

THE VOYAGE OF THE ASTEROID  
*by the author of "The City of the Living Dead"*

I WOULD have forgotten what day it was except for Dr. Mason. He solemnly entered my bedroom that morn-bearing a loaf of pound cake into which he had stuck three dozen candles. It made a sorry mess, the more so when he had lit the tapers and the wax dripped an unwholesome pink icing over all.

"Thirty-six years old," he pronounced, brooding over his gift. "You are very nicely divisible by three and two in all their combinations. Last year it was five and seven and a little more unusual. But thirty-six is a very practical number in many ways—how does it feel?"

This curse of absurd humor is, in my opinion, one reason that Dr. Arthur Finch Mason is still only an associate professor of mathematics. He was inordinately popular with his students and he was very successful in instilling in them not only a knowledge of his subject but a sincere liking for it as well. But he achieved his results only after breaking half the rules of pedagogy and his fellow members on the faculty observed his progress with some distrust.

We had been at college together — close friends, in fact. Three years ago he had come to me in deep distress, for his young wife had died and he was once more alone in the world. We had obtained an apartment in West 86th street and moved in as permanent partners. Living in New York can be a lonely business and I found Mason an ideal companion — sensible and earnest beneath his camouflage of absurdity. Physically he was tall and thin, with pale and rather distinguished features. His demeanor was serious and dignified, a fact which rendered his drolleries all the more remarkable and — to some extent — incomprehensible.

"Now next year," continued my friend, "You will have reached a prime number—thirty-seven. I wonder whether a man is in his prime only when his age is? There's an idea! The prime ages of man: At one the puling infant; at three the walking, talking terror!"

I was not in the mood for nonsense that morning and proceeded to the bathroom for a shower. Mason was tenacious, however, and followed me in. Over the noise of the shower I could hear him continuing his witticism to its bitter end.

"Seven is the age of first sense and schooling; eleven and thirteen arrive with puberty . . ."

I turned the water on full force and drowned out his voice. But when I had finished bathing and proceeded to get dressed he was still at it.

"Thirty-seven," he was saying, "is the prime of life. From then the mainspring commences to unwind. This year, Bigelow, is your last year of youth!"

Breakfast silenced him at last. This particular morning was a Saturday and neither of us was compelled to labor. We settled down to a day of rest. I browsed through a copy of *Lens and Bellows*—the magazine of which I am editor — and mused idly upon certain changes I had in mind for the next issue. But my mind refused to remain engaged upon the print before me. I found myself in a sober, thoughtful mood. Mason's mock seriousness had had its effect on me.

Thirty-six years old, I thought. Rather soon now it would be forty; then fifty. Then what? Was I really doing the kind of thing I wanted to do with my life? My memory conjured up myself at twenty—a budding young naturalist full of purpose and courage. Once I had other plans for my career: adventurous expeditions to out-of-the-way lands looking for strange plants and animals; the thrill of discovery! The heady wine of fame! But here I was and here was I likely to remain until I died. I could see the obituary notices of my death. They would be tucked away on inside pages of newspapers. My own magazine would give the history of my life in a black-bordered page. Then oblivion.

***MR. MANNING has here attempted, and we believe succeeded in picturing what an actual***

*interplanetary journey might be like, and what astronauts might expect to find upon other worlds.*

*His characters are not supermen, they are not men who believe that a journey to another world might be a pleasureable picnic. They are men of determination, but men with the weaknesses all of us have. Our author has shown therefore, how any of us might feel if tomorrow we were invited by a recognized scientific authority to make a trip to Mars or Venus.*

*The second question that occurs to readers is: assuming it were possible to go to Venus or Mars, what could one do there? Would there be the Venusian or Martian princess just waiting to marry our hero and bestow unlimited wealth upon him, or might our explorers meet dangers, terrors, discomforts so great that all attempts at exploration would completely fail and our explorers would be glad to get back to earth with their skins?*

*The editors after reading this story believe that by its simplicity, and its sticking to realities, it proves more exciting and more thrilling than the most fanciful of tales.*

I sighed and stirred restlessly in the comfortable lounge chair.

"What's the use of it all!" I exclaimed aloud.

Mason looked up from his book. "There is an unwritten law against philosophy before noon. What you need is some exercise. Fresh air! A glimpse of life and motion! Let's go for a drive."

"Where to?" I queried listlessly.

"The Connecticut countryside should be worth a look this time of year. Evergreens will be budding out—maples coming into leaf. There are a thousand things to see."

"All right. I'll take along a camera."

Mason raised his eyebrows humorously. "Of course! How could I have forgotten that detail?"

We donned hats and coats and walked around to the garage and started up Riverside Drive. Thus casually commenced the series of events which led to the greatest adventure of our lives. There is an extraordinary orderliness about life. One little thing compels another to follow it, until the ultimate happening is inevitable.

The country was beautiful. We went up through Westchester County and inland across the state line into Connecticut. Mason drove. Now and again we stopped while I took a picture and a little after one o'clock we had lunch on sandwiches and beer at a roadside stand.

I took the wheel after that and, following the mood of the moment, turned into a side road and went for some miles along it. Again I took an inviting branch road and proceeded without thought or care for direction or destination until we found ourselves bumping along parallel ruts in a single-track lane that wound in and about hedges of cat-vine and alder.

The spring sun brought out the fragrance of the leaves and flowers and we stopped the car and climbed out. I was setting up the camera in this idyllic scene when it happened: a sudden hissing roar passed from right to left overhead and I caught a glimpse of a round dark thing flashing higher and higher until it disappeared in the sky.

I turned to Mason, who was still staring with open mouth.

"What in Heaven's name was that?"

Mason stared without reply at the spot where it had vanished. Suddenly I heard him gasp. I looked up eagerly. There was an airplane descending swiftly toward us. Its motor was evidently shut off, for it made no sound. It sighed overhead not five hundred feet up and seemed to be aiming for the ground just beyond the hedgerow on our right. We had a brief view of it, and strange enough it seemed. The wings were unusually short and stubby. The fuselage was enormous in proportion—perhaps fifty feet across and as much long. It was shaped like a cylinder and was dull silver in color. There did not seem to be any landing wheels.

"Come on!" Mason burst excitedly through the hedge and disappeared from view. I followed, tearing my clothes on the thorns of the cat-vine, but thinking nothing of it. We ran for five minutes up a slight slope of shrubs and weeds and were stopped by a stone wall. It was no ordinary Connecticut dry rubble wall, but rose twelve feet high and was well cemented. Trees made a thicket which concealed its

existence until we were within a few feet of the obstruction.

"Now what?" I panted.

"OVER it!" answered Mason and with the agility of a boy he commenced to climb a tree whose branches brushed the top of the wall. We managed to climb along these branches and reach the jagged top without mishap. But our view was not better in the least. Beyond the wall we found that the ground rose, heavily wooded. It was a scene of some charm and beauty, but our curiosity was too much aroused to permit our enjoying it.

"There doesn't seem to be anyone in sight," remarked Mason thoughtfully.

"It would be trespassing," I demurred.

"I'm going down," he announced determinedly.

And down we went, hanging by our fingers and dropping to the earth beneath. We pushed our way stealthily uphill through the woods for five minutes—like schoolboys on an apple raid. I began to realize the awkwardness of our position.

"I'm going back, Mason! Suppose we're caught here—rather embarrassing for us, don't you think? It was just an airplane, anyway."

"No airplane ever went as fast as that. I've simply got to see what it was. Come on, Bigelow! Nobody will see us. Let's go to the top of this hill at least. Perhaps we can see from there."

In a few moments we did indeed reach the top of the hill and the edge of the woods at the same time. The ground dropped away before us in a slope perhaps a half mile long. Rock and grass shared this incline and at the foot a broad meadow country led the eye to wooded hills some two miles beyond. We looked down into a completely-enclosed valley.

A lake lay in the meadowland. It was some miles in length and half that in width. On the far side stood a tall building of peculiar shape. Partly pulled up on the shore lay our airplane—if it was one. Even at that distance we could make out the figures of men around it and presently a huge derrick swung out from the side of the building and the strange ship began to crawl slowly farther up the shore. We were at a loss for an explanation of anything we saw. I was just going to speak to Mason when a crisp voice startled me:

"Put them up!"

We swung around and gazed guiltily at a very large revolver. Holding it was a short, sturdy person, very red of face. He was dressed in brown knee breeches and leather leggings. A rough khaki shirt and peaked cap completed his attire. Red-faced ourselves, we put our hands in the air.

He pointed along the crest of the hill to the left. "March!" he ordered.

We obeyed. A faint path was marked through the brush and this we followed for not more than a hundred yards when the wall came again into sight. A grilled iron gate was let into it at this point. Our captor commanded us to unlatch it. We did so and passed through, whereupon he closed and locked the gate behind us.

We stood on the roadway feeling (for my own part) decidedly foolish. Our late captor eyed us phlegmatically through the grill.

"What is this place?" demanded Mason.

He received no answer and I could see his cheek flush with anger.

"Who owns it?" I queried impatiently.

"You'd best move on," said the man in brown. "I've no information to give out."

I was quite irritated. "My good man," I said firmly. "We are respectable men and have asked you civil questions. Whatever your orders may be, they do not include incivility to strangers, I am sure."

His grin made me more annoyed than ever. With a senseless desire to impress the man, I fumbled for my card case and handed a card through the gate.

"If you will be so good as to give that to your master," I requested with what I hoped was biting dignity, "and explain to him that we saw his airplane and followed its course out of natural curiosity, I will give you a dollar."

"Oh all right!" he said curtly. "Twill do you no good though."

I handed in the dollar and we walked in silence back to the car. Mason drove at a vicious pace and we soon came out upon a well-surfaced road. We found ourselves only seven miles from Silvermine, according to the signpost. Being so close to the seacoast, we kept our course along various roads leading southeast until we reached the Boston Post Road, and thence back to New York. It was evening when we reached our apartment.

"What did you give that fool your card for?" growled Mason.

"It was the proper thing to do," I answered, flushing slightly at the memory. "I wish I knew who the brute is!"

Mason grunted and proceeded to disrobe. He entered the bathroom and I heard the shower running. I was in no mood for sleep. The events of the day had somehow turned my mind back fifteen years. A great discontent possessed me. I rooted about in the bottom of my trunk and brought to light my notes on paleobotany. I turned the pages moodily, surprised to find that my work had been rather good. Some photographs of specimens were pasted in the pages of the notebook to remind me of my one summer of unalloyed joy, collecting fossil plants in Montana.

Mason came into the room clad in his bathrobe.

"Some people have all the luck," he said. "Think of owning a hidden valley in Connecticut and having nothing to do but experiment with flying machines!"

He sighed. "Do you know," he added, "I'm going to take my sabbatical year starting this summer. I'm getting bored with all this."

"Where will you go?" I asked enviously.

"I think I can get Perkins to let me in at the Mount Wilson Observatory. He's going to work on spectroscopic analyses of the planets next year. It should be fun. I've always been interested in the subject."

"Curious you should mention your astronomy! I have just been thinking about my own hobby—looking up my notes on paleobotany."

Mason nodded soberly. "What we both need is some excitement," he said.

IT was, I believe, on the next Wednesday that a series of small mysterious events commenced. I had just returned to my office after lunch when Jackson, my assistant, told me that I had had a caller during my absence.

"Said he was from the Mutual Insurance Company," offered Jackson. "Asked for you, but when I told him you were out he said it didn't matter. All he wanted was to find out if you really worked here. Matter of form, I took it. Checking up for that new policy you are taking out with his company, you know."

"But Jackson! I am not taking out an insurance policy with the Mutual or any other company!"

Jackson looked surprised.

"Must have been someone else then . . . but he seemed to be certain of your name. Stephen Bigelow, he said."

I inquired as to what sort of things he wanted to know. Apparently he had confined his questions to my business connections.

"Oh yes," added Jackson, "he asked if you kept mostly in the office or went out-of-doors a good deal. Seemed to think you were a botanist."

"What did he look like?"

But my assistant only remembered that he had been rather short and slight. "Pleasant sort of fellow, you know."

I dismissed the matter from my mind until I got back to the apartment that evening. Sam, the colored elevator boy, spoke to me.

"Dere was a man askin' about you-all here today, suh."

"What did he want, Sam?"

"Oh—jess wanted to make sure you-all lived heah, I reckon. Said he was f'um a depahment stoah, Mister Bigelow."

Mason was in the apartment when I opened the door. I told him and he was as mystified as I.

"I have no account with any department store, Mason, and I am taking out no insurance. What do you suppose is going on?"

And the next evening when I got home after work Mason informed me that our mysterious and indefatigable questioner had been up at the University asking about him! "You don't suppose," I suggested hesitantly, "that it has anything to do with my giving my name up in Connecticut Saturday?"

"Why on earth should *it*? Besides, that would be only *your name*. Why should anyone poke his nose into my affairs? I didn't leave any fool card!"

"Well, perhaps he got your name from Sam at the elevator when he called yesterday," I hazarded.

Mason smiled. "Come!" he said, brightening visibly. "Here we are saying 'perhaps' to things! Well—perhaps, then! Perhaps it's all a deep-laid plot of Italian racketeers. Tired of robbing restaurants and fruit stands, they are going to levy tribute on all salaried men! Ten percent of our income—or they bump us off in some unusual and mysterious way!"

"For Heaven's sake, Mason! Can't you be serious?"

"Perhaps you are really heir to an Earldom and the solicitors are making prudent investigations into your habits before . . ."

But I put my fingers to my ears and commenced reading a book with exaggerated concentration.

Friday night we had a visitor. Mason and I were quietly reading when the doorbell rang. I answered it and in the hall outside stood a rather tall, well-dressed man. His face was shrouded in black whiskers and a well-trimmed beard tapered to his chest.

"Does Mr. Stephen Bigelow live here?" he asked in a deep bass voice.

"I am Mr. Bigelow," I replied.

My visitor stared doubtfully in the half-light of the vestibule. "Why, I believe you are Bigelow!" he exclaimed. "Do you remember me? I'm Haworth—used to know you at Columbia."

It was my turn to stare, for his beard was a thorough disguise. Certainly there was something familiar about the man. "Come in," I invited. "I certainly remember Haworth—but I can't say as much for his beard."

"I had completely forgotten. Of course you wouldn't recognize me this way," he said apologetically as he entered. He stared a moment at my friend. "Why it is ... isn't this Mason?" he exclaimed.

"It is," I replied and they shook hands cordially. Mason had known Haworth rather better than I, and seemed to recognize him in spite of changes.

Haworth explained his presence. "Happened to be in town tonight with nothing to do. I thought I remembered that Bigelow lived in New York, so I looked him up in the phone book, found his address and dropped over. I'm staying at the Grandison just up the street a block. Fancy my finding Mason here as well," he exclaimed. "How are the mathematics?"

We talked for some time about other days. I had to explain that biology—while still my hobby—had not continued to be my sole work in the world.

"Curious that photography—a mere side line to my original life-work—should not provide me with a living, I said.

But Haworth was much interested in photography, it appeared, and nothing would do but he must see some of my pictures.

And Mason's astronomical leanings were duly recollected and his plans for a year at the observatory on Mount Wilson outlined.

"How are you on navigation, Mason?" asked Haworth suddenly.

We both looked at him in surprise. He seemed embarrassed and muttered some words into his beard.

"To tell the truth," he explained, "I am planning a trip to . . . to some out-of-the-way parts this coming year. Er . . . ah ... part of the way by air." He seemed to be choosing his words with great care. "I need a good navigator. Not only that, but a man I can trust as a traveling companion as well. I thought perhaps . . . well, if you weren't absolutely settled on going to the Coast next year ..."

His voice trailed off ineffectually.

Mason puffed quietly at his pipe.

"I don't know. What sort of a trip is it going to be?"

"Scientific exploration," replied Haworth. "As a matter of fact, I could use a naturalist, too. Particularly if he were handy with a camera." He turned to me. "It would be absolutely ideal if we could all three go along. Now if you could drop your magazine for a year, Bigelow, we could . . ."

"Just a moment, Haworth!" I interrupted. "How did you know I worked on a magazine?"

"Oh damn!" he replied. He seemed to think a minute and then shrugged his shoulders. "I might have known I couldn't carry it through. Never was any good at this sort of thing. I'll have to make a clean breast of it."

"You certainly will!" And I strode over to stand between him and the door by which he had entered.

## CHAPTER II Haworth's Proposal

HE looked at me quizzically. "Oh, it's nothing much to tell," he said. "You needn't get excited. One of my men caught you nosing around at my place last Saturday."

Mason rose excitedly. "So you're the man! What on earth kind of flying machine have you got there? Why are you so secretive about it?"

"And why have you been putting detectives upon us?" I added.

"One at a time! One at a time!" replied our visitors. "I'm not going to say just now what kind of a vessel I've been building. But I really am going on a trip in her and I am really looking for two men to go with me. Curiously enough, you two are exactly qualified—made to order for the job! That's why I came to look you over and make your acquaintance again. I see you haven't changed much since the old days—men sometimes do, you know."

"When Jones brought me your card, Bigelow, I was just on the point of writing our old professor to see if he could recommend anyone for the post. But I remembered you had been trained as a naturalist and I wrote a detective agency to look you up. As soon as I got a report from them that you were living with Mason—well, here I am."

He peered at us shrewdly. "Come, what do you say? A trip of indefinite duration. Plenty of excitement and plenty of danger, too, I must admit. But there's a chance, if we succeed, to make yourselves famous from one end of the world to the other. There will be enough new material to make a dozen scientific treatises. We won't fail for lack of capital, that I can assure you. My people left me well-off—I've more money than I can spend, as a matter of fact. But I'll spend every cent of it if need he."

"That's all very well, Haworth," I said. "But where are you going? You can't expect us to start off with you like this. Speaking for myself, at least, I should want to see your airplane and study your plans most carefully before I pretended to make any decision whatsoever."

"And so you shall," said Haworth, nodding his head decisively so that his beard raised and lowered itself on his chest. "The ship's sound enough, you'll find. And as for our destination, I would even go so far as to take your advice in the matter, Mason. What I really want to know tonight is whether, all other things being satisfactory, you would consider such an adventure? How about you?"

"Humm! X being unknown and Y not given, find their respective values!" replied Mason thoughtfully. "It's quite a pig-in-a-poke business, Haworth. But if it proves interesting—of course, I'd be interested, wouldn't I? I'd go, that is, provided Bigelow would go along too. How about it, old man?"

The whole suggestion was so unusual and irregular that I could not master a rising irritation.

"What an absurd way to propose a scientific expedition! If you mean to ask us whether we could go if we wanted to, I can only say, of course we could. Someone else could take over my work. I presume some remuneration would be provided, Haworth?"

He nodded emphatically, without speaking.

"Why don't you tell us frankly what kind of a trip you have in mind?" I burst forth. "I don't like this air

of mystery at all."

"Neither do I, Bigelow," was the surprising rejoinder. "This is no usual trip I plan. I have found it does not pay to talk about it. Some have seen fit to ridicule it and so I'm trying to keep it quiet until plans are farther along. Then too, I will have certain inventions to put through the Patent Office. I'll agree to this much, however. Sleep on it tonight. Tomorrow we'll have lunch together at the Grandison and if you can say that you are honestly interested—no more than that—I'll tell you the whole story and you can make a definite decision."

And since he gathered up his hat and cane at this point and bade us a determined good night, we had to be content with that.

Next morning I awoke early and lay quietly in bed. I felt, for some unknown reason, that I should be happy and excited about something. It was several minutes before I remembered the events of the previous evening and I was suddenly thrilled and interested. I glanced at my bedside alarm-clock and, since it read only eight o'clock, I did not rise—although I was by now thoroughly awake. Saturday morning once more, I thought, and nothing in particular to do. Our appointment with Haworth was for lunch. My thoughts went back the long vista of Saturday mornings I had spent in this apartment and the drab comfort of it seemed, for no good reason, quite unalluring. I analyzed my feelings and came to realize just how dulled and bored my senses had been for months past. I made up my mind then and there that if Haworth's proposal proved in any way a sensible one, that I should certainly accept it. What kind of a trip, I thought, would require an airplane such as we had seen last week? Possibly, it occurred to me, some very inaccessible country like . . . like the country of the Amazon, for instance. Perhaps that was where Haworth proposed exploring. I was on the point of rising to suggest this to Mason, when he appeared, yawning, in my doorway.

