign your name and address.