"Half past eight," he announced. "How do you feel about Haworth this morning?"

"What do you know about him?" I countered.

Mason frowned sleepily. "You remember him at college? Well, let's see now. You were there that night he left. Poor chap! His father was Haworth of the Haworth Silk millions. Left it all behind him when he was killed that night. Charlie Haworth was the only son. I haven't heard anything about him for years, so I don't know any more than you what he has been up to, but at college, he majored in physics and astronomy. He had some rather sound theories on general science and some fairly wild ones on political economy. Rather a steady chap, I'd say, and persistent. Obstinate, in fact. But he's a good sort and should have both the necessary brains and money to get up something real in the way of an exploring trip."

I ASKED Mason what he thought of the possibility that Haworth's goal might be the Amazon River country and we soon had an Atlas out on the table measuring distances and reckoning probable courses. By ten o'clock we sat down to breakfast half persuaded that we had guessed the purpose of the voyage. We need not be criticized for this, since there is a vast area absolutely unexplored and unattainable by ordinary means of travel.

Time dragged slowly that morning. At twelve o'clock we dressed and departed, being unable to wait longer. I found myself full of overpowering curiosity and eagerness. At the Grandison, Haworth sent down word to wait in the lobby and, fortunately for our patience, which was fast departing, he arrived a few minutes after we had received his message.

"Well?" he asked.

Mason looked at me and I nodded determinedly. "We will probably go with you," I said. "Now tell us what it's all about!"

But Haworth seemed unwilling to do this immediately and I found some of the annoyance and suspicion of last night returning to me.

"Let us have our lunch first," he demurred. "I'm hungry. We will have all the rest of the day, you know."

I cannot now recall anything that I ate that meal. Possibly I never knew. Somehow it was finished and our cigarettes were alight.

"You know, Haworth, we've guessed pretty well where you are going, anyway!"

He looked up, startled.

Mason nodded his head sagaciously. "It's the Amazon River, isn't it?"

Haworth colored slightly. His hand fingered his beard nervously. "Not exactly," he replied. "That ought to be done sometime, of course, but I am planning a more interesting trip than that by long odds."

He reached into his pocket and produced a photographic print.

"Look this over," he said, and I thought he seemed embarrassed.

Mason and I put our heads together over the photograph. It was seemingly a white ball set in a black background. The plate was foggy and the picture not a very clear one. There seemed no purpose in showing it to us.

I looked up inquiringly. "Look closely at it," urged Haworth.

And I did. The white ball was the Earth. There, faintly marked on its surface, were the continents of North and South America, slightly obscured by patches of vague grey.

"Good Lord!" exploded Mason.

"Exactly," observed Haworth and puffed a cloud of smoke contentedly toward the ceiling.

But I was just beginning to realize the implications. "Do you mean to say," I began, "that this photograph ..." Haworth held up his hand and I stopped. "That photograph was taken by me with a small Kodak two months ago."

"Then where were you?" I asked in bewilderment. "About two thousand miles above the earth!"

"Not in the ship we saw? Of course! Of course!" exclaimed Mason.

"The same. Some slight changes had been made when you saw it, but substantially the same ship," replied our host.

"But man alive!" shouted Mason, forgetting our surroundings entirely. "Then our expedition . . . is going to be . . . Great Heavens!"

"Exactly!" nodded Charles Haworth. "Great Heavens! And wherever in them we want to voyage."

We need not have been as startled as we were. After all, Professor Goddard had been writing and experimenting since 1919 on vehicles for travel in airless space. There had been much discussion of its possibilities in the daily press during 1930 and 1931. Personally I did not quite understand what it was all about, but I recollected one evening seeing posted on the notice board in the Museum of Natural History word to the effect that the American Interplanetary Society was holding a meeting. I had been slightly amazed when I had made inquiries and learned that his society had for its object the furtherance of plans for travel to other planets. But all this was insufficient to prepare me for Haworth's photograph.

Mason's clear-cut features were in profile as I turned to him. His eyes flashed eagerly and his jaw tensely clenched.

"You actually flew out that distance and returned safely?"

"My dear Mason," Haworth answered amusedly, "I did so four times."

"Why be surprised?" he continued. "Esnault-Pelterie and Herman Oberth have both published detailed scientific discussions of such a possibility. Goddard in this country has built and flown successful rocket vehicles—not to any great height, perhaps, but distance is a mere matter of proportion. I have just gone a little further along the road of discovery."

"But," I interposed, "are we then to understand that our proposed scientific expedition is to take us into space in this—this rocket, is it not?—and our goal is to be . . . ?" But Mason was on his feet and starting for the door of the restaurant.

"Come along," he called. "Hurry before this dream ends and we all wake up!"

And we left that place with the stares of the other diners following us.

Haworth had a car and chauffeur outside the Grandison, waiting. This visible sign of wealth gave me a sense of the reality of things. We headed for Connecticut, voluble and excited. But I had one major puzzle still to be solved.

"This car," I commenced doubtfully, "proceeds along the road because the wheels push it forward with great force. An airplane travels rapidly and powerfully through the atmosphere because the propeller has air to grip on. But how, may I ask, can any vehicle travel forward under power if there is nothing but



empty space about it? On what will the engines expend their thrust?"

Mason shook his head. "You stick to your photographs and be a good little naturalist, Bigelow. You don't understand physics."

"But I must understand this!"

"Very well, the principle of recoil is what propels a rocket. For every action there must be an equal and opposite action. Are you satisfied?"

"I don't know quite what you are talking about. Suppose I am in space. I want to move to the left. How shall I proceed to do so?"

Haworth interrupted. "Suppose there are two barrels in space, fastened end to end. You, Bigelow, are in one of the barrels. In the other is merely some ballast of stones. Between the two barrels is a small charge of dynamite."

I NODDED understandingly. "Now my problem is to move you to the left, eh?" I began to see light.

"The dynamite explodes. The two barrels are thrown violently apart. The ballast is thrown away to the right but the barrel which contains Mr. Stephen Bigelow is moved to the left. *Quod erat demonstrandum!*"

"That's so!" I cried. "But such an explosion would hardly be called power flight. How would you proceed after that?"

"Very simply. Instead of one barrel to throw away, I will have ten thousand. One after the other I hurl them from me, each one lending the force of its recoil to my vessel, which attains huge speeds.

"Naturally enough, I do not use real barrels—they are purely figurative. In practice the most efficient thing to throw away is the waste gaseous product of an explosion or of steady combustion. From the tail of my vessel the white hot gases pour at a speed of more than two miles a second! Is it any wonder that after a few seconds of this discharge the ship moves rapidly back in recoil from this roaring exhaust?"

"But can that produce power enough?"

"Wait until you have been deafened and thrilled by its fury!"

I had begun, at last, to understand the matter when we turned down the lane of our adventure the week before. But this time we had the main gate opened wide for us. The red-faced keeper was eyeing us phlegmatically. Haworth called him over to the side of the car.

"Jones! This is Mr. Mason and this is Mr. Bigelow. They are going to be with me for some weeks. They will help me run the *Asteroid*."

It was a small triumph, but Jones was as impassive as ever. Mason leaned past me and handed him a dollar.

"I think both Mr. Bigelow and myself should start even!" he remarked.

I caught a twinkle of amusement in Haworth's eye and we drove on. The road came suddenly around a sharp turn and we rolled to a stop before a fine Colonial mansion.

Mason and I were intent upon an instant visit to the ship. A walk of a hundred yards through a strip of woods brought us to the shore of the lake beside a most unusual building. We had seen this before from a distance. It was huge and in shape suggested an old-fashioned grain elevator, painted black. A small door gave us access to the interior and we pressed eagerly inside, Harworth following us. Now for the first time we realized the enormous proportions of the vessel we had seen. Soft and sheer she gleamed above our heads a full hundred feet or more, until her tapering nose was lost in the dusk of the hangar.

Haworth patted the metal hull affectionately. "Tried and tested," he said, "and a sweet job, by and large!" He stepped outside a moment and called for "Bill." Bill proved to be a capable-looking mechanic who came up to the door of the great shed chewing a straw and eyeing Mason and myself curiously. We were introduced.

"She's all finished, Mr. Haworth," he said, "except for fitting her into the first step. I have the new liquefying plant running now, filling the main oxygen tanks over in the cove."

Haworth turned to us. "Of course this ship here isn't nearly large enough for an extended trip at really high speeds. This is just the paying cargo, so to speak, that will fit into the nose of the actual vessel. That

will be more than eight times as large. We'll see her later on. She's completely finished and being fueled now—half a mile down the lake.

"The big ship—the 'first step' we call her—starts off into space and takes us out until her fuel is gone. Then we discard her and go the rest of the way in the *Asteroid* here. And even the *Asteroid* is only a second step. She carries a little eighty-ton vessel in her nose that will make the final stages of the return flight with us inside."

"How big is the first step, then?"

"About five thousand tons," replied Haworth, and Bill nodded confirmation.

"What fuel do you use?"

"Gasoline and liquid oxygen. You see, Bigelow, there isn't any air where we are going, so we have to take along oxygen in order to burn the fuel. And the fuel isn't exactly gasoline—there are one or two things added that make a deal of difference in results. You know how much more efficient ethyl gas is than ordinary gasoline? Well, ethyl gas isn't the end of the story by any means. We've got a fuel several times better for our purpose than pure gasoline. I'll show you the formula later on, but that is one of the things not to be made public.

"Each step is a complete ship. It has fuel tanks and pumps and a refrigerating system and an explosion chamber for burning the fuel. It has exhaust tubes and steering tubes for propelling the ship. But, of course, only the final eighty-ton vessel has a cabin or a control system. My experimental and test flights have all been made in the *Asteroid*—the second step with the little vessel in its nose. She weighs 640 tons, 80 of which are the cargo. This cargo consists of the little vessel in which is placed myself and all equipment. It costs only about \$40,000 to fuel the *Asteroid*—a two-step unit—so I have used her on all test flights to save expense."

"To save expense!"

"Yes. To fuel the entire three-step unit would cost over \$300,000," explained Haworth. "Moreover, there's no need to test the whole. If two steps work properly, then so will three. As a matter of fact, I'm all through testing. We're about ready now for the actual voyage."

"Where?" shot Mason, his eyes bright with excitement. Haworth looked at him a moment in silent approval. "Good man! That's a question you must help me decide." He consulted his watch. "It's five now. I suggest we go up to the house and have some food and spend the entire evening determining that very point. It might make some difference in construction and equipment."

## CHAPTER III Final Preparations

BUT I was unwilling to depart from the vicinity of the hangar until I had been inside the *Asteroid*. Haworth led the way up a ladder of aluminum streamlined rungs let into the hull. One by one we labored up the vertical ascent and crowded into a tiny vestibule at the top. Haworth used a key and we tumbled through a massive steel doorway into a most peculiar room. Lights were set flush with the walls in all directions. The floor was a circle some fifty feet across. The ceiling was only eight feet high, except at the sides where it extended upward for full thirty feet more. It was as though a huge metal cylinder occupied all the central part of what would otherwise have been a circular room more than thirty feet high and fifty across. In the floor, under this huge cylinder, was a hole some five feet across. Peering through this I observed another room similarly designed, but having its central space occupied by much complicated machinery and tubing.

"That is our sleeping cabin," said Haworth. "This up here is the navigation room."

"And all this?" asked Mason, pointing at the cylinder overhead.

"That is our combined pump and refrigerating plant, for liquid oxygen can only be kept under intensely low temperatures. It is placed in this cabin for the sake of availability. But the center of the room is valueless, anyway. You see, when we are under way with full speed up and the engines silent, we become a free-falling body. There is no gravity. Incidentally, it is the most sickening sensation in the

world or out of it. I know, for I have felt it.

"So I designed this ship to revolve as it travels—like a rifle bullet. The rotation causes everything to fall toward the outside—centrifugal force, you know. The faster the ship revolves, the greater is the pressure which acts as an effective substitute for gravity. But, as you can figure for yourselves, that would make these walls seem to be floors. You will find yourself in a sort of gigantic revolving squirrel cage. You can walk around it in a hundred steps and be back where you started. If you were here, Bigelow, and Mason upside down on the far wall there, you would each seem to look 'up' and see the other standing head down from the 'ceiling'!"

Mason called from the hole in the floor, through which he was peering on hands and knees: "And so this is where we sleep?"

Haworth lay down beside him. Four cots were suspended from pivoting supports, so as to always hang in a horizontal position. Interesting-looking apparatus and cabinets and lockers could be seen here and there on the walls and set into the floor.

"Food and rest department," explained Haworth. "Everything has been boiled down to the lightest possible weight, but without undue skimping. I flatter myself that there is provision for every comfort aboard. All of it is in that room."

"Books?" asked I.

"I've solved that problem with the Encyclopedia Britannica. It's out of sight behind that water tank." "Drinks?" suggested Mason.

"Of course," said Haworth. "Beer and wine take up too much room, but there are whiskey, brandy and rum. For food we have a large refrigerator and can feast on fresh meat and eggs the whole trip. But plenty of canned food is packed away, just in case it is needed."

The mention of food reminded us that we were hungry and we made our way back to the vestibule. Haworth made us wait while he shut the metal door behind us. "Test conditions," he explained. "Ever since she was finished I have kept artificial atmosphere going in her. In actual operation the outer door of this air-lock entrance would be closed as well."

"You mean that inside there we were breathing artificial air?"

"Certainly. Why do you ask?"

"Because it was fresh and pure. How long has the cabin been hermetically sealed?"

"More than twelve months. Oh, it is thoroughly tested. We shall not perish from lack of atmosphere, I promise you."

We climbed down the metal rungs. In the gloom of the hangar the vessel rose enormous—suggestive. I realized more and more what was portending and my enthusiasm mounted with every step back to Haworth's house.

After dinner we sat in a huge library and smoked and drank pre-prohibition nectar. "If we were to go to the moon," said Haworth, "we would have to wear diving-suits to walk around on the ground—because there's no atmosphere on the moon."

"Even on Mars," said Mason, "there's so little air that we would have to wear an oxygen helmet."

"Now on Venus . . ."

"But seriously," I put in. "There's more than a quarter million miles of space between us and the moon. Mars or Venus are several hundred times as far. Why not at least start with the moon? Surely that is enough of a trip! Later on, perhaps . . ."

But Haworth interrupted. "Distance makes little difference. Only the additional time involved in accomplishing it. To reach the moon, the *Asteroid* would have to travel about seven miles a second as it left our atmosphere. She would pick up that speed in the first ten minutes of travel. After that we would shut off the engines and coast along to our destination—whatever it might be. The moon would require a few days coasting—Mars would take a few months."

"Coast along for a few months!"

"Why of course!" put in Mason. "There is no air to resist the motion. Gravity grows steadily slighter and seven miles a second is just fast enough so that the pull of gravity would never stop our vessel entirely. On she would go through space, her progress getting slower and slower, but never ceasing."

I was by now nodding my agreement. Of course! The Earth itself, was she not just coasting along around the sun? She had been doing so for millions of years, making a steady eighteen miles a second. I simply had not thought of it that way.

"Now Venus," Mason was saying, "is the one planet nearest the Earth both in position and in size. It has a very dense atmosphere indeed. Its surface is completely hidden behind the clouds, which would temper the great heat of the sun, for the planet is closer to the sun than is the Earth. In all the heavens, this is the one planet, so far as we know, where it is at least possible for man to live a natural life—untrammelled by pressure suits and cumbrous aids to breathing. The moon is a barren waste. Mars—just possibly Mars might be barely habitable by a race of super-mountaineers, used to the thin air. But Venus is where we should first point our flight!"

"But," said Haworth, "there are other factors besides atmosphere. Take temperature, for instance. Some astronomers say that Venus keeps one face always toward the sun and the other always toward outer space. If that were so, then the former would be boiling hot and the latter very cold."

MASON nodded, as one who meets an expected obstacle. "The latest tests show definitely that the dark side of Venus radiates heat. Now if this dark side never turned itself to the rays of the sun it could not be in the least warm, for even a dense atmosphere could not prevent it cooling in the course of ages. Besides, if we believe the atmosphere will prove too warm, we can always land near the North or South Poles of Venus and proceed from there toward the equator until, or unless, the temperature becomes unbearable."

A great deal more was said on both sides. But we ended our evening's discussion with a toast to our determined goal.

"To Venus!"

What was more important to my peace of mind, Haworth came out frankly and simply. Omitting nothing, he told us his entire story of the conception and building of the *Asteroid*. To my mind, he presented himself as a sane and sober worker, thoroughly grounded in his subject. My own knowledge of engineering was quite insufficient to determine the practicability of our enterprise. I was forced to rely on Haworth's integrity. But by the end of that evening I had quite determined to trust my life to his obvious skill and knowledge.

This is hardly the time or place for a resume of his life. Only his extreme reticence about his affairs in public persuades me to mention the highlights in very brief fashion:

Bereft suddenly of his parents and embarrassed with unwanted millions, he had retired to his Connecticut estate and nursed his grief in solitude. He determined to continue his studies and had a superb laboratory built for his experiments. Month after month he worked methodically and patiently, making minor discoveries in several fields of knowledge. Then he evolved a theory for control of liquid fuels in rocket space ships—a subject that had, it appeared, always fascinated him. He applied his entire faculties to the problem and spared neither effort nor expense. No less than twelve very expensive models had been built and rejected, one after the other before the design for the *Asteroid* was tried.

He had endeavored to maintain as much secrecy as possible—not only from policy, but for fear of ridicule, to which he had thoughtlessly exposed himself once or twice. To this end, such workmen and technical assistants as he had needed had been carefully selected and employed to reside permanently on the estate, which was well guarded, as we had discovered on our first brief visit.

With the completion of the *Asteroid* herself, test flights (chiefly by night) had been made at low speeds, comparatively speaking. Haworth had used the lake both for starting and landing his ship, which, indeed, could not land its great tonnage safely on any other medium than water. He told us of his first trip without emotion, describing his sensations in cold medical terms and couching his language with so much quiet reserve that the enthusiasm he might justly have expressed, lodged itself in his hearers. Here was a man, I felt, whom I could trust to proceed with sanity and caution. Mason, I could sense, shared my feelings.

Whether it was the wine we drank, or the heady nature of our discussion and plans, I do not know, but I lay for hours on Haworth's guest bed, clad in his pajamas laid out for me by his valet, unable to

sleep. My head was in a whirl of excitement.

I could not help wondering, as I lay reflecting upon the happenings of the day, just why three normal human beings should be so glad of an opportunity to leave their native planet. There was no slightest question but that we were glad. I mused upon this lure of the undiscovered. What was this motive of sheer curiosity that drove men to all sorts of unexplainable actions? We had perhaps inherited it from our Simian ancestors, for it was as natural as breathing.

Why had Columbus voyaged to the Americas? Was it purely an attempt to reach the Indies, or had the divine urge driven him on? Why was Marco Polo not content with his native Venice? Why were Englishmen, though professing an overpowering love for their little island, such inveterate wanderers?

On the one hand, I reflected, a thrilling plunge into the abyss, perhaps to end in oblivion, unknown to the world; or perhaps to result in fame and glory for us all, with the fine thrill of achievement thrown in. But on the other hand: the comforts and convenience of our present life. Soft beds! An instant satisfaction of our whims through the mechanism of modern civilization! An assurance of safety! Today as I write this I cannot see but that the latter picture was the alluring one. But on that night it seemed to me the very antithesis of everything worthwhile. Drab and dull days and nights; old age slowly creeping upon me; desire and zest burning out, year by year, until the dried-up shell of the man loves life no longer. The prospect seemed quite insupportable. Change and adventure had been thrown in my path by fortunate chance. Now it was here, it seemed absolutely essential to existence.

What might be the results of our expedition, supposing it to be successful? The effect would be enormous. As Europe in the earthly sixteenth century awakened from a long sleep, and brave deeds and high adventure strutted the stage of life—so upon our return would the whole world wake to new possibilities and still wider vistas. But foremost of all was the thought that I, Stephen Bigelow was to be the naturalist on an expedition to Venus. The first studies ever made of life as it might be found on another planet! Of all the paradises which I could imagine, what could be more enticing?

Fame, success and (above all) interesting, vital, absorbing work! The risks—pshaw! For such a reward what were risks? After all, a trip to the Gobi desert or to the jungles of Africa was not without its risks. Everything worth doing entailed a hazard of some sort. I fell asleep and dreamed that I was being greeted at New York upon my return. Thousands of policemen on motorcycles escorted me up Broadway and the people all cheered and threw confetti.

The next morning was Sunday and after breakfast Mason asked for three things: an astronomical almanac, some writing materials, and a little privacy. Haworth had some business to attend to and I wandered by myself down to the lake. I followed the shore and, rounding a wooded headland, came up a scene of exceeding activity. A dozen men stood about a huge silver vessel some three hundred feet in length and more than a hundred feet in diameter. It lay in a cradle of wooden spars and frames. Behind it was a low building of brick with smoke issuing from a tall chimney. There was no noise except for a rhythmic thump and clang which issued from the building and an occasional voice calling for "Bill."

I walked around the vessel and perceived in one end a huge circular opening, evidently intended to house the *Asteroid*. The other extremity flared out in smooth flanges which were the exhaust tubes. I peered up one of these. It was about a foot in diameter. I could see only a short distance into the dark interior of the vessel.

BILL came to my side. "Isn't she a pretty job?" he asked. "We're filling her tanks with gas and liquid oxygen now. Inside her the refrigerating pumps are working away to keep the oxygen liquid, but you can't hear them out here. I'm going to test the ignition. Want to see it?"

I did, of course. Bill called to the men and everyone left the vicinity of the exhaust end of the ship. Bill took me into the brick building and walked up to a series of dials and levers against one wall.

"We have everything connected up in the workshop here. When the *Asteroid* is fitted in her, the controls will be in the navigating cabin, naturally enough. Now I'm going to give her just enough fuel to stir her slightly."

I looked out the doorway at the ship. The exhaust tubes, I noticed, all faced the lake. Suddenly a deafening roar broke out like thunder. A fierce blast of flame licked out far over the lake and then

vanished. The huge hull moved a few inches in her wooden cradle and was still again.

"Everything fine," remarked Bill in the startling silence. "But I'll have to scrape the spark points in the lower port sector. It seemed to me they lagged just a little bit."

I left them at it and walked back toward the hangar, feeling more than a little thoughtful. Haworth was in the shed when I arrived. It was lunch time, he announced, and we proceeded back to the house.

Mason was looking for us. "If we want to start this year," he said, "we had better get busy. As nearly as I can see we should plan to leave about May 26th to get the full benefit of the position of Venus in her orbit."

"But," I objected, "that leaves us only four weeks."

"Fine!" approved Haworth. "We won't have to wait so long."

Mason and I left after lunch. Haworth sent his car in with us. We reached our apartment and devoted the rest of the day and evening to our personal preparations. For myself, these consisted largely in a list of people to see and things to do in the next few days. Cameras and film, compact folding specimen boxes, a few indispensable books and instruments—all of which I already possessed. The following day I had to make arrangements about leaving the paper in charge of my quite capable assistant, Jackson. Beyond that, I reflected, there was really nothing absolutely essential.

I shall omit the ordinary detail of the next few days. On Wednesday night we packed the last of our things and left the apartment for the last time. Mason told me that he had seen his department head that Monday.

"Friedland took it all right. The term is practically through, anyway, and I've been hinting all winter that I might take next year sabbatical. But he wanted to know where I was going ..."

I nodded. The owner of my paper had been curious, as well. I had been forced to tell him outright that my destination was a secret.

"But, Mason, I did tell him this much—that on my return I hoped to have some photographs that would increase the circulation of *Lens and Bellows* more in a week than it had grown during the last ten years! What did you tell Friedland?"

"I said that traveling at thirty miles an hour it would take more than one hundred years for me to arrive; but that, if I lived, I would go there and back in less than a year!"

I laughed. "And he?"

"Threw up his hands and told me to be off!"

We went out to Connecticut that evening so as to be ready the next morning to commence preparations in earnest. Mason was already at breakfast when I went down stairs after a good sleep. He hurried his meal and rushed off to the library. There was, he said, an enormous amount of calculating to be done before we would know where to aim for and when.

"If we can be ready by the 26th of May I can save a great deal of calculating, for it happens that Bisset and Schwartz took that particular date in their book for figuring the relative positions of Venus and Earth. It will save me several solid days of work, and I will need the saving."

As a matter of fact, we saw little or nothing of him from that time on. He had ordered three calculating machines and Haworth had hired him a small staff of assistants. The library hummed with activity. They even went to the length of having their noon meal brought in to them there.

I went over my equipment with Haworth and asked about weapons. He had thought of them already. He showed me the arsenal. He had decided on .32 repeating rifles firing both explosive and solid shells.

"These, plus one portable machine gun (a Lewis) for emergencies, ought to take care of us."

Then there were hatchets, knives, Colt automatics and even a store of tear-gas bombs. He glanced over my cameras and told me I would find better ones already on board. In fact, I could suggest nothing that he had not already thought of and provided for. I finally did add to the equipment certain items of specimen cases, jars of formaldehyde and a powerful and compact microscope. Haworth weighed this in his hand reflectively, but handed it back without comment.

Armed with a detailed plan of the control cabin, I prowled about in the nose of the *Asteroid* marveling at the completeness and quality of her fittings. I spent several days familiarizing myself with everything.

Then Haworth decided the *Asteroid* was several hundred pounds overweight and we spent a hectic two days cutting down on the equipment. My microscope went into the discard with other things. Chiefly these were spare space suits. He left just one suit for each of us. They were much like diving suits, having a metal helmet and heavy rubber body designed to be pumped full of air at fifteen pounds per square inch pressure. They would be essential should we have to leave the ship when she was not in suitable atmosphere—either on earth or on Venus. And when on Venus they might be needed, for, while there is a dense atmosphere, yet it might prove poisonous.

The last week, the oxygen fuel pumps were put in operation to replenish the *Asteroid's* tanks. A small mountain of gas cylinders was brought in trucks for this purpose and piled outside the shed. Then the water tank had to be filled with fresh water and the air conditioning apparatus tested and refilled with new chemicals. The third step, down the shore of the lake, had been completely fueled by now and its pumps seemed to be keeping the oxygen liquid without too much loss. The next problem was to launch it and fit the *Asteroid* in the hole designed to accommodate her—ready for the final flight.

But, as Haworth pointed out, if we wanted to make a final test flight of the *Asteroid*, we would have to do it before she was fitted to the third step. Mason, when routed out from his figuring, said he didn't care about a test—he would trust all that to Haworth. But Haworth insisted.

"Suppose something happened to me, old man," he argued. "You must know every control on the ship—you particularly, for Bigelow here is not mechanically-minded."

Mason gave in at that. Another twenty-four hours, he said, and his figures would be finished. That would still give us two days before the staring hour. He plunged back into the clatter and count of his computers.

## CHAPTER IV "On to Venus"

THE test was on May 24th—a fine clear day. As we walked over to the hangar I drew in deep lungfuls of air and threw my head back. It was one of those days when a few clouds drift like cotton wool in a smiling sky. But the sky had a new meaning for me now and the clouds were intimate things we should soon meet and pass. Haworth climbed at once up the ladder and out of sight, but Mason and myself walked around the *Asteroid* in the gloom of the shed and I saw Mason put out his hand and pat the cool metal hull as if to reassure himself. Then we went up, Mason first, and into the air-lock.

Haworth was below in the living cabin. He called up to us: "Hurry along, you chaps! We start right away.

"But how can we start from the shed here?" I asked, peering over the edge of the hole at him.

"Top swings back. Bill's tending to that now. Come on down—but seal up that air-lock first."

Mason shut the vestibule door and turned the long handle that sealed it hermetically. We climbed down and got into the swinging cots with some difficulty, aided near the end of our climb by Haworth's pointing out that there were rungs on the water tank.

"Just a moment, Haworth," Mason said. "It's easy enough to get up in the air, but how do you land the thing?"

"We have wings. This lever here projects short stubby wings out of the side of the *Asteroid*. Didn't I show them to you? We use the wings just as an airplane does—though we have to land pretty fast, of course. But the lake's big enough. I always come down facing southeast. In case anything went wrong I could always turn on the power again and shoot over to Long Island Sound. But I haven't had to startle the natives there yet and I hope I won't have to this time."

The water tank extended along beside the three cots and on it were set three simple levers—duplicate controls—and a series of dials were visible on the hull wall to indicate altitude, direction and speed. The ship was navigable, of course, without any reference to outside observation. Indeed it would have been difficult to design a window with sufficient structural strength. I will later describe, among other apparatus, our periscope-telescope which enabled us to take observations en

route.

But we were by now strapped in our cots and Haworth's hand was on the starting lever. He looked inquiringly at us.

"There's no shock, you know. The pressure isn't very great, except at full acceleration. These cots are mainly provided in case of an upset—and for sleeping in, naturally. All set? Here goes!"

He pulled the lever and for a second nothing appeared to happen. I had a panicky feeling that the whole thing was a hoax. In that second I realized how much I actually desired to make the trip. Then the ship quivered and swayed very slightly. I was pushed down in my cot the way one is sometimes jerked back into an automobile seat when the driver suddenly steps on the gas. Only I stayed pushed down. I waited breathlessly.

Haworth's voice startled me:

"Look at the altitude dial!"

I blinked disbelievingly, for it read 2000 feet and the hand was sweeping up faster and faster as I stared. It was shaped like a clock—one hand set for feet and one for miles. Now we were two miles up! Now ten—twenty—a hundred! The air-speed indicator stood at one mile a second!

"I'm going to shut off the power," announced our pilot. "Just to show you what it feels like, I won't start the rotator for a few seconds. Hold tight now!"

The speed was almost two miles a second and the height something over two hundred miles when he pushed back the lever. Then and there I lost my breakfast. I have been down a fast toboggan slide and know what it means to "leave your stomach in the air." This was many times worse. My ears buzzed and my head swam. There was a sickening sensation of falling and I clutched my cot as hard as I could, trying to recover the sense of pressure. Presently I felt better. Not altogether right, but better. I felt light-headed and blown-up like a balloon. Haworth was apologizing profusely.

"I didn't dream it would take you that way. It just made me dizzy, not sick at all. How are you, Mason?"

"All right now," replied my friend, "but don't do that again if you value your cuticle!"

And then I noticed that the water-tank was above me—not beside me. The hull wall, with its instruments, had somehow turned into a floor. What was happening?

"Your weight is now due to centrifugal force instead of gravity," said Haworth, who saw my puzzled glance.

Mason had figured beforehand that at our speed we would have five minutes to ourselves before the ship lost its headway and would require our attention for a return to earth. I unstrapped myself and stood shakily on my feet.

Mason also looked about him and suddenly gave a great bound into the air. He struck his back against the tank overhead. While he swore loudly, I charily essayed a few steps and found myself light as a feather. I have since estimated our weight at about six earthly pounds each. On the real trip, later on, we increased this by making a faster rotation of the ship. Of course, the faster the ship spun, the greater the centrifugal force and the greater our sense of weight. So exactly, in fact, does this force imitate the observable phenomena of gravity, that it might suggest to an inquiring mind a possible clue for the solution of that enigma of nature. Is gravity really akin to magnetism after all?

We walked through into what was now the adjoining room. Haworth, who had preceded us, was staring into the periscope glass and turning knobs eagerly.

"We must be pointing away from the earth," he said.

"I can't locate her anywhere." He set in motion the ship's gyroscope and I noticed the direction pointer swing around until it pointed straight toward the nose of the ship.

"Here she is!" cried Mason, who had joined him. I came up and looked down at the glass where I saw a great rounded section of my native land. Clouds obscured much of Virginia, but I could make out Cape Cod with great detail, standing out into a Lilliputian ocean. Our landing maneuvers now occupied



our immediate attention. The speed we had acquired was less than two miles a second and to attain this we had partially exhausted the fuel contents of only one step of our ship. It had not been necessary to jettison any of the structure, as it would have been had a still higher speed been required.\* (\*I might mention that from each step protrudes a rudimentary fin from which can be pushed out short wings, one set of wings for each of the three steps in the complete ship. The projecting power is furnished by the pumps and a small wheel in the control room regulates the whole system.)

HAWORTH now projected our wings and Mason maneuvered the periscope to keep our objective in view. Gradually the picture below grew larger and finally, instead of being rounded, the landscape flattened out and the edges seemed to curl up. Details appeared in the scene beneath us and suddenly began to move sideways.

"We're flattening out," said our leader quietly. "I want you to watch the altimeter closely, Bigelow. You, Mason, get located on that periscope and keep it pointed right!" I was somehow not alarmed in the least. I stood leaning against the water tank. Haworth had to turn on the power for a moment once or twice and used the directional rockets half a dozen times. That was all. I watched the altitude indicator creep down again to a mile; to a thousand feet. Then I glanced at the periscope glass. There were the familiar Connecticut hills sweeping by at a great rate. I glanced at the air-speed indicator, which now showed two hundred miles an hour.

"Hold tight!" called Haworth and in the glass I saw suddenly at close range a gleam of water. There was a blue and white splash and my knees gave way beneath me as the ship lurched, rolled a few seconds and started turning. Then they gave way completely, for the floor turned up sideways and became the sidewall of our chamber once again. I fell heavily against the partition, now beneath me. My companions had held on and, as I scrambled to my feet, they asked anxiously if I had been hurt. Fortunately, I had not.

There was a collapsible canvas boat in the ship's supplies and we lowered this to the water's surface and Mason climbed down and got it opened out and afloat on the water. Then we all got in and he rowed us to shore.

Bill and his crew met us. "Quick trip, Mr. Haworth," he said. And I could not believe my eyes when my watch showed ten o'clock! We had been gone altogether twenty-five minutes.

That morning we rested up at the house, but in the afternoon Mason announced that our starting hour was 4:30 on the 26th and he was going to check all the figures he had time for and as often as he could. Whereupon he vanished into the library once more.

Haworth and I went down to supervise the assembly of the *Asteroid* into the first step. By the time we got there it was nearly finished. The huge step had been launched into the waters of the lake and floated low and heavy. As we watched, she settled lower still and finally disappeared beneath the surface.

"Good Lord! What is the matter?"

"Wait and see."

They were towing up the *Asteroid*. Men were working over the sunken hull and I now observed several large hose lines led from the depths up to an attending scow on which was some pumping machinery. The *Asteroid* was carefully placed just over the spot where the first step had sunk and men with air-lines extending over the water to the shore rowed about, fastening them here and there.

When all was in place, Bill stood on the scow and waved his arm twice. Slowly the *Asteroid* settled. Just before she, in turn, disappeared, she halted and began to rise slowly.

Haworth and I had taken a small boat and rowed out to the scene of activities. The work was stopped while he made an inspection. Finally he approved of everything and the air was once more forced into containers in the step below the water. I now perceived the intent of the operations and admired it hugely. In half an hour the step had risen above the surface. Half-swallowed in her bow cavity was the *Asteroid*. The complete three-step space ship floated on the water, ready for the final fueling.

Haworth had calculated it would be easier to fuel the vessel on the lake, rather than tow her to shore again. The first step and the third step were already fully loaded with gas and liquid oxygen and there

remained only the second step, which we had nearly exhausted of fuel in making our test trip. We departed, leaving this final work in charge of the men. Half a dozen scows loaded with oxygen cylinders and an emergency liquefying refrigerator were busily at work by the time we had rowed to shore and turned to give the vessel a departing glance.

This work continued on the 25th. That day seemed made up of a thousand hours, each hour some years in length! Haworth was busy with a man who had come out from the city. Making his will, I presumed, though he never told me. I could not tear myself away from the vessel and sat by the hour watching Bill make the final arrangements. The men were all leaving that morning, he said.

"Mr. Haworth thinks it just as well to have no witnesses, I guess."

"But don't they know where we are going?"

"No," said Bill, "and probably wouldn't care if they did."

"But you will see us off?"

Bill flushed slightly. He nodded in silence. Finally he spoke.

"I'm married."

He stared unseeingly across the lake.

"If I weren't . . . but I am, and that's that!"

I could not help reflecting that Haworth carried the secrecy of the thing to almost unnecessary lengths. Was he planning to tell no one of our expedition until our return?

Evening came at last and the three of us dined soberly enough and smoked in sober meditation for a few hours before turning in.

"Are you both sure you have no friends or relatives you wish notified in case we . . . don't return?"

"I have an aunt," said Mason. "But I don't know her address."

Haworth laughed affectedly.

We shook hands as we parted for the night.

I HAD a wretched sleep. I thought of all the things that I might have happened to us the day before. We had been too lucky for words, that was all! The least thing wrong, and it would have been all over with us. And suppose we had been landing on Venus—dense fog; no way of telling how close to land we were; no assurance that there was any water to come down on! And on the trip, just suppose we hit one fair-sized meteorite traveling at cosmic speed! I thought of how a bullet made of paper had been shot through a sheet of tin by some experimenter years ago. We would be the sheet of tin!

Only the thought of ridicule stopped me from backing out altogether the next morning. Mason afterwards confessed that it was much the same with him. He had calculated all night our chances of a successful return and, what with a nightmare or two to affect his figures, the answer came out exactly 480,972,635 chances to 1! Haworth apparently slept like a log.

I was not in too great a hurry that morning, I fear. Haworth kept trying to make me move faster but I took my time. We were really all ready by three in the afternoon, but I kept "forgetting" things we would be sure to need. The last time I thought of cards and a cribbage board. I'm glad I thought of them, but he said it was the last straw and dragged me down to the boat where Mason was sitting, staring silently at the water. We rowed out to the vessel and Haworth and I climbed up the ladder, leaving Mason to fold up the boat. When we got to the air-lock we heard a cry from below and looked down.

Mason had fallen into the lake and was climbing up the rungs dripping water and swearing. So we pulled the boat up as it was and folded it together in the vestibule, while Mason stamped around shedding wet clothes and climbed around down in the living cabin, trying to find dry ones.

It was a few minutes past four when we were all in our cots. Our calculations had been arranged for a start at exactly four-thirty, so we had to wait twenty minutes. I had to fight myself hard every one of the twenty to keep myself from unstrapping my legs and getting down that ladder to solid earth again. It was warm in the cabin, but not warm enough to account for the perspiration that poured over me!

"Ready!" said Haworth warningly.

And then for a certainty I knew I could not stick it out. But as I started to get up on one elbow and had opened my mouth, in fact, to call to Haworth, he pulled the lever. I was forced back against the cot.

We had started!

Our course, once calculated, was very simple to follow. Given an exact starting time, all that was necessary at first was to aim straight for a definite portion of the skies. We aimed for the star Kappa in Leo. It was Mason's job to keep the periscope glass focussed on this point exactly at the start. Every second of travel he had to veer away from it by fifteen seconds of arc, to allow for the rotation of the earth. All other factors were taken into consideration when fixing the original aiming point. Haworth kept the ship lined up with the periscope direction indicator. I did what Haworth told me from time to time. As all our instruments—and controls, even the periscope glass, were duplicated in our living quarters, all this could easily be done from our cots.

For eight minutes we lay there. Every little while Mason would exclaim "There she goes!" and twist frantically at his controls.

"North declination two minutes of arc!" Haworth called out.

"Then it would be "East by north a second!" and once it was "four minutes south! Quick! Five!—ah, there she comes!" while Mason swore and twisted away. Then abruptly Haworth pushed up the power lever and pulled it back again.

"There goes the first step!" he said grimly.

So far the power flight had been made almost in silence. But when the first step was dropped away, the steady pressure we felt became realized in its terrific, powerful force, for the sound of the exhaust suddenly increased to very audible proportions. It filled me with its message of vast, blasting power. When it, in turn, suddenly ceased, I glanced at Haworth in surprise. He was advancing the rotating lever and I scarcely felt the dizziness. Our cots swung around at ninety degrees and the walls became our floor once more.

"That's that!" I said and forced a painful smile. "You don't have to watch that periscope any longer," said he to Mason. Power's off, you know."

Mason sat up in his cot frowning slightly.

"It doesn't seem right," he objected, "to be hurtling through space at seven miles a second without anyone looking to see where we're going!"

Haworth laughed, his black whiskers framing a jovial cavern. A great load seemed lifted from his mind.

"No power, no steering. We have already steered her! Now we are coasting to a stop. We'll coast for about three months, and there's only one thing we can do about it. Can any bright child tell me what that is?"

But I thought I knew the answer to that, and I was first at the liquor closet. Whiskey straight, and we all needed it!

How calmly they take it, you exclaim. Well, I don't know about Mason and Haworth but, speaking for myself, the above account leaves out a great deal. To be frank, I was so nervous and alarmed during the start that I scarcely felt my discomfort. After a minute or two the steady pressure affected my thoughts to the complete exclusion of other feeling. I found it difficult to draw breath, due, I suppose, to the increased weight of my body, which during power flight was some four times as heavy as its normal one hundred and eighty pounds. My eyelids were almost too heavy to support themselves and I noticed that Mason and Haworth were both peering at their instruments through half-closed lids.

While the throb and sound of power held the ship there was nothing absolutely terrifying or strange about it all. That sensation came when the rocket motors were shut off. The stillness was like a blow. I stood beside my cot and contemplated the dials before me. The altitudinometer was no longer working, for we had left the atmosphere of the earth! Its dial had marked only as high as 250 miles and there it remained, although I knew we must be thousands of miles away from our native land by this time.

The speedometer (indicating the speed of air past our hull) had of course dropped to zero, for there was no longer any air to rush past us. Mason and Haworth had gone into the pump-room and were busy checking our course with Mason's careful figures. I was alone in the cabin. A sudden panic came upon me as I realized our position. We were lost in absolute space. I realized that now there could be no turning back. Our departure was final. We must go on to Venus—a strange and perhaps terrible

adventure.

## CHAPTER V

### Tense Moments

THEN the whine of the ventilator fan broke the silence.

One of my companions must have turned it on to set the atmospheric conditioner in operation. This droning monotony remained with us for the next three months. It frequently affected our nerves, yet we all agreed that it was preferable to the absolute silence that otherwise would have pervaded our vessel.

It changed my train of thought entirely (possibly the stimulant I had just taken helped) and I realized once more the thrill of adventure. I had not felt this so strongly since Haworth's first announcement of the purpose of his expedition. I remember saying to myself: "Why, you stupid oaf, you're going to Venus!" And a new exhilaration came upon me and carried me into the next room to join my companions. I wanted all of a sudden to see where we were; to look out on the illimitable space in which we traveled—to gaze longingly at our shining goal and look back exultantly at the work-a-day world we had left!

I rushed over to the glass to peer into the periscope. It magnified some twenty diameters and happened to be pointed into a starry region which included a small section of the Milky Way. Never with earthly language can I describe what it looked like. The stars were smaller than we see them from the Earth, for they were not magnified by two hundred miles of atmosphere. But their brightness was increased a thousand-fold. Like jewels on black velvet they lay, each one a pin-point of blinding brilliance. And so thick and deep did they carpet the cosmos as to draw a gasp of delight from me.

I knew how to turn the ship and periscope from watching Haworth on the test flight and I spent a solid hour then and there bringing sight after sight into view. One of the first things I looked for was in Orion—the dark "horsehead" nebula near Zeta of that constellation. But I found it appeared not very different from photographs I had seen on earth. My vision was clearer, of course, and I could see without any doubt that the dark spot was no "hole in space", but a real- opaque object from behind which light of distant stars streamed revealingly. I called Mason over to watch it with me and he did so, withdrawing from the instrument at last with visible emotion.

But the sight of the receding Earth was of the greatest beauty and interest to me. It was as if my heart-strings were attached to it and almost seemed to snap with the strain of separation. Tears came to my eyes. The globe was almost fully illuminated by the sun and both North and South America lay in full view. In fact not all the surface could be seen in the field of the instrument at once—although this was quite possible a day or two later.

"Well," said Haworth, munching a biscuit and sipping a glass of whiskey soda. "They will be just about getting the news at the Associated Press offices by now."

At this surprising announcement both Mason and myself turned to stare at our leader.

He had the grace to blush.

"No use keeping the secret once we've started," he added in explanation. "Let 'em laugh if they can now! We're in space!"

"What did you do?"

"Sent the Associated Press a dozen pictures of the *Asteroid* with a brief scientific description and a signed statement of the purpose of our voyage."

"Good Lord!"

"But then, down there . . .!"

I turned again to the glass, as if at that distance I could detect the streets a New York as the newspapers poured out wet from the presses with headlines four inches high. I tried to visualize Chicago's Loop with office workers pouring out that evening to greet the astounding news. But in the glass the Great Lakes were dark blobs on a misty globe and Chicago with its millions an infinitely microscopic phenomenon.

Mason was frowning thoughtfully. "They'll call us madmen, of course."

Then he smiled. "And so we are!"

"When—or if—we get back," said Haworth quietly, "there will be considerable to say on that subject!"

We were wildly excited, all of us—although Haworth did not show it. Mason was like a small boy and full of spirits. I was little better. It was new and strange to have the center of the cabins always "up" and the outside universe in every direction always seem "down." In the pump-room at the partition (formerly the floor at the entrance) there was an eight-foot alley clear of overhead obstruction. One could look up full fifty feet to the ship's hull above. Mason liked this spot. He would run violently "up" the floor until he stood on what seemed to me the "ceiling" and looked down at me, grinning.

"I'm an anthropogus whose head doth grow between his shoulders," he called. "And you're another!"

Then he leaped violently "down" at me and, weighing about six pounds, as I have said, passed the intervening center of gravity and landed laughingly with both arms around my neck, to save himself from falling to the floor.

We even tried a sort of spatial leap-frog. But this did not turn out to be a success. Mason made a wild leap and struck his head hard against the pump tanks, falling "heavily" to the floor. He was unconscious for ten minutes and only the head of a mathematician, as I pointed out, saved him to posterity. That episode occurred, as it happened, in the first hour of free-falling flight. It sobered us considerably. I suggested we give the ship a greater speed of rotation, in order to increase the gravity and, upon Haworth's agreeing, I turned it on until our spring pound-scale registered seven ounces. At that speed the centrifugal force was almost half as strong as gravity is on earth. My head seemed at once clearer and my body began to feel as if it belonged to me after all.

Haworth had done us rather well in the eating line. There was an electric stove for cooking and we had a large refrigerator full of hundreds of pounds of fresh meat and vegetables. We ate broiled steak and onions our first meal—well washed down, you may be sure. And, as Haworth mentioned proudly, "not a sniff of onion in the ship's sacred air!" (\*He had a clever arrangement for locking everything inside an air-tight mica box. Back of the stove was a square door the exact size of this stove-cover. It was an air-lock leading to the outside of the hull and was for the disposal of garbage—solid, liquid or gaseous. As outside, due to our centrifugal force, was always "down," it was simple to operate, although Mason assured us that offal would follow us through space and when we landed we had better carry umbrellas until the vademeeum shower had finished!)

I have promised to describe several other pieces of apparatus and perhaps, while I am in a descriptive mood, I might well do so here. First, our periscope. Up in the nose of the ship is a thick glass lens set in a metal ring whose position is changeable at will from the dials on the periscope glass in the cabin below. Through a simple system of angle lenses, the light rays are brought down a tube, magnified, and led by mirrors to the two observation glasses. The range of observation, or rather the angle of vision, is about 45 degrees in any direction from the line in which the vessel's nose is pointing.

During free-falling flight in space, when it is necessary to keep the ship in rotation, the image seems also to rotate in the periscope glass. But a star at that distance is so minute this does not matter for directional observations. And Haworth had arranged for this when he designed the *Asteroid*. The whole system of lenses occupied the exact center line of the vessel and could be rotated automatically to balance this effect. Occasionally the automatic device did not function in exact time and the image would wobble and blur in the glass, but usually the visibility was satisfactory in the extreme.

When in the atmosphere of the Earth (or of Venus) the wings are protruded and terrestrial gravity is felt. Rotation is then, of course, stopped altogether. And at such times—landing or taking off—when accurate, reliable vision is required, it is present, for the lens-tribe is then stationary.

I was puzzled at first to determine how to make observations of the Earth we were leaving. I wanted some photographs. But Haworth, when asked said: "Why not turn the ship's nose back toward the Earth?"

"But we are going to Venus!"

"Well? We don't have to go nose first, do we?"

And he solved the problem very simply by turning the gyroscope control until the receding earth came into view and I got some fine pictures. It is really remarkable how clearly the pictures came out in spite of the many thicknesses of glass intervening between the camera and the object. I attribute this to the crystal-clear space in which we fell—end-first, as it happened!

FALLING! That reminds me of my first sleep on board. It is singular how little sleep one needs in space. This is due, possibly, to the lessened weight. I had four meals before I felt in the least sleepy. (There is no night or day, as you can see for yourself if you think about it). I went to bed and dreamed of falling. Hours and hours I fell. In between these times I wakened and thought of things. I thought of the fallen angel in Milton's poem who fell, twisting and turning in space, for seven days and nights. I could not help thinking how ill I should have been under his circumstances! And then I wondered whether he carried any food or air with him and realized that I must be half asleep to think of such a silly idea. I dreamed some more and woke again.

I thought of Jack London's story about primitive man's racial fear of falling from trees. I wondered if some future super-human would retain in his race heritage this super-fear of cosmic falling.

We had agreed to stand six-hour watches (although there was no real necessity) and I stood five watches in a row before I dared go to sleep again. But when I did finally climb into my cot once more I slept the sleep of one who has mastered space travel. I slept for twenty, solid, blessed hours.

But to finish my descriptions: Air is supplied from the oxygen fuel tanks as we need it. It is purified by a small air-conditioner in the pump-room that sucks it in and spews it out to the tune of a monotonous whine from a wire-caged fan. Heat we have in plenty. One side of the vessel is always exposed to the fierce rays of the sun and we must depend upon pure radiation from the dark side to counteract it. Usually we were uncomfortably warm. Haworth had to keep an auxiliary refrigerator turned on most of the time to get any comfort in the cabins.

Fortunately, all this had been foreseen and, as the total power required to operate refrigerators, electric dynamo for lights and fan and the cooking stove combined was insignificant compared to one second of power flight, there was nothing to worry about. Haworth had figured a fifty per cent safety margin in estimating fuel requirements.

Well, I seem to have covered nearly everything. Oh yes! No baths! We had plenty of water later on, due to our fifty per cent reserve, and could wash our faces and hands as we liked. But at the start we were conserving all we could, and mighty grimy and filthy we were, too, before we had been a month out. At least Mason and Haworth were—fortunately I couldn't see myself. Haworth particularly, with his crop of jet black whiskers, looked uncomely. Mason and myself were (at least nominally) shaven.

And now comes the one part of the voyage best glossed over. Three months! I wonder if any of you have spent three months in two rooms? Not even putting your head out of a window, mind! It gets tiresome, I can tell you. For the first week or two we were busy enough, Mason in calculating our course all over again and then in calculating our return based upon a two weeks' stay on Venus. After that he calculated sundry things. The most admired was a computation of our chances of being hit by a meteorite. It came out well into the millions. I may say here in regard to this pet bug-a-boo of critics of space travel that we sighted one meteor during our entire trip. It broke up our cribbage tournament for two hours.

"Come quick!" Haworth called from the periscope. "Something out there towards Vega."

We crowded around the glass and watched a black dot grow rapidly larger. It passed within perhaps ten miles of us, we guessed. And if that guess were accurate, it would have been about two-and-twenty feet through.

I, on my part, spent the first ten days busily with my camera. As official camera-man on the ship, I took the Earth about once an hour, I believe, except while I was sleeping. I photographed Mars, Venus, Saturn and Jupiter and would have got Pluto, the outermost planet, but we couldn't locate it in the glass. Oh yes! Mason figured on that too. Took him two days and I aimed exactly where he pointed but could not see a sign of Pluto. I snapped several films in the general direction, however, and it may turn out on

the plates when they can be subjected to careful study. Then to further lengthen my labors, all the films had to be developed and prints made.

Haworth kept busy climbing about the pumps and machinery. No matter how often he had checked a gadget, he seemed always to enjoy doing it once again, "to make sure."

But after the first two weeks photography palled. We were getting so far away from the Earth that there seemed little use in further pictures of the bright little globe—less than half as large as the moon appears on earth. I had taken all the other subjects I could think of.

Mason had made a final calculation bearing on the probable percentage of error in his other calculations! The three of us gravitated mutually toward the cribbage board.

We started a tournament at ten cents a game. About all I remember of the next two months was the fact that I was seventy-six games ahead of Mason and twenty ahead of Haworth. Haworth, in turn, had thirty-seven games more than Mason. That made me champion and I believe I was prouder of that fact than I should have been.

While two of us were playing, the other one would read the Encyclopedia Britannica and it is amusing to note the things one can find in that mine of information. When anyone came across an interesting statement, he would read it aloud to the others.

"Did you know that the Malay race is distinct from the whites, yellows and blacks?" calls Mason. "I always thought they were almost the same as the Chinese, only brown."

And from the next room came the subdued sounds of Haworth snoring, for it was his rest period. There it is. Life on a rocket ship—thrilling journey to a new world!

This may not sound like a serious scientific expedition, but it must be remembered that we were absolutely helpless now to change our fate. We had to amuse ourselves or—do worse, perhaps. Men must laugh, whether on the way to the guillotine or to Venus. And when that last day comes when the freezing world circles uselessly a blackening, heatless sun and the last coal has been burned and the atmosphere freezes in a fine snowfall and the last hope is gone—then men will probably have to be amused just the same.

If, indeed, any men remain on Earth by then. Surely everything worth saving in the human race will be far away and safe on a new world, circling a younger sun! Was it for nothing that we made our expedition?

Scientific expeditions are not always amusing. And in that case trouble ensues, sooner or later. Ask any famous explorer whether he objects to a vein of humor in his men! We three were, I suppose, as nearly harmonious in our tastes and prejudices as would be possible to imagine. The importance of this fact cannot be stressed too much as the long, dull, dayless time ticked by.

HAWORTH'S genuinely interesting ideas could set us afire with enthusiasm and Mason's droll manner and absurd wit, time and again, provoked us to abandoned laughter. I recollect one bad moment only.

Mason had made some amusing remark at which I laughed. Haworth, however, merely frowned impatiently. I could see Mason's cheek grow red as he turned away and sat himself down moodily with a volume of the Encyclopedia. This might have developed trouble then and there, but was interrupted violently by Haworth's discovery of the meteor, mentioned previously.

But we all of us seemed to act and talk unnaturally. A definite sense of nervous strain weighed upon us. I remember how irritated I was because Haworth kept poking about in the living cabin—checking and again checking supplies of food in the refrigerator and testing and examining the cooking apparatus.

Mason was still sensitive in his bearing toward Haworth and when the latter called out to him and asked if he would "hand him the food chart", Mason did not seem to hear. After a minute Haworth came into the pump room where we were sitting and got the chart himself.

"Getting deaf?" he remarked rather bitterly.

And Mason rose and turned his chair about so as to face away from him. There he sat in sullen silence. Haworth had paused at Mason's action. His face grew almost as black as his beard.

"Will you be so decent as to speak when you're spoken to?" he demanded.

Mason was silent.

"Damn you, Mason!" shouted Haworth, reaching out an arm and seizing the other's shoulder. "Who do you think you are?"

Mason leaped to his feet, tearing loose from Haworth's grasp. He whirled, his eyes blazing. I had seen Mason angry once or twice before and at such times he is usually inarticulate and sullen. He was so now, and stood speechless, glaring at Haworth.

I was aghast. But I was determined to let the thing develop no further. I strode between them.

"The man that says another word is going to be sorry," I announced firmly, "For I'll knock him down!"

I was determined to do so, too. I was physically more than a match for either one of them, as they well knew, but whether this affected the course of events or whether common sense came to them both at the same time, I do not know. Haworth strode off into the next room without a word and Mason sat in his chair once more and appeared to have resumed his reading.

I could feel the skin tighten over my cheek-bones. I felt badly about the quarrel and more than a little irritated at my companions. I wandered over to the air conditioner dials and studied them unseeingly for fully five minutes, thinking deeply. Then I found myself examining them with casual interest.

The thermometer read 72 degrees Fahrenheit. A sort of barometer recorded absolute air pressure; another dial indicated the moisture content of the air in our cabin; and a fourth showed the electric potential.

I stared at this latter dial in some surprise, for its needle had moved around to the very limit of its ability and, as I recollected, it was supposed to show only a slight elevation above zero.\* (\*Haworth had a most ingenious device for controlling this factor of electric potential. A series of large vacuum tubes emitted free electrons, either into the air of our cabins or into outer space, as the necessity might be. This was not automatically controlled, since we had absolutely no knowledge of probable conditions previous to our actual flight.)

Hastily I turned on the power and watched the dial, expecting to see it record an instant lessening of the undesirable effect. But no apparent change was visible for more than half an hour, when I perceived that the needle had withdrawn very slightly.

After a moment's hesitation, I called Haworth's attention to this phenomenon. He came over and looked at the dial in silence a full minute. Then he began to laugh. The needle had dropped quite perceptibly by this time and Haworth's laughter seemed a signal for the tension of my skin to loosen. It cleared the air, so to speak. Mason looked up doubtfully and, evidently embarrassed by his former conduct, did not speak. But Haworth strode over to him.

"Sorry," he said. "It's not anybody's fault, old man. The sun has been pouring free electrons into us for days and we have been building up a terrific electric potential. If we were on the earth now, you would see as fine an electric discharge leave this ship as ever left a thunder-cloud!"

It was good to see Mason and Haworth sane once more.

I must say here that our vacuum tubes were not quite powerful enough. We never attained the proper conditions on our whole trip and a certain nervous tension was always present. Fortunately it was slight.

## **CHAPTER VI**

### **Land at Last!**

ABOUT the middle of August, or 77 by the ship's clock (77 days after May 26th that is) we began to get actively interested in Venus. Mason started it by noticing that you could see a little detail in the periscope. I observed it eagerly—a cloudy, muddled kind of a circle two inches across in the glass.

Mason claimed he could see beautiful women in the white cloud mass. After looking for five minutes in mock interest, I suggested you could see anything if you stared until you got spots on your eyes!

But after a few hours Haworth, who had been busy himself at the other periscope glass, straightened up and announced that we were falling at about five miles a second straight onto Venus.



"I've measured the change in degrees of arc subtended by the planet on the glass," he said. "I think you had better check my figures, Mason. I don't think we will have to worry about reducing speed—but we have to do more than *think* on that subject. We must know!"

Actual navigation on a pre-figured course in space is not as complicated as it might seem at first glance. The advance figuring of the course is difficult, true, but once in space it is merely a matter of keeping on it. On a permanent chart of the fixed stars are traced the positions of the planets at various arbitrary periods. If the planet does not show in the periscope against the pattern of stars precisely where it should, then you are off your course.

It is immediately apparent how far you err and in which direction.

The remaining dimension depending as it does upon whether your speed is too great or too little must be checked by the apparent diameter of the planet you approach. If, at a given minute, it is too small, then your speed has been insufficient and you must apply power at once. Conversely, if it is too large at a calculated moment then you have been going too fast and must turn your ship end to and apply power to retard your speed. So far our course had been so nearly proper as to warrant practically no manipulation. But our close approach to Venus made it imperative to be more accurate than we had been as to our speed and probable time of arrival. We were slightly behind schedule and five or ten seconds of power was required to overcome this.

It took us ten days to fall.

That was undoubtedly the worst time on the whole trip—that falling. You see, the constant strain was there; and yet beyond calculating our speed every few hours, nothing could be done about it. We would try to read or play cards in the slack moments, but there was always that distracting thought that we were actually falling at great speed to the surface of a new and perhaps inhospitable world. I couldn't sleep more than a few hours at a time.

Venus was by now a glorious sight. Sheer white she gleamed and seemed so near in the periscope that one could almost reach out and seize her. She was in half-phase and the terminator line between light and darkness was pure mother-of-pearl. Soft greens and blues tinged the white side and a royal purple edged the line of night.

One or another of us was constantly at the instrument now, searching eagerly for any signs of a break in the dense cloudy veil. But in vain. We thought, however, that we could detect a definite motion, as though the whole globe were turning before our eyes. Mason became very excited over this and made several calculations. He finally announced that the probable length of the day on Venus was sixty hours.

"Thirty hours solid sleep o' nights, Haworth!"

"I suppose they are agitating for the twenty-hour day down there!"

Of course, we thought of Venus as being "down." We were falling onto her surface, you see. Now and again we realized the speed and vehemence of that falling. I, for one, always stopped looking in the periscope when that feeling came on me. I would pick up a book or get somebody to play cribbage with me, for the thought was not a comforting one!

We went over our apparatus a dozen times every twenty-four hours, I suppose. I know I looked over the guns that often. I got to thinking how many things might happen if we did get safely down on Venus. No telling what sort of beasts might be there. Perhaps there might even be some sort of men or other kind of reasoning being.

We had three Remington repeaters for 32-calibre shells; three Colt automatics using the same sized cartridge; and a demountable machine gun for the same ammunition. There were three double bandoliers, each carrying 200 cartridges. That meant six hundred rounds of hot lead for the "welcoming committee," if any. And there was plenty in reserve in the lockers.

Even ten days must pass if you wait long enough, as the Irishman said. But though we haunted that periscope glass the whole time we could not make out one single detail of the planet below us nor could we see a single thing except white and gray clouds. Venus was now a huge disk filling half the heavens.

It was 23:40—89 when Mason called out suddenly from the glass:

"Come here quickly! We're almost in the clouds!"

Haworth happened to be in his cot in the other cabin and he leaned over to the duplicate glass beside

him and stared a moment.

"Come on in, you two," he shouted. "Landing maneuvers start at once!"

We hurried through to the after cabin and climbed into our cots.

Haworth had protruded our wings in the few seconds' interval and evidently we were already in the rarer outer portions of the atmosphere, for there was a definite pressure toward the nose of the vessel that swung our cots bottoms up that way. Mason was twisting away at the periscope to keep it pointed toward the surface of Venus and Haworth was turning the rudder lever for steering in atmosphere. I glanced at the instrument board and saw that it was again functioning. We appeared to be speeding along at a height of 150 miles, parallel to the surface of the world—but at the fearful speed of six miles a second!

Haworth was quite cool.

"That does it," he said at last. "We should be all right now. We must circle the planet until we lose some of this speed. It will take perhaps seven hours to land. We have to keep wide-awake every second of that time. Mason, you manage that periscope and keep trying to see some detail. I'll handle the ship."

"And what will I do?"

"Well," put in Mason, smiling but grim-lipped. "What do you think you ought to do about it?"

So I climbed down to the locker and got out drinks for them both.

"She's flying away a bit," I warned Haworth after glancing at the altitudinometer, which now read 175 miles and was slowly climbing.

"I've caught it already. I'm depressing all the wing surfaces to hold her in the atmosphere."

THE dial started to move down again until it reached 120, where it stopped. Then for an hour there was little change. Slowly the altitude dropped and the airspeed indicator with it, as the outside air friction on our hull slowly reduced our speed.

"Free orbit," said Haworth, and he turned the elevator controls the other way. "Now we are navigating just the same as an airplane. Our speed will gradually reduce itself until the wings are required to keep us from falling. From then on it will be simple—merely glide down as slowly as we can and land on the surface."

The next few hours were monotonous. The periscope glass showed nothing but white swirling vapor—a world of fog. The altitude and speed slowly continued to drop.

"Seventy-five miles from the surface," I said, reading the indicator.

"That doesn't mean a thing," said Mason. "Not on Venus. Temperature, air pressure, even the gravity is changed. It was designed for the Earth's atmosphere only. Don't bother with it any more now—we're navigating by direct sight."

His eyes remained, while he spoke, riveted on the glass as if his life depended upon it.

At exactly 6:24 Mason gave an inarticulate cry. I leaned over and saw past his shoulder the glass of the periscope. Sure enough, something dark showed beneath the thinning vapors. Was it land or water?

"This is getting too risky," said Haworth tensely. "I'm afraid if we don't get any visibility in the next few minutes we'll have to call the visit off and put on power again for the return to Earth."

(Mason had laid out a course in case of this eventuality.)

But Mason and I had both seen something that time. About a hundred yards beneath us were the tossing billows of a black and sombre sea!

I glanced at the instruments.

"Speed 300 miles an hour," I called out.

I looked at the glass to see the water rushing up at us. There was a sudden lurch as Haworth put on our emergency retarding rockets and a great splash obscured the screen. The *Asteroid* bounced violently, jerking us roughly in our cots. Then everything seemed to turn topsy-turvy in the cabin and we swung crazily in response. The floors became walls—the walls were now floors.

Everything was still again except for a slight rolling motion of the ship as she rode the waves. We three looked at each other in an awed manner.

"We're there!" said Mason and laughed doubtfully.

My head was in a whirl of emotion—joy and curiosity uppermost. We were on Venus. Beyond the air-lock doors lay the wonders and mysteries of a strange planet.

I was first man out of his cot. I stamped my feet doubtfully, for the full gravity of Venus was pulling now—almost the same as that of Earth. After many weeks of existence at a weight of 80 pounds I now weighed 170. Mason was soon beside me and with a shout of joy fell upon the periscope glass and tried to view the new world outside. But that proved futile. Nothing but steam and spray could be seen. We had been several minutes at the glass when we looked about us and missed Haworth.

Then I saw him down at the provision closet. He had set three glasses on the locker and beside each he was methodically setting out bottles! It was an idea to be hailed with enthusiasm and Mason literally fell on his neck. We were enormously excited and the stimulant seemed to have no effect whatsoever upon us. So we continued drinking the apparently harmless fluids until ... well, speaking for myself, I don't remember when we fell asleep. We had been under severe strain for many hours; our expedition had proved entirely successful; here we were landed on the surface of Venus—all very strong mitigating circumstances, as the lawyers say.

According to the clock we slept seven hours. It seemed less than a minute when Haworth awakened us with that best of all alarm clocks—the smell of bacon and coffee. We rose and squandered some of our hoarded water in a good wash all around and sat down to our meal.

"The next thing, of course," said Haworth, "is to see if we can breathe the atmosphere outside."

I made the trip for testing samples. It meant wearing a diving suit, for we dare not expose ourselves even for an instant to what might have been poisonous gases. I had tried a suit on before leaving the earth, but I was by no means accustomed to wearing it. I felt as if I were drowning when I drew in the air contained in the helmet. (Panicky feeling, rather.) But I was so impatient to rush out that I didn't think of any discomforts this time. Mason unscrewed the inner air-lock door for me and I squeezed into the closed vestibule. The door shut tightly behind me and I opened the outer door.

Through the glass of my helmet I looked over a foggy ocean. The glass was so obscured with steam and spray that I could make out no details. I had two vacuum jars, one for air and one for water. I found it hard climbing down those rungs in my clumsy dress. I reached the surface of the water and broke the neck of the first jar beneath it, the waves licking up at me as I clung there. It certainly looked like ordinary water.

BACK in the vestibule again, I knocked off the neck of the second jar and stoppered it up with the gum Haworth had given me for that purpose. Then I was inside and getting out of the cumbrous helmet by myself—Haworth and Mason (selfish brutes!) eagerly rushing the jars to the little built-in laboratory in the pump-room.

By the time I got untangled and over to them they were talking to each other excitedly.

There passed several minutes of tense expectancy. Suddenly Mason cried out and danced madly about in a circle.

"We can breathe it!" he shouted.

"You can't exactly call it air. There's no nitrogen in it—at least so little as to be not easily detected."

He turned to Haworth excitedly. "Helium!" he explained.

Haworth paused in his own analysis and looked up interested.

"Almost three-quarters helium and the rest oxygen. But it's breathable, just the same—good, life-giving air for all purposes. I'm so certain of it that I don't believe we have to make any more tests!"

Eager as we were to look out and breathe the atmosphere of this new world, yet we waited for our leader to complete his tests on the water. Finally he straightened up, rubbing his forehead with the back of his hand.

"Something queer here. It seems to be H<sub>2</sub>O, but it's full of chlorine. Now why chlorine? Oh, of course! There's not sufficient sodium on Venus to combine with it to make salt as it did on Earth. We'll have to evaporate all water before drinking, anyway. Smelly stuff, isn't it?"

But almost before his remarks were finished he was at the door—eager as any of us. We had both air-lock doors open within ten seconds and looked out over the ocean. We breathed recklessly of the

air. The breeze was deliciously fresh, full of the taint of chlorine as it was. We could not see far at first for the swirling steam. Water in all directions—not blue or green, but black and rather depressing. The motion and sound of the waves were tremendously exhilarating after our months of utter stillness.

*They seemed undecided as to how they would take us. They cocked their heads sideways, like a dog that has been spoken to.*

"If this fog would only lift, perhaps we could see something!"

Minute after minute went by. I stared with beating heart at the seascape, such of it as we could see through the whitish vapor. It *was* another world. The feel of the air, the appearance of the waves, the smell on the breeze and even something additional (perhaps the slight increase in air pressure our instruments recorded) all bespoke the unfamiliar.

After ten minutes peering through the blinding fog Haworth cleared his throat.

"Suppose this fog never does clear!"

A wild thought and great impatience possessed me.

"But if it doesn't, then we can never see anything—never discover anything! Besides, why shouldn't it clear?"

But I realized then, deep inside of me. For centuries the astronomers on Earth had gazed at this planet and never once could they say for certain they had seen anything but clouds. We knew that. Yet we never thought of such a dense fog as this. It was hot mist—in fact, steam. Our faces were wet with water and perspiration, for it was uncomfortably warm out there, in spite of the breeze.

"Well," observed Mason, "just what were you planning to do on Venus when you did get there, Haworth?" And he smiled ruefully.

We went back inside and ate our meal. We were all of us bitterly disappointed. Our eager sense of adventurous discovery was dampened by too much fog. It was really a terrific let-down. What was to be done?

Haworth, however, had a plan as usual.

"We must find land. Perhaps the mists lessen near land. Certainly, if we can find elevated sections of country we shall be able to climb out of these vapors. We can turn on the power and away we go over the waves! A high-powered speed boat, if you understand what I mean.

"We'll cruise about until we either find land or until our two weeks are up—one or the other."

Our feelings revived considerably. Mason insisted on drinking a toast to Venus and since we had finished our meal he thought brandy appropriate. We three raised our glasses joyfully to the world of new adventure.

"After all," Mason pointed out, "we are sure to strike land soon. We'll leave the *Asteroid* and form a land expedition. On some mountainside or on a high plateau we will find ourselves in clear air and can look around upon our new domain. Think of it!"

He sat staring blindly at his glass and speaking half to himself:

"Think of it . . . Men on Venus! There she lies outside, the unknown."

He looked up at me suddenly.

"What are we doing here, wasting time? Come! Let's start," and he rose excitedly to his feet.

That was all very well. But there were other things to ascertain.

"We must find our points of the compass," I objected, "or we won't know where we are going.

For answer he brought out a pocket compass.

"Of course it may be off true north, with all the metal there is on this ship, but since there's approximately the same metal in all directions, it may be somewhere near right. There's north, over there."

BUT that did not help much. There was nothing anywhere but oceans. Mason looked out through the open air lock doors.

"Well," he said in mock seriousness, "that makes it an east wind. And sure enough, here comes the rain! We'd better shut the door."

He suited his actions to his words and, returning, sat down again.

"First we will sleep and then we start," Haworth decided.

We slept for eight hours and, upon waking, I noticed in the periscope that the light was about the same as it had been. Did it never grow dark on Venus, I wondered. I called Mason's attention to it.

"Humm! Doesn't prove anything. If the atmosphere is as dense as it seems to be there probably is never any real bright day or any absolutely dark night. I think a day is about thirty hours up here."

Subsequent observations tended to confirm his opinion. After a meal we climbed into our cots and Haworth pulled the starting lever down very gently a few notches only.

It was no motionless feeling this time. The ship bounced and jerked like any sea-borne craft and in the glass I could see the waves sweeping past, one occasionally splashing up over the lens and obscuring all vision until the water dripped off.

"Suppose we hit a rock," I suggested.

Haworth nodded and pushed back the lever a notch or two. The ship, which had been almost horizontal, straightened up until the floors and walls both sloped at a 45-degree angle to our swinging cots. The glass remained clear now, for the nose of the vessel was well above the waves. The speed indicator stood just below thirty miles an hour. We kept steadily on a course due west (if our compasses were accurate). We were proceeding on the theory that on the Earth, at least, the great continent masses ran north and south and we hoped by traveling west we would be more likely to find land.

From time to time Mason went into the vestibule and threw the lead to take a sounding. But the ocean was evidently a very deep one. We proceeded with confidence. Hour after hour went by. I relieved Mason at the glass and he spent his time calculating that at this rate we would circumnavigate the new world in something under a month. The voyage became monotonous. There was one thing settled, however: a very apparent change in the intensity of daylight was noticed by all of us, although it was not by any means real day or night as we knew them on earth. What might be called a slight lessening of the gloom occurred once in about thirty hours. That made Venus' rotation period just what Mason had suggested—sixty hours. I mourned that we had no light-measuring instruments in our supplies, with which to check up on these rough observations, but the figure may be taken as probably correct.

But day or night made very little difference to us—for the fog continually shut us in anyway. We stood watches of four hours each, two of us being always on the look out. We drove the ship for nine solid days—6,480 earthly miles by dead reckoning. Then we saw a bird.

Mason saw it, to be precise. He called to us, but it had flown out of focus and he tried in vain to find it again. I urged that we reduce our speed to the point where one of us could stand at the open vestibule and make actual observations as we proceeded.

"We may be getting near land. That bird is a sign of it."

This was agreed to, and I stood the first vestibule-watch. The first thing I did was to take our lead on the end of a long thin line and make soundings, for Mason had not done so in some hours. I found sixty feet of water!

That gave us pause, because even with our huge first step discarded in space, our total length was 110 feet and we drew about 50 of it below the surface.

"The fact is," said Mason, "that we've been absurdly lucky. We might have hit bottom any time the past week. We might have landed this ship on a hard, cold mountain peak to begin with. Let's not tempt fate any further, but take it easy for a while!"

We made a bare ten miles an hour after that, and it was two hours later that I saw a bird. But it was no such bird as I had ever seen before. There was something familiar, though, about the long jagged beak and the great membranous wings. And then I understood.

"Good God! It's a pterodactyl!"

Since we later saw several of these strange flying reptiles, I am in a position to say here that there were certain important differences between the species we observed and those once plentiful upon our own Earth in the Carboniferous Era. But essentially there could be no doubt that the relationship was

extraordinarily close. In fact, there were later observed no less than seven reptiles as well as half a hundred insects and vegetable forms of life that could unquestionably be related to current or primitive life-forms on Earth. So much so that I am confident the whole theory of the origin of life will, upon closer reasoning, be vastly expanded beyond its present scope.

This is not a scientific paper, however.

Haworth looked up at me from the pump-room controls as I announced my find. And just at that moment the ship gave a slight lurch and tipped slowly sideways. Haworth grabbed the power lever and shut off the rockets; Mason started to climb over toward me, while I clung onto the walls of the vestibule and peered out.

There was a blackness a few hundred feet ahead, showing through the surrounding clouds of steam. It could mean only one thing: We had found land!

## **CHAPTER VII**

### **Adrift in the Fog**

OUR first concern was for our vessel and we found she was in water a little less than 47 feet deep. While this was less than we required to be afloat, we were not in the least alarmed. We could, with a small fraction of our rocket power, readily free ourselves. In fact, Haworth decided to go still farther ashore. He turned on the power gingerly while we crept and careened along for another fifty feet. Here, however, the water shoaled rapidly and he shut off the rockets.

There was no question about what to do next. Our cramped quarters made us long to stretch our legs on solid earth once again. There was nothing to delay us. The collapsible boat was lowered and we climbed down into her and pulled for the dark mass of shore showing clearly now through the mist. It was distant about two hundred feet, and when we pulled up alongside it proved to be a mud-bank enormously overgrown with vegetation. Roots, branches and tree-trunks were tangled to the very edge of the water. But do not think there was any familiarity in its appearance. No friendly green leaves met the eye. All was sickly, dirty gray, and such leaves as there were seemed to be mere rudimentary spikes and fronds.

We rowed slowly along this bank, wide eyed and with beating hearts. It was not a friendly land, evidently—but it was outlandish and of exceeding interest.

It was evident from here, however, that higher ground lay to the right. We rowed about two hundred feet through the fog to a shadow which proved to be a low line of rocks which cropped out through the vegetation.

Haworth pulled the nose of our boat up to them and Mason and I leaped out. We were the first to set foot on the soil of Venus. Haworth announced that he would stand by the boat for five minutes.

"Then one of you must come back," he added, "and give me a chance."

We both carried rifles, of course. At first we could see nothing but mist and hear nothing but the splash of the waves against the rocks. These extended inland, slowly rising, as far as we could see (which was less than 100 yards) and were almost completely bare of vegetation. On both sides of this stony strip lay the steaming, impassable jungle. We took a few hesitant steps and peered about us.

Then I jumped. Something, indistinct in the swirling vapor, ran quickly across from right to left. It was about three feet in height and ran on its two hind legs. There could be no doubt that it had a tail, for this appendage had seemed to be as big as the rest of the animal put together.

We threw our rifles forward and waited expectantly.

Then in the jungle on our right commenced an enormous splashing and crackling of branches. We turned to stare an instant. We both saw something, but could not make it out at first. Then I perceived that it was an enormous neck, huge and shadowy, at the end of which was an absurdly small head.

We retreated hastily to the boat, where Haworth was anxiously endeavoring to see what had caused the noise. We had scarcely got in the boat and pushed off a few feet from shore, when a huge beast slumped out on to the rocky ledge and ponderously crossed it, disappearing into the vegetation on the

left.

The beast closely resembled the now extinct earthly species—*Dinosaur brontosaurus*. Of course there were differences. The jaws were long and narrow, almost like a beak, and the legs were longer and thicker than would be indicated by the fossil remains of the brontosaurus lizard. It was a monstrous specimen—easily a hundred feet in length.

But mere words can give no idea of the thrill of proximity to that mountain of flesh. We used the oars frantically to get the boat well away from possible danger. A thousand wild surmises coursed through my brain. First a Pterodactyl and now a dinosaur! Was all this some fantastic nightmare? Were three sane twentieth century humans really set down in some grotesque revival of the Carboniferous Era? My heart was pounding frantically and I noticed Haworth was breathing harder than usual. When the great reptile finally splashed out of sight in the gray-white tangle I breathed a sigh of relief.

"How would you like to get stepped on by that fellow?" asked Mason.

"He is probably too slow to be dangerous," I replied. "An active man could dodge him without breathing hard. And he hasn't more than a few ounces of brain in that tiny head, either. If that's the worst Venus has to show we needn't worry much!"

"The real danger on Venus," said Haworth mournfully, "is this damn' fog. I should have foreseen it! I think we had better get back to the *Asteroid* and plan out this expedition a little more."

As usual, he was right. This blinding atmosphere was the one thing we had not counted on. It was almost impossible to go anywhere or do anything. You can have no idea (unless you live in London, perhaps) what it feels like to be always unable to see even a clear hundred yards ahead. Beyond that point everything is lost in swirling mist, even when a breeze is blowing. Occasionally the fog blanket shuts down until it is hard to see two steps in any direction.

Just the few yards we had pulled up the shore had taken us completely out of sight of the ship. We found her again, all right, by dead reckoning. But as Mason pointed out:

"Supposing we had gone for a walk on shore and got out of sight of the water?"

"What we should have brought is a bloodhound," I said. "Then we could go where we please and let the dog lead us back."

We sat around our meal in the living cabin and discussed the problem. We had only four days remaining before it would be necessary to start back. And any delay, supposing we had a later course calculated (which we hadn't) made the return trip "more difficult and less desirable," as Mason put it. This was on account of the position of the two planets, Earth and Venus, in their orbits.

We had our compass for direction and our guns for protection, although they might not be much use against such a beast as we had seen. And the compass was not reliable, from having been so long in the enormous metallic hull of the *Asteroid*. Definite aberrations were noticeable in its needle.

"And besides," said Mason, "conditions may be different here as to magnetic fluctuations, even if the compass were trustworthy."

"What we might do," said Haworth thoughtfully, "is to take along a number of stakes and peg one down every hundred feet or so of our progress. Then we could find our way back by them."

One thing we all agreed upon was the desirability of making *some* sort of expedition. It would be too ridiculous to come all this distance just to see some water and a little jungle!

I was enormously excited at the significance of the beasts we had seen. What vast possibilities it all opened up! It has been suggested by some scientists that life may have arrived on earth out of space in microscopic form. A dust of microbes, perhaps—each capable of undergoing evolution. After all, Venus and Earth were sisters, born of the same sun. Why should not some forms of life grow in parallel directions on both planets? These questions so interested me that I believe I would have cheerfully tramped off into the fog by myself. Probably I should have regretted it bitterly enough if I had, as I was to learn.

OUR conference broke up with the understanding that we would get a few hours' rest and then explore along the rock ledge as far as we could, taking every precaution possible against losing our direction.

That night was the most uncomfortable I ever spent. We had been in the custom of leaving the air-lock doors open while traveling over the sea and we did not close them now. But, close to land as we were, the heat was soon unbearable. Bathed in perspiration and unable to sleep, I finally rose and climbed up to the pump-room floor (now above us almost vertically) to shut the doors. I believe the action saved our lives.

I had just turned on all the refrigerators and adjusted the oxygen feed and artificial atmosphere controls and was starting to descend to my cot when Haworth screamed. I glanced hastily down and saw him half risen in bed, battling wildly with both hands, while two bird-like things poised and darted about him. I could see even in that instant a thin trickle of blood that ran from a wound in his cheek. While I stared, I felt something brush my shoulder and, with an involuntary cry, I loosened one hand from its grip on the water-tank rungs and struck at the thing that was attacking me.

None of us had weapons to hand, since these were kept above in the pump room. Our attackers were persistent, so that it was necessary to strike them away with our bare hands. There seemed to be dozens of them. I was in an awkward position, with only one hand free, and when I felt two or three bites deep in my flesh (one just missed taking out my right eye) I was desperate.

Suddenly the attacks became slower and slower. I couldn't understand why. In an instant I found myself no longer menaced. I felt stronger, too, and breathless from the heat of the struggle as I was, I realized finally that the refrigerators must in some way have turned the trick.

Below me Mason and Haworth were having a breathing spell also. As I looked down at them I saw Haworth slump queerly in a heap on his coat.

Mason and I rushed to him and I got some water from the tank to bathe his face, for he was covered with blood and perspiration. We kept looking warily around for the bird-like things as we worked over him, but saw no signs of them.

Haworth came to his senses after a few minutes and smiled weakly at us.

"Close thing, that!"

We had first aid material in plenty and bandaged each other as well as we could. The wounds were curiously even and neat. A piece of flesh was taken out about one inch long and a quarter of that in width and depth. It was the same in every case. Haworth had one taken out of his chin—black whiskers and all. He had eight such wounds, but Mason and myself were not half as badly off. Unless we had been poisoned, they were nothing serious, we thought.

"We must find those things and kill them," said Mason fiercely, now armed with a frying pan from the kitchen cabinet.

But I would not let him start on the hunt until I had turned on the emergency refrigerator full tilt and the ship, after the stifling Venus temperature, seemed like an ice-box.

We found seven of them—helpless and motionless on the floor in the lowest corner. Evidently the cold was beyond their powers of adaptability. They were from nine to twelve inches long and probably insects. I have one specimen with me now and I expect the entomologists will have some trouble deciding its classification, for it has five segments in its body. The remarkable feature is the sharp, powerful beak. It resembles the mandibles of a turtle. Mason smashed all seven thoroughly. But the three we found on the pump-room floor above I attended to myself and, as I have said, I kept one specimen intact (but very thoroughly dosed with cyanide of potassium, you may be sure.)

We slept like logs for the next twelve hours and when I awoke my first thought was for my wounds, for I feared poisoning. They were, I was glad to find, perfectly healthy and had already started to heal.

I do not know why I should have feared poison or inoculation of harmful bacteria. I have since given some consideration to the possible bacterial life on Venus. I believe a case might be made out to the effect that harmful bacteria undergo evolution like all other forms of life. Why not? And if that be so, then primitive bacteria such as we were likely to find here might be as harmless in comparison to our modern species on Earth as a gibbon monkey throwing coconuts is, compared to a twentieth century human shooting a rifle. I offer this for what it may be worth—probably very little, for we attempted absolutely no microscopic work on Venus. I have in our collections, however, some dozen vacuum bottles filled with Venus air taken at different levels and locations. Competent scientists will have, at least, some actual data



to go on.

But Haworth was still weak and, short as our time was, we must perforce delay our exploration. As it happened, it was nearly forty-eight hours before he felt strong enough. And we felt even then that he only professed his health in order to avoid disappointing us. We wouldn't let him out for another twenty hours.

We sat in the vestibule looking over at the dark shadow that was the shore and discussing the chances of a visit from more of the "mosquitoes" (as Mason was pleased to call them). Mason and I would have made a short trip alone, but we had by this time begun to realize that only with the exercise of the utmost precaution could we hope to make any expedition successful. Haworth was our natural leader and without him we seemed bereft of confidence.

It was just thirty hours before our scheduled return when he insisted we make the venture.

"I'm perfectly all right now," he said, "and we have to act right away or probably never get the chance again."

He seemed strong enough, although his face was paler than usual, perhaps. We gathered our equipment—some food, rifles, bandoliers, two hatchets and the compasses—and Haworth followed us down the ladder, first closing the air-lock door and leaving the key in the slit.

"We might lose the key if we took it with us," he explained.

I rowed. We went as before, directly to the mud-bank and along it to the ledge of rock, where we disembarked. Mason had brought along a length of line and he tied one end to a broken piece of rock. The other end was fastened to the nose of our little boat, which he pushed strongly out from the shore, heaving the rock after it. She swung jauntily at her mooring, about twelve feet off shore.

"Just so one of your giant lizard friends doesn't step on her," he grinned at me. "We can easily get out to her at that depth."

Our compass was consulted and due north seemed to be about in the direction we had left the *Asteroid*. The opening between the jungle-swamps on either hand seemed to lead away to the east.

"First," said Haworth, "we must get some stakes to set out as we go."

He went to the edge of the rock and hacked away, Mason helping him, at some of the plants in the jungle's rim. They cut branches about four feet long and, as the wood was spongy and easily severed, the labor was inconsiderable. We soon had a dozen stakes apiece and Haworth drove the first one into a natural crack in the rocks.

Then we picked up our bundles of sticks and our rifles and proceeded eagerly into the mist. I was wildly excited. Every step might bring us into sight of something new. Most certainly it would be "unearthly!" We walked as quietly as we could, for no telling what danger might lurk around us. Eager as we were, I don't think we could have been called comfortable in our minds. From the right we could hear distant sounds of splashing and from both sides of the jungle life was audible in faint rulings and indistinct sounds.

When we had gone about a hundred yards, we fixed another stake upright with loose stones. As we moved along, the ledge of rock widened, until we could no longer see even the shadow of vegetable growth on each side. The ground sloped gently upward as we progressed. We were adrift in a sea of fog.

MASON gasped and gripped my arm tensely. He was staring to the right and following his line of vision I saw an amorphous mass loom darkly against the gray steam. We stood stock-still for a minute—scarcely breathing. Then Haworth whispered:

"It doesn't move. Let's get a little nearer."

Very cautiously we did so. It was a tree.

Vastly relieved, we approached and found three trees growing close together in a pocket of earth which lay like an oasis in this fog-bound desert of rock. They were curious trees, about fifty feet in height and clothed with foliage at the top only. The trunks were faintly suggestive of certain tropical tree-ferns I had seen in greenhouses in New York, but of course by no means the same. Every foot or so the bark ended in a curious sort of protruding knob, flattened on its upper surface. Behind each knob an inner

layer of bark continued up the trunk, to curl outward a foot higher in the same sort of thing. I put out my hand and found the projections very hard and, to my surprise, strong enough to bear my weight.

"This would be mighty convenient to climb if we meet any desperate characters!" I remarked jocularly. "Hssssh!"

Mason was holding his head in a strained listening attitude. Haworth was holding his finger to his lips and I strained my ears expectantly. Unconsciously we drew together close to the trunk of one of the tree-ferns.

I saw something move. It was just a shadow at first. Then I could see that it walked on two legs. As it came still closer I could distinguish arms and claw-like hands. It was about three feet high. Its face was mostly snout and teeth, but in one of the hands it held a tree branch crudely broken off to form a club!

Curious sliding steps it took—straight toward us. At about fifty yards distance it stopped suspiciously and stared in our direction, as if hesitating whether or not to come further.

Haworth pressed my shoulder warningly and then slowly advanced out of the shelter of the trees. He moved with the utmost precaution "to avoid frightening it," as he afterwards explained. But he need not have worried had he known as much about the courage of these animals as we did a little later on.

The creature remained motionless until he had advanced twenty feet. Then it stirred nervously. Haworth came to a halt and raised his right arm slowly over his head. There was no motion from the other and Haworth started to talk to it in a quiet tone of voice. I could see the head twitch suddenly at the sound, but there was no other response.

Then Haworth took another step forward and like a flash the creature spun about and fled in great leaping strides.

Our leader shouted at it excitedly and followed. We, in turn, followed Haworth. We ran about a hundred yards when we came in sight of a dense growth of trees. We were panting painfully and absolutely saturated with sweat in that hot-house atmosphere.

"Did you see the club? That means an opposing thumb on the hand! There isn't any doubt the beast is intelligent to at least some extent!"

"This is the most important thing we have seen yet." But I had seen something of a different sort when the beast had turned to flee.

"It has a tail," I reminded them. "A real large tail, almost as big as a kangaroo's. And that snout strongly suggests the reptile, if ever I saw one!"

We walked slowly toward the dark shadow of the forest, mopping our brows and endeavoring to recover our breath. The ground here was possibly fifty feet higher in elevation than the swamps at the water's edge and the growth of vegetation was not nearly so rank as it was down there. Openings were visible here and there between the tree-trunks.

We were within fifty feet of one opening when we all three stopped uncertainly, as though we had realized in unison that danger might lie hidden just behind that screen of foliage. And as we stood there I saw a movement in the shadows, close to the ground. Out from the woods stepped the animal we had been pursuing and beside him stood half a dozen more of the same kind. Slowly they came out into the open. Still more of them followed and spread out on each side until nearly fifty of the beasts were visible.

We all three had dropped our bundles of stakes and had our rifles ready for action.

"Don't shoot until we have to," whispered Haworth and stepping forward a pace he raised his rifle in the air and gestured with his free arm.

"There, there, there," he said in a soothing tone, "We'd like to be friends if you'd let us."

They seemed undecided as to how they would take this. They cocked their heads sideways, some of them, for all the world like a dog that has been spoken to. Two or three of them uttered curious little croaks and shifted uneasily on their feet. I was beginning to believe we might establish some sort of understanding with them after all, when one of the beasts began leaping up and down and uttering wild chattering squeals. At that they all seemed to get excited and started to advance upon us.

I raised my rifle and pulled the trigger, aiming at the foremost of the creatures, who slumped to the ground and lay there thrashing his tail and biting savagely at the rocky ground.

The shot stopped them.

It rang out like a thunderclap on the still air. The whole of Venus seemed to be standing still and listening in wonder at the strange sound. But without a pause Mason and Haworth stepped forward, guns ready. I followed suit.

"We've got to bluff them and keep 'em bluffed," Mason whispered.

We never knew how it might have turned out. There was a brisk crashing away on our left and we swung in that direction. The sounds were approaching, but we could see nothing as yet. In that brief second the whole group of reptile-men disappeared. Only the dead one lay on the ground when we turned back. What was this thing approaching us that caused them to flee?

"Let's get out of here quick!"

## CHAPTER VIII Desperate Moments

WE followed Haworth down the slope at a trot. We were out of breath instantly in the terrible heat and dampness and when the clump of three trees showed itself through the mist we paused to gather ourselves together. Behind us we heard the crashing now much closer. Suddenly a huge coughing roar shook the very ground we stood on.

"Quick!" I shouted. "We can get up these trees and be safe!"

The sounds were coming nearer now with terrifying rapidity as we all three started up the ladder like trunk of the nearest tree fern. We climbed as far as we could—about forty feet—and looked down with pounding hearts.

Suddenly there burst into view a huge beast running at a terrific pace. He strode gigantically on two hind legs, holding his fore feet under his chin. Most terrifying of all were his great jaws—fully six feet in length and massively armored with gigantic teeth.

I recognized a startling resemblance to that most ferocious and powerful living creature ever known to the human race—the great *Dinosaur tyrannus Rex!*

He must have winded us as he passed the tree, for he came to a grinding stop just beyond us, his huge talons making long grooves in the eroded surface of the rock. Then he wheeled fiercely and bounded back to rear his thirty-foot height up at us.

We were in the palm-like top of the tree by now, as you may imagine, and hanging on for dear life. The shock of his great weight almost did for me. My hold loosened as the tree sprang back from the blow and I slipped down half-a-dozen feet until my tearing, bleeding fingers got a grip again. I scrambled back to my place again in a panic.

The terrific beast seemed to realize we were beyond his reach, for he did not again make an attempt to seize us. His great slaving jaws opened to emit a huge blasting roar and he made off back toward the woods, where he intended doubtlessly to dispose of the reptile-man I had shot.

The last roar was accompanied by a wet scorching stench such as I hope never again to experience. I was nearly sick at the first whiff of it and could not bear to draw breath until the slight breeze had made the air possible once more.

We could hear the beast at its grisly meal, although he was several hundred feet distant and entirely invisible. In twenty minutes back he came and his little eyes stared up at us coldly. He stood there a few minutes and then moved off and we could hear him grunting and snorting as he forced his way through the woods up the slope.

We three were completely prostrated. You have no notion how enervating climate can be. I could laugh at our worst earthly tropics after what I have been through! Even a slow walk started the perspiration running in torrents and we had been running and scrambling for our very lives. Our nerves were frayed, too. And poor Haworth was barely able to hold on to his branch. In fact, we fixed a sort of couch up there for him and he sprawled on it, his neatly-pointed beard now in filthy disarray. I managed to slip down to the ground, taking it slowly, and pick up one hatchet and two rifles. The other hatchet had been dropped and one of the rifles had been stepped on by our perfumed visitor. With the hatchet we

chopped some of the great leaves and wove them across two branches. Haworth fell asleep almost immediately and Mason and I talked over things worriedly.

"I'd judge we're about five hundred yards from shore," said Mason. "If we strike it right, that would be easy. We'd better start as soon as Haworth can move."

We consulted the compass and decided upon the general direction, which was west, naturally. We had borne almost due east when we started off from the boat. But direction meant nothing tangible in that blinding mist. We estimated we ought not to be two hundred yards from the nearest stake.

"Why shouldn't one of us start down and scout around," I suggested, "while the other stays here with Haworth?" "All right. I'll go, if you like."

But I insisted on making the trip myself. I climbed down and started off due west by compass. I moved in absolute silence, gun in the crook of my arm. We had agreed that in case of alarm Mason was to start calling the tree-top and that I could quickly find my way back guided by his voice.

After I had walked what I guessed to be two hundred yards I looked carefully about me in the fog, but could see absolutely nothing like a stake anywhere. I spent ten minutes searching over the bare rock without success and started back. After all, I thought to myself, we know the general direction. It should be a simple matter to find the shore again. I felt that I could have proceeded directly to it then and there.

When I had walked back a sufficient distance I was surprised to be unable to see the clump of trees. I didn't dare to call out for God knows what frightful answer I might receive. But in what direction was I to turn?

That moment was the worst of my life, I fully believe. Alone on a strange and terrible planet. Lost!

I stopped dead still and listened, but either my heart was pounding like a bass drum and drowned out all lesser sounds, or else the swirling mists were without voice. Come, I thought to myself, I must keep my head. There's no use getting into a panic! And of course that made things worse than ever. I tried to observe my own footmarks on the rocks and could trace my steps quite easily for a dozen feet but they were soon obliterated by the wet fog and I gave that method up in despair. Then I started running.

Don't ask me why! I didn't run far, for a worse thought came to me and stopped my course in one wild heart-straining slither. Suppose I were running away from the three trees and got out of range of Mason's voice?

I tried to retrace my steps and got started, at least, in the right direction, walking quietly so as to hear any noise there might be. Then the marks on the dripping rock became indistinguishable and I cast around vainly for a clue, trembling now with the heat and my physical and nervous exhaustion.

I spent another ten minutes of frantic searching over the barren ground when I heard a sound. For one terrible half-second I did not recognize Mason's voice. Then I gasped my relief and ran silently and very wetly towards the voice. I climbed the tree almost as quickly as I had done the first time and Mason patted my shoulder to steady me, for I was trembling in every limb.

"Easy there, lad! Why all the excitement? Get lost down there?"

I TOLD him presently of the extreme difficulty of finding one's way about alone on Venus. The horror of that moment never left me while we remained on the planet. I wished for nothing but a return to the clear atmosphere of our own Earth. As a matter of fact, I was in a plain funk, although for some reason I now find I dislike writing it down as that.

It is nice to think of one's self as a bold heroic figure. (Intrepid explorer, you know.) But sitting here in security as I write, I wonder that I ever had courage enough at first to set foot on the soil of Venus and I realize clearly that I am not at all a brave man. Apropos, I wonder how many African explorers were frightened out of their wits by their first sight of a lion? It's easy to forget such things afterwards, or rather, I should say it is hard to admit them.

Haworth was stirring in his sleep by then and muttering incoherently. I was physically sick from my recent adventure and even Mason was exhausted. It was clearly impossible to do anything at all until we

had rested. We had stuffed some food in our pockets before leaving the *Asteroid* and made a light meal in the treetop. For drink, Mason climbed down and filled his hat with the warm steaming water which made shallow puddles in every hollow of the rock. It was not exactly delicious, but at least it was not tainted with chlorine, as was the ocean, for the pools were formed by evaporation and condensation, of course. After that we felt a little better.

By this I do not mean comfortable. We were never comfortable on Venus. Our clothes were always dripping wet with mist and perspiration. Water oozed from our shoes and dripped down our backs and legs. In fact, clothes were not strictly necessary at all. We wore jackets of white duck and trousers of the same, tucked into high boots. The jackets gave us handy pockets; the trousers and boots gave protection. We wore no hats or underclothing of any kind.

Haworth slept on, hour after hour, while Mason and myself occupied our time speculating over what we had seen, and observing the life before us. Once a pterodactyl flew past us—his great twenty-foot wings outspread in motionless flight and his long-toothed beak stretched in front of him. He was almost jet black in color and looked leathery. We had a good look at him, for he passed within thirty feet of our tree and did not travel very rapidly. None of these flying reptiles that we observed seemed to flap their wings at all, but depended entirely upon soaring. In fact, their bodies were so small in comparison to their huge wing-spread, I doubt that they could move their wings with sufficient force to fly as an earthly bird does.

I had time to observe carefully the tree in which we rested. The leaves were of the compound type and sprang from the main stem on stout three-sided branches, (or possibly leaf-stalks). The leaf divided in pectate fashion on both sides, growing narrower toward the tip and ending in a short club-like growth of sticky pink which may have been some rudimentary sort of flower. We could observe several insects on the branches and I captured half a dozen which I placed in a flat tin specimen box I always carried in my jacket pocket. Two of them were suggestive of exotic forms I had seen pictured in earthly books of entomology.

One was some sort of beetle-like species and the other a kind of "darning-needle" about seven inches in length. The other insects (if they indeed prove to be insects at all) were outlandish looking things. Mostly the colors were varying hues of sickly whites and grays, similar to the foliage.

Once we heard a terrific rumpus start down in the jungle. We supposed that our friend *Tyrannus Rex* had encountered the brontosaurus. We could hear some great tail smacking the surface of the water. If it were brontosaurus, he was evidently not equipped with vocal organs, for the grunting and roaring was all one-sided. So was the battle, evidently. It lasted about ten minutes and our late visitor probably for once in his life had enough to eat for a while. That carcass would have fed a regiment for a week. As the noise ceased, I thought I could see one of the reptile-men moving across the open rock in the direction of the sounds, but it was just far enough away as to be only a vague shadow in the fog. Possibly it was mere imagination.

Then three little running things raced past our clump of trees and out of sight, being presently followed by a long dead-white running creature on eight flimsy legs. He was a nightmare! His body was not more than six inches through and yet was a good six feet in length, with a huge triangular head armed with jaws that kept opening and shutting viciously as he ran. He was out of sight in a moment and we never observed another like him during the time we spent on the planet.

The time dragged slowly. Mason and I occasionally addressed a remark to each other as we watched. He was nervously consulting his watch every little while.

"This may be mighty serious, you know," he said at last. "We have only three hours left now before we will simply have to start back for the ship. We must commence our return flight to the Earth on time or—not at all. A delay means figuring the direction and course out all over again. That may not be possible."

"What! And you such a good astronomer!"

"Oh, it's the time it would take that bothers me. You see, I can't apply a formula to the calculation, because there are three variables. And the trial and error method means a lot of figuring."

"But suppose you do figure out the course all over again, what of it? Suppose we are a week behind

schedule, that only means arriving a week late back home, doesn't it?"

Mason looked uncomfortable and very serious.

"I'm afraid not. The schedule was planned to allow the utmost possible time on Venus. If we are delayed, Venus would get too far ahead of the Earth in its course about the sun. We would have to wait over a year before we could find it possible to return."

"Great Heavens! A year in this living Hell?"

"Exactly!" answered Mason and he bent over Haworth with an anxious air.

The full purport of Mason's words began to flow in on me. What would we do? Even supposing we got back safely to the vessel—as of course we must, sometime—what would a whole year be like here? Our food supplies were, of course, entirely inadequate for such a length of time. Our fuel was not inexhaustible and even the slight amount required to keep the refrigerators going could not be spared for a year's operation. I passed my hand over my greasy and dripping forehead and reflected wildly on twelve solid months dripping Venus climate.

We might kill reptiles for food—one moderate-sized brontosaurus would keep us going for months. Stay though! For a few days only, come to think of it. No meat would keep a week in that climate. We would have to kill every other day. Hunting expeditions into that blind blanketing fog! Oh how I longed for one soul filling glimpse of an earthly landscape on a clear crisp autumn day with miles upon miles of rolling country to the hazy horizon!

And suppose the "mosquitoes" attacked us on a hunting expedition? Or *Tyrannus Rex* got on our trail at a distance from the nearest tree? And moreover, what new and as yet unencountered monstrosities of nature might lie in store for us farther inland?

MY vague fears and longings to get back to the ship now amounted almost to hysteria. It put out of my mind any fear for what might menace us on the ground below. I fidgeted desperately a few minutes and then suggested that we try to wake our companion and get started along. Mason thought we should wait a little longer but finally shook Haworth's shoulder and called his name. His eyes came open vacantly and he blinked at us weakly a few seconds.

"We ought to be getting back, old man," I put in. "Do you think you can make it yet?"

"What time is it?"

We told him and explained that there was less than three hours' grace before our scheduled start. He sat up immediately and professed himself well able to move.

"I feel a little dizzy," he confessed, "but I'm all right really."

We climbed down the tree in strict silence and listened carefully and peered in all directions, but there seemed no danger. We scouted about a little and I found the lost hatchet a few dozen yards up the slope. Then we got out Mason's compass and Haworth suggested that Mason start ahead; I was to follow him about a hundred feet behind, while Haworth himself would bring up the rear allowing the same interval between himself and me.

"In that way we can be sure we are at least traveling in a straight line."

We did this and aimed our course due west. But as if to hinder us in every way possible, the breeze had died down and the fog closed on us like a ghostly pall. We found that we had to draw closer together to remain visible to each other. We walked for ten minutes in utter stillness and should have come in sight of either the shore or the jungle, but nothing was to be seen except the uneven surface of the bare rock on which we walked. Mason stopped a moment and we all paused to look carefully about us. Then we continued our walk for ten minutes more. By this time we knew we had definitely missed the seemingly simple route. Haworth closed up towards me and Mason also started back to join us.

We examined the compass carefully and it certainly seemed an uncertain thing to depend on for our lives. Back on earth it had been a very expensive and reliable instrument. But here it wobbled and pivoted unsteadily over forty-five degrees of the horizon. (Just an earthly simile, for there wasn't such thing as a "horizon"—only the white wall of fog shutting us in.)

"We can only keep walking," Haworth worried. "If we keep spreading out this way we will go in a straight line at least and will certainly come to some place in time."

"We were only five hundred yards from the shore when we left those trees," complained Mason. "We knew the general direction. It doesn't seem possible that we have missed a simple course like this." But we had.

In the next five minutes the ground commenced to slope upward and I knew we were absolutely lost. We kept on, however, for a few minutes more until Mason stopped suddenly, turned toward us and beckoned. We walked quickly and quietly up to where he stood and found ourselves in sight of the line of woods. We moved up closer and came upon signs of a struggle, for there was a good deal of blood about the ground.

I looked about me and thought I recognized the spot where we had encountered the reptile-men. I told the others and, after some hesitation, they both agreed with me. We eyed the dark shadow of the trees, half expecting to see a mob of the creatures pour out to attack us, but everything was quiet and nothing appeared in our range of vision except the motionless trunks with their vague feathered tops.

We at least knew where we were once more and set out at once for the clump of three trees where we had spent so many hours. These were not far away and we found them without much trouble and flung ourselves down to rest beside them. For, as I have said before and again point out, Venus is cursed with an almost inconceivably uncomfortable climate. We had been walking almost half an hour and, personally, I felt as if I had just fallen into a warm lake.

It was fortunate we had found the trees when we did. We had not been there two minutes before we heard *Tyrannus Rex* roaring and crashing about in the distance. Heaven knows what had disturbed him, for he must have made the world's record meal off his enormous victim a few hours ago. We started up at the sounds, all three of us, and were soon in no doubt that he was headed our way. We knew what to do about that by this time, however. Up we went, Haworth first, myself next and Mason last.

Mason surveyed with comical disgust the couch we had built in the top of the tree.

"Home again!" he said ironically.

We could hear the crashing sounds coming nearer and then we suddenly saw several indistinct things moving below us about two hundred feet away. The breeze had sprung up again and visibility was better than it had been. They were reptile-men and there were dozens of them. I could hardly resist crying out to warn them before it occurred to me that they could hear the approaching dinosaur as well as we could. I stared in wonder at the little creatures. They were dragging three long ropes, which seemed (we had a chance to examine them later) made from some kind of climbing vine. Half a dozen were clustered together at the end of each length of rope, which must have been two hundred feet, although it was difficult to be certain of anything in the uncertain mist.

As we watched, they spread out excitedly and two of the ropes were dragged away out of sight. The third one was stretched in a straight line, the reptiles on the near end of it coming right under our tree, but without observing us. Then the main body of reptiles walked forward in a mob towards the approaching monster.

"You don't suppose they can take *him* into camp!" exclaimed Mason.

Haworth's eyes were shining and his face showed the greatest excitement. I heard him mutter:

"True reasoning animals. If they can fight that fellow, they have conquered their environment and no mistake!"

## CHAPTER IX

### Lost

SUDDENLY the great dinosaur uttered a prodigious roar and we heard his crashing twenty-foot strides racing toward us. The mob of reptiles were running for their lives now and crossed over the slackened rope just as the beast burst into view through the fog. He arrived at the rope in three bounds and the same number of seconds. As he did so, the six reptile-men beneath us heaved on the end of it and it rose a foot or two into the air. *Tyrannus* caught his foot hard against it and the shock pulled the little struggling group ten feet outwards.

But as for their enemy—!

The vibration of his fall caused even the tree in which we crouched to tremble slightly. He lay there stunned. The creatures beneath us raced at high speed off into the fog, taking their rope with them. Then the great beast scrambled to his feet, roaring again and again as he did so. He looked uncertainly about him and, shaking his head stupidly, suddenly started off into the fog once more at full speed.

In a few seconds we heard again the crash of his second fall. This time he was silent for almost two minutes and in the silence we could distinctly hear the squealing and grunting of his hurrying tormentors.

"Amazing! Perfectly amazing!" whispered Haworth. Mason was grinning delightedly.

"Aren't they the little dears?" he asked happily. "Now I know I want to make their acquaintance!"

Again we heard the thudding rush and the resounding tumble, but this time the dinosaur was evidently on his feet too soon, for we heard his roaring and two or three high-pitched squeals. Some of the little fellows had been caught.

But there were plenty of them to continue the game, and continue it they did for half an hour—now drawing away from us and now approaching. Finally we were sure they had turned their trick, for five minutes of silence had followed the last crashing fall. As we gazed eagerly in the direction of the last noises, we perceived the reptile-men racing toward us out of the mist.

This time nearly twenty of them crouched beneath our clump of trees, all holding tightly to the end of their rope and staring fixedly out in the direction from which they had come. At the other end of the rope another group could be seen dimly through the fog.

The great coughing roar broke forth afresh and once more the enraged dinosaur came into view. He was not traveling so fast this time, however, and he was covered with blood and filth. His great jaws were wide open and blood of a startling green hue dripped from them.

The rope tightened before his step and tripped him. But this time, while he was still hurtling through the air, the reptile-men rushed out, abandoning their rope. At the same time the other group closed in on him and presently through the white wall that shut us in came a vast mob of them, all racing swiftly toward their now silent foe. Desperately they threw their ropes over his body and twisted them about the slowly-moving tail. Some of them carried large rocks and half a dozen at once clambered swiftly up on his back and commenced hammering with the rocks on his spine. It looked as though they had won their battle for a minute, but the end was not yet. Suddenly the great tail swept up into the air with three of the reptile-men clinging to it and crashed down again on the ground. The huge legs began to scramble for a grip on the stone and the dinosaur rose unsteadily to his feet—the creatures on his back still pounding desperately with the heavy rocks. Their victim was shaky, as could readily be observed, but he was by no means finished.

Frantically the ropes were tightened and those immediately in his path attempted to escape, but the huge jaws reached down and crunched heavily on three of them before you could snap your fingers. The beast surged forward, dragging four ropes and a hundred of his tormentors after him.

So far we had carefully remained in the role of observers, but to do so longer was more than human flesh and blood could stand. We had two good rifles left and, as Mason and Haworth scrambled down the trunk, I took careful aim at my mark and fired ten shots as fast as I could pull the trigger. The efforts of the reptile-men to break the beast's spinal column had given me my clue. I had aimed carefully for this apparently vital spot and I am sure I must have hit at least once, for the range was not more than two hundred feet.

As I hastily refilled the cartridge chamber, I saw my two foolhardy companions start out from the foot of the tree. Haworth had his revolver in hand and Mason had the rifle at his shoulder. They fired as I looked and the dinosaur wheeled about, trailing his hundred stubborn followers behind him and made straight for us. I saw my friends start back to the tree and realized in the same instant that they could never get up out of reach in time.

It was up to me. But the great head now completely obstructed my aim at the one vital spot! My mind raced desperately over a dozen possibilities, but finally I determined to aim for his left eye and, raising my rifle, I pumped ten 32-calibre bullets straight into it.

He kept coming forward for half a second and it was not until he crashed down on his breast that I



realized his forward motion had been merely falling.

We never did know exactly what killed him. Perhaps my shots in his back had not taken effect until then, or possibly a few ounces of lead in his brain had done the trick. But he did not move again. My companions had got a few feet up the tree trunk and they now descended once more and waited until I had joined them, when we all three walked forward.

The reptile-men had drawn together in a crowd on the other side of the carcass and they eyed us in silence. Haworth prodded the dead dinosaur with his foot and then held his arm in the air in salutation. We raised our arms also, following his lead, and we all three proceeded to make what we considered to be friendly sounds and gestures. I do not recollect what particular words I said, but I could hear Mason repeating over and over again:

"You plucky little beggars! You *plucky* little beggars!"

They cocked their heads at us and one of them whom we had observed during the fight, which he had several times appeared to be directing, stepped forward a few paces and croaked or grunted (it was an indescribable sound) at us. Haworth promptly mimicked him as well as he could and beckoned vaguely with his left hand. The reptile then jumped in the air several times, quite lively, and stood still, staring inquisitively at us.

Haworth turned around to us.

"I'm blessed if I know what to do," he said. "Can you think of any gesture or sound that might be common to both men and reptiles?"

IT struck me at once: we both had to eat! I opened my mouth to its widest and pointed with my right hand down my throat, smacking my lips loudly. The creature stared at me silently for several seconds. Then he turned his head to the body lying beside us and looked back to me again.

"He evidently thinks you ought to eat your kill," said Mason. "Tell him you want him to cut it up and bring it to you on a silver platter!"

But that gave me another idea. I had a knife in the cotton belt of my trousers. Quickly I pulled this out and walked over to the huge head. I stooped down and cut a two-pound piece from the green, drooling tongue. This I held in my outstretched hand and slowly advanced toward the reptile chief.

That saved the day. He let me come right up to him and took the meat with his strange little claw-fingers; put the whole two pounds into his commodious mouth; chewed it twice and swallowed it—holus-bolus!

And then Haworth had an inspiration. He walked up to the carcass of the late *Tyrannus Rex* and made a broad sweeping gesture toward the gathering of reptiles. Then he backed off a pace and repeated his gesture, keeping the performance up until he reached our vicinity. (I had rejoined Mason in the meantime). That apparently settled the doubts of our visitors. There was a mad scramble for the body and such a piece of trencher-work as they made of it! Their long sharp jaws tore great pieces of flesh out and little attempt was made at mastication. They just gulped it down in a hurry and went back for more. Not even the tough hide seemed to interfere with digestion.

We three humans drew off a little to one side. I was too interested to feel digusted. Several quarrels started here and there and one poor fellow got badly bitten and had to withdraw to attend to his wounds.

But Mason was nervously consulting his watch.

"We have to act quickly to meet our schedule. Do you suppose that you could give them the idea we want to go back where we came from?"

"Not much chance of that for a while yet!"

And indeed the carnival was at its height. We watched in some amusement the Gargantuan meal. Then a movement of shadows beyond the feasters caught my eye. I called Haworth's attention to it and we peered anxiously through the mist, hastily reloading our empty guns from our bandoliers. The shadows did not seem to be approaching, but merely hovered in the background and, since the feasters did not appear to be in the least alarmed, we concluded it must be the "second table" waiting their turn. In this surmise we were entirely correct.

The fury of the prandial onslaught waned and presently they climbed off the raw and gruesome carcass by twos and threes—bloody from head to foot and with noticeably distended bellies. Before the last one could get out of the way, figures emerged literally by the hundred from the surrounding fog—many young ones among them—and all that had happened before might be considered polite table manners compared to the scene that now ensued.

"Women and children last!" and Mason turned away. I felt a little squeamish.

"Now is our chance to try and explain to the chief that we need a guide. Things are getting pretty desperate, you know! An hour and a half more delay and it may mean the end of us. Have you any ideas about sign languages?"

It seems strange enough now that we were not more alarmed than we were. Somehow the knowledge that we were only a quarter of a mile from our vessel kept us from getting into a panic. But on Venus, blinded by the swirling steamy air, with an unreliable compass, it might as well have been a hundred miles. We were, however, entirely uncomfortable and weakened in nerve and body as well as being drenched with perspiration from the stifling heat. In addition, as I have said, I myself did not once fully recover from my complete horror and fear while we remained on the planet.

We spent several minutes in deep thought, occasionally interrupted by those incoherent exclamations that accompany the consideration of serious problems. We finally reached an opinion that if Haworth took the chief aside and pointed in the approximate direction and then attempted to start him along with us, the meaning would be clear enough. And so it would, perhaps; but when Haworth approached the group of warriors it was impossible to identify the chief. They were sprawled in all sorts of attitudes upon the rocky ground, licking their bodies with their long pink tongues or blinking vacantly one another in surfeited delight. But when Haworth got within ten feet of the nearest, up he jumped and stood eyeing him uneasily. He approached another step and they all got up and moved back before him.

And there we were.

So Haworth pointed in a general westerly direction and made huge beckonings with his other arm, but the beasts just blinked stupidly and some of them backed away a step or so more. He called Mason and myself over and we came instantly, rifles ready, but all he wanted us to do was to stand beside him and make the same gestures he did. We pointed and beckoned for a minute and then he whispered:

"Now let's all back away in the direction we want to go."

So we started off slowly, looking over our shoulders. But if any reaction was apparent on the part of the reptile-men it was one of relief. We stood there, uncertain what to do next.

"We haven't another minute to waste," announced Mason firmly, looking at his watch. "Now let's start west in single file as we did before. But this time let's keep going until we reach the shore. Why, the damn thing is only a few hundred yards away!"

So we took a last look at the reptile-men. The warriors were staring silently back at us and the children and females were too busy to pay us any attention whatever. Then we turned about and started off—Haworth in the lead, myself next and Mason (with the compass) bringing up the rear. After fifty steps I turned around and noticed that the mists had swallowed up the scene of the battle completely, although I could readily tell the direction in which it lay by the confused murmur of the feasters. Keeping spaced out one hundred feet or so apart we proceeded over the rocky surface in as straight a line as we could, with due alterations called out by Mason from the rear and based, he afterwards confessed, half upon the compass and half upon his own good guess.

After a while the ground sloped down slightly and through the surrounding white wall of fog on our right a line of shadow appeared. It was the jungle-swamp. I had rather expected that we would sight it, if anywhere, upon our left, but presumably I had been confused in the mists. Presently Haworth stopped and waited until we both joined him.

"We might as well keep together now. We have only to follow the edge of the jungle down to the shore." "Thank God!" I exclaimed fervently.

But after twenty minute's march, we were not so sure. And then the swamp's edge curved inwards and we were forced to bear to the left to avoid it. The curve continued until we found our course absolutely cut off. We were lost again.

Mason thought a moment.

"We must be on a tongue of rock running out into this sea of jungle, there's no other explanation. Let's go back to where we first hit the edge of this swamp."

I just followed the others blindly, rifle clutched tightly and my teeth clenched so hard together that my jaws were sore for several days afterwards. We cut across and retraced our steps, walking now more quickly than we had done, and soon came to the end of the jungle. Here it bore away to our left. I wanted to follow it (I wish we had) but the others felt sure that our course lay to our right.

"If we turn right here," said Haworth, "and keep going a few minutes without striking the jungle on the other side of this clear space, then we'll go back and try your way."

But my panic made me obstinate and I started off and went perhaps fifty feet along, close to the jungle. Then the figures of my companions dimmed slightly in the surrounding fog and I turned and incontinently rejoined them.

We had not been walking two minutes—keeping as straight as we could in our single file formation—when

Haworth waved to us, silently. When we reached him the jungle wall was showing vaguely in the steamy air. We felt hopeful once more.

"It's about time, too! Another twenty minutes and we would have been too late to make it. We'll have to hurry along as it is. I hope the little boat is safe where you left her, Mason."

We had been completely exhausted in the vitiating temperature (how Haworth kept going I do not know) but we forgot our discomforts in this fresh hope. In five minutes the tall shadow of a tree swam mistily in the middle distance. At the same time we became aware of a murmur of sound upon our left.

It was the reptile-men still at their feast!

We were back where we had started from. Listlessly we turned to the sound and made our way towards it.

## **CHAPTER X**

### **A Strange Malady**

AS we approached our three familiar tree-ferns once again, everything was suddenly quiet and when the advancing wall of mist before us disclosed the gathering of feasters they were in compact array, eyeing us very uneasily, I thought. We attempted to signal them our wishes, but received no answer except the steady emotionless staring.

Evidently they knew us, for after a moment they turned about and started off for the woods on the slope above. We followed them. You could not say we accompanied them, for not one of the beasts would permit us to come closer than ten or twelve feet. On they kept at a rapid pace until the woods were again in sight, we three puffing and sweating behind them and gesturing and talking like madmen. I question, in fact, if we were any longer entirely sane.

Without a pause the whole party plunged into the forest of tree-ferns and we perforce followed. I don't believe we had any definite plan, but we were desperate. It was dark under the foliage, but fairly easy walking. The soil was a mere coating over the rock and the ground was firm to the foot. Several times the reptile-men nearest us (never nearer than ten feet) turned to stare back, but whether from mere curiosity or not we did not know. We were desperately determined to stick to these creatures until by some means or other we succeeded in persuading them to guide us back to the shore.

Our time was up. We had probably missed our scheduled return. And the vision of Mason's worried and panicky countenance did not help my peace of mind. If we succeeded in getting back to the ship within the next few minutes, he said, there was a chance for us—not much of a chance, but at least something. And failing that—how could we survive a year in this unfriendly fog?

We had been walking under the trees for perhaps a quarter of an hour when we came to the "village." The word is inaccurate, since even from the short glimpse we were permitted it could be readily seen that only the most primitive of habitations were grouped here. An opening carpeted with a curious long and

tough kind of grass, in which rude nests had been trampled out. There were no roofs, although occasionally the grass walls seemed to be woven crudely together. It was as if the innate savagery of the beasts would not brook the indignity of socialization without at least the artificial privacy of grass walls.

But we were stopped at the outskirts of the clearing. The warriors confronted us in a determined semi-circle, and we paused to observe our surroundings. Haworth stepped forward a pace and made a sweeping gesture of invitation in the direction from which we had come. The reptile-men eyed us without reply. He repeated his gesture. Then one of the females in the rear began to hop up and down excitedly and make high-pitched squealing noises. Several others around her imitated the example.

Mason and I had our rifles ready in an instant. Haworth looked more worried than ever and turned his pale, care-worn face toward us as if he wished to speak but just then there was a sharp grunt from inside the closed ranks before us. Out stepped our old friend the chief. He walked slowly up to Haworth and placed one hand actually on his breast. Then he gave a gentle push and backed away a step. Why he chose Haworth I cannot say, unless because of the distinction of his flowing beard.

Haworth stood staring at him, thinking hard. Mason and I stepped forward one on each side of him. Things looked dangerous.

"What will we do if they advance on us?"

"If they do that, perhaps we are saved," was Haworth's surprising rejoinder. "Say nothing, but do as I do."

And then advance they did—the whole line slowly moving, with the chief in the center of it. Mason grasped my arm and we three stepped back a pace. The reptiles stepped forward another stride and we kept our distance. Soon we were walking at a normal gait, surrounded on three sides by our unwitting guides. In a surprisingly short time we had reached the edge of the woods, and here the reptiles promptly turned about and started back.

"After them, quick!" said Haworth. And we did.

In a few minutes the reptile-men halted and again faced us—a trifle uneasily this time, I imagined. Again the chief stepped right up to Haworth and gave him another push. Again the tribe slowly advanced and we retreated before it. This time, however, they seemed determined to finish the job. We were evidently unwelcome, although not enemies. Right out past the woods we proceeded; past the clump of three trees and into the pathless sea of mists. In twenty minutes we sighted the shore before us and I half-turned towards our guides, feeling in an indefinite sort of way that we could now dispense with them. But they had other ideas. Right down to the water's edge they drove us and then stood there determined to see us depart.

Mason was already wading out to where our canvas boat still rode at her line—not more than twelve feet out. He reached it waist deep and towed her back to the rocks, climbing out of the water and shaking his legs. Then as Haworth and myself stepped into the frail craft and sat down, he made a gallant bow.

"Thank you! If you only knew how much we wanted to get back here, you would have done this in the first place. Farewell my friends, and don't forget that some day men like us will return to Venus. If they try to buy your village for twenty-four dollars' worth of dinosaur meat, don't be surprised!"

With which reflections he took his place with us in the boat and we pushed off from shore. The reptile-men stood quietly until the mists swallowed us up. I was rowing and the sea was quiet, with slow oily swells lifting us and lowering us regularly. Along the shore we went and then struck out toward the tall shadow we knew was our rocket ship. We had been away more than thirty hours—how much more? Were our watches trustworthy? With all the speed possible to our bodies—wearing to our bones and experiencing the inevitable reaction from all our exertion and strain, both physical and mental—we climbed the rungs up the side of the *Asteroid*, leaving the little boat tied at the bottom. Mason burst through the hastily opened air-locks and stopped, as though the life had been drained out of him.

The ship's clock read 103—18:36. We were over one hour too late!

Once inside, with the doors shut and the refrigerators on full blast we stripped off our sodden, grimy clothing; washed ourselves copiously, with reckless disregard now for our water supply; donned dry garments and felt ravenously hungry. I have noticed that many times. Go through a time of danger, even if

it be unaccompanied by physical exertion, and the body demands nourishment. In silence we ate, but we made a thorough meal. There was fresh meat miraculously from the refrigerator, crisp biscuits from the sealed tins and a long cool drink of whiskey soda to top it off. Above all, the blessed cool, dry air of the *Asteroid* was delicious to our steamed and soaked bodies. We were hopeless, perhaps, but very comfortable. I don't remember when I fell asleep.

THERE is one peculiar psychological result of travel to other planets, and that is that it gives one an awareness of the exact appearance of the familiar upon returning. I lay in my bunk when I awoke, very pleasantly aware that I was safe for the present and entirely comfortable. My skin was bruised and my muscles were tired, but in a dreamy lethargic, fashion not at all unpleasant. The details of the living-cabin were unnaturally clear and sharp to my eyes. That peculiar roundish corner where the pump-room floor joined the ship hull, the flattened sides of the little control levers beside me, the garbage-door above the stove, with its not quite square outline—everything seemed slightly unfamiliar and made a sharp clean-cut impression on my senses.

This I attribute to the fact that for thirty-odd hours we had seen absolutely nothing that was familiar. Every leaf, every rock, every pool of water must be watched. It might represent some danger or prove a valuable discovery. Our eyes and, in fact, all our senses had been strained to examine everything with the utmost care. Upon returning to the familiar scenes aboard ship this faculty of awareness persisted for a little. Not since my earliest recollections of childhood, when nothing entirely familiar to one, had I experienced such a sensation. It was altogether agreeable. I seemed to be in a new and fresh existence. It so invigorated me that I could lie still no longer, but arose briskly and wakened my companions noisily.

Mason was on his feet in a jiffy.

"The minute I can get something to eat, I must see if a return course cannot still be figured."

I had forgotten, all this while, our desperate circumstances. Mason's words plunged me into the depths of gloom once more.

"Our return! You will have more than a year to figure that to your heart's content!"

"Perhaps not!"

"What do you mean?"

"There's just a chance we can still make it." (I made an exclamation.) "Just a minute! It's only a chance . . . The trouble is it will take at least a week to figure out. Oh, why didn't I prepare some figures for alternate return dates? I had long months of leisure and I simply wasted them!"

But his words put new hope in me.

"Do you really think we have a chance to start back in a week?"

Mason, already busy at the stove, grunted out what I took to be "I think so" and went on silently with his preparations for a meal.

Haworth had not yet risen and being questioned described himself as not feeling at all well. I got out a thermometer and stuck it at a rakish angle in his mouth.

"You can stay there for a week," I said, "and recover your strength. It will take Mason that long to figure out whether you can be sick for a whole year more or have to get well suddenly."

Upon removing the thermometer I was alarmed to see that he had a temperature slightly over 100 degrees. His pulse was weak and, generally speaking, I considered his condition rather serious. Mason had by this time prepared boiled eggs and coffee and we tried to get Haworth to eat some, but after one spoonful he refused any more.

Mason and I discussed our situation out of his hearing, in the pump-room.

"You nurse him," said he in conclusion, "and I'll chart a new flight curve."

Mason was to be brought his meals and left entirely undisturbed while I was to run the ship. I left him hard at work and descended to sit beside my patient. All that day Haworth lay in his cot. I played cribbage with him and read from the Encyclopedia (how I wished for an amusing story!) and he seemed

to be recovering his strength satisfactorily. After fifteen hours Mason descended and we put out the lights in the living-cabin and went to sleep.

Haworth woke us. He was sitting bolt upright when I switched on the lights and reciting poetry in a loud voice, his beard wagging wildly on his chest. Badly mixed and garbled verses he spouted—Shakespeare, Milton and Rudyard Kipling. We would have been amused had it not been so frightening. Hour after hour we worked over him, trying to quiet him. But we had to strap him down to his cot in the end and I gave him a shot of morphine from the medicine cabinet.

We arose after a few hours of broken sleep and Mason resolutely went up above to continue his mathematical labors. I sat beside Haworth and worried desperately. His temperature was 104 degrees. I had no sort of notion what was the matter. Possibly some sort of strange fever he had caught from the Venus jungles—indeed, what might it not have been?

He wakened after a few hours and was quite out of his head. I brewed some strong tea and squeezed lemons into it. This I forced him to sip as often as I could. It would at least allay the fever temporarily. But he grew worse all day and it was again necessary to quiet him with drugs.

"To Heaven," I heard him mutter. "To Heaven in a rocket."

I had no one to turn to in my perplexity. Mason knew absolutely nothing about medicine and the Encyclopedia was not illuminating, although I spent several hours searching through it with the vague notion that it might have somewhere in it the necessary information that would save our friend's life. Yes, by now I was doubtful if he would recover.

When we slept next, I lay tossing in my cot, rising silently every hour or so to creep in the darkness over to his cot and administer some cold tea. I had of course plenty of quinine, but the first dose of this usually sovereign remedy had caused such a violent retching that I did not dare repeat it.

Finally Mason awoke and switched on the lights. This was our "morning" on the space-ship, and this morning was a sad one. Haworth did not waken. He lay breathing softly and with his eyes sunk deep in his pale cheeks. I could scarcely eat and noticed that Mason had some trouble in swallowing his food. We did not exchange a word. There was nothing to say. He slowly climbed up to the room above and drowned his fears in the concentration of his work. I had no such sedative, but sat despondently on my cot thinking soberly over all that had happened in an effort to solve the riddle of this strange illness.

The attack of the insects, naturally, came to my mind. But that had been so many days ago—surely any poison that might have infected their bites would have had an instant effect? Yet I could not with reason blame any other agency. What weird things they had been! "Mosquitoes, Mason had called them. Mosquitoes . . . what if they were like our earthly insects in this one thing? What if the "poison" they carried was a disease with which they inoculated their victim, like the yellow-fever mosquito?

"Why then," I exclaimed aloud, "I would inoculate him with immune serum from Mason or myself, who recovered!"

AND I was up in an instant and over to the medicine cabinet where I seized an aseptic syringe and, plunging the point carefully into my forearm, drew it half full of blood.

"Come," I thought, "this is not the way to do. There must be no blood in the serum."

Then I paused with the thought that this whole idea was a tissue of imagination without any facts behind it. Should I continue? How should I proceed? I pondered for five minutes and had answered both questions. First I *would* inoculate Haworth. If the disease had been caused by the huge "insects" or not, there was nevertheless a probability that I had been exposed to the same illness he had, wherever he had got it. Therefore I, being well, might have immune serum in my blood and, remote as the chance might be, I had absolutely no other possibility of treatment.

As to the serum, I had an idea. I turned on the stove and placed my left hand, palm up, very firmly upon the hot metal. An instant of pain was sufficient and I promptly treated my new burn with oil and dressed it carefully. In an hour I had an enormous blister on the back of my hand and drew off a full syringe of clear serum. This I injected into my patient's right arm.

All this may sound a trifle heroic, as I write it here.

The actual fact was that it hurt very badly for only the first few minutes and during those minutes I

wished very strongly that had not thought of this means of obtaining clear serum. Once done, there was of course nothing heroic about continuing the operation.

I was restless and Haworth remained unconscious. So I climbed up into the pump-room and opened the air-lock, sitting on the floor of the vestibule with my feet dangling over. After the comfortable coolness of the *Asteroid* the air of Venus hit me like a warm wet sigh. Dim in the surrounding mists I could make out the shore—jungle and mud. Occasionally the visibility would increase as the wind freshened and at such times I could see on the right the line of rocks where we had landed.

I mused upon our exploration of Venus. In all, I thought, we have covered less than one square mile of land. In that "explored" territory we lost ourselves three times. We had observed a few species of reptiles and half a dozen kinds of trees—mainly cycads. Now we are frantically preparing to leave, if we could. I was, perhaps, unjust, since we certainly had traversed some thousands of miles of water and this might be termed exploring the planet in a sense. Certainly we had determined the fact that a large portion of the surface of this planet was liquid.

I gazed down upon this water as I sat there and saw the waves had risen considerably. Our ship was not affected by them, since she was firmly aground on the mud beneath. The breeze seemed to be increasing and as I sat watching a furious gust came along. The mist swirled and thinned out and for two minutes there sprang into view the entire coast before me.

I shouted for Mason and he came instantly to stand beside me in the narrow vestibule. Half a mile away on the low slope of bare rock stood our three tree-ferns and back of them the line of forest. The mists cleared still farther and we saw for an instant miles of landscape—great hills rising in the background, dotted with verdure. The light increased more and more. We followed the line of hills up until they lost themselves in the mist, but I distinctly saw a golden glow over them as if the sun had sent its rays through the enveloping atmosphere to point them out to us. It lasted an instant, like a promise, and then the mists closed out the hills and we saw nothing but the miles of rocks and jungle. Then the wind slackened still more and the fog closed down until we could barely make out the nearby shore.

Mason gasped, as though he had been holding his breath throughout the whole revelation.

"That might be a place worth visiting!"

I agreed.

"On the top of those hills the sun might occasionally shine. Not too often, for it would then be intolerably warm, but enough to let a man see where he was going."

"Why would it be so warm?" and then I answered my own question. "Oh, of course, we're thirty million miles nearer the sun than the Earth is."

We sat in thought a moment. Then I told him my fears for Haworth and the means I had taken.

"If he shows no improvement in another hour," I added, "I am going to inject your serum. Whatever disease he may have, it might have passed me by and touched you."

"Suppose he was the only one to be favored?"

"If it affected him alone, then I don't think . . . I'm afraid . . ."

I left my sentence unfinished. Mason frowned terrifically and passed his hand over his forehead. We went inside and closed the doors, for it had already become uncomfortably warm in the ship. We turned on the refrigerators and soon were cool again. He sat down once more to his work and I descended to the living-cabin.

Haworth was still unconscious and seemed weaker—too weak. His pulse was barely detectable. In desperation I filled a glass of whiskey and poured it between his lips. In a few minutes his pulse was stronger and then, suddenly, the sweat came.

I knew what that meant. The fever had broken!

I wrapped him in blankets and strapped them over his body and called up the good news to Mason, whose face promptly appeared in the hole in the ceiling. He was smiling broadly once again.

## CHAPTER XI

### Back to Earth

THERE is no need of detailing the steps to recovery. Haworth was ravenously hungry when he woke and I found my job of cook to the ship no sinecure, what with my burned hand. Mason left his figures long enough for one game of cribbage with our patient and spent the rest of his time up above in a very fury of calculation.

"How are you making out?"

"You know, we have a chance—just a chance."

Eight earthly days passed with the same report. Haworth was steadily improving all the time and was more or less up and around when we heard a shout from above. Mason climbed down and joined us in high spirits.

"We start home," he said, studying the clock, which read 112—6:13, "in three hours and twenty-four minutes!"

I uttered a shout of relief and joy.

"But how can we manage to connect with the Earth this late?" objected Haworth. "Venus travels so much faster than the Earth, that we must be past its place in its orbit by now."

"We are," retorted the mathematician, "but only just past it. We have to lose an excess speed of about ten miles a second, in order to land on the earth. Our fifty per cent reserve of fuel will do this nicely. We calculated on seven miles a second, you know."

"But if we plan to use all our reserves, aren't we taking a considerable chance?"

Mason shrugged his shoulders.

"Let's be glad we have a chance to take. Would you prefer staying here a year?"

"God forbid!"

Haworth was almost recovered by then. The past few days had done wonders for him. He declared himself ready to take command of the *Asteroid* on her return voyage and with the words scarcely out of his mouth he was clambering up to the pump-room, where he spent the next three hours scrambling about the machinery—testing and checking. Everything was exactly as it had been, but that was his way—and not a bad way at that, perhaps. It seemed so good to us to have him up and about, that he might have had I know not how many unusual habits, they would have all appeared sensible and desirable. I mention this, because usually it irritates me to see someone take unnecessary precautions, and to check and recheck the already correct.

We spent a final five minutes at the vestibule door, looking our last on the face of Venus. I do not know exactly what we had expected from our trip. Visions of miraculous discoveries, smiling fertile landscapes, perhaps gold and other precious metals lying about in abundance. But certainly we had none of us expected just what we had found.

As Mason put it: "We could have filled Madison Square Garden with live steam and sat in it for three weeks to about the same advantage! Not only that, but we would have known where we were all the time, in that case!"

But in spite of disappointments, there was a feeling of accomplishment which we all shared. There were few thrilling discoveries, it is true, but just the same we were the first of the human race to visit a planet other than our own. Some day these vague inhospitable shores would be made habitable. This spot where our ship lay grounded in the shallows would be historic. I had my camera with me at the doorway and made a photograph, a print of which is before me now. Dark water and darker jungle and the white fog over all.

We closed the doors and screwed them fast and made our way to the cots.

"Ready?" called Haworth, his hand on the starting lever.

Mason and I turned to our duties and felt the ship lurch as the power was applied. We were pressed deeply into our cots and our bodies were heavy under the steady acceleration. The dials moved slowly and the misty surface of the periscope glass grew brighter each moment.

Suddenly the mist vanished and bright sunlight almost blinded us.

Mason twisted the controls until we had located our objective, a small star in a peculiar triangle formation, and then Haworth made a warning sign to us and turned on the power to full acceleration.



Now we felt the pressure severely. I could hardly move my arm to the controls and, lying on my back as I was, it was exceeding difficult to raise my head. There was, however, very little to be done so far as I was concerned. My two companions had most of the control mechanism in their charge and seemed to manage well enough, although they perspired visibly with their efforts.

It lasted only ten minutes or so. The noise of the rocket exhaust had increased to a deafening roar when the last section had been dropped off and the sudden silence came like a blow. Haworth was not quite quick enough in starting up the gyroscope and I was overcome with nausea as my body was suddenly left weightless.

When I had in a measure recovered, Mason was standing over me with raised eyebrows.

"This time you can clean it up yourself. Do you good!"

I complied weakly, and really felt better for the exertion.

The floor was now our partition wall, for the rotation of the ship about her line of flight had again set up an artificial gravity outwards in all directions. I observed that the speed indicator and other instruments no longer registered, for we were entirely out of the atmosphere of Venus. We were coasting freely at almost ten miles a second back to Earth! How eagerly we looked in the periscope glass as Mason brought into view our home planet! There it stood, a pure white ball of minute proportions, although larger than any of the stars that glowed so much more violently around it. Then he turned the ship until Venus swung into line and we saw the huge surface we were leaving, all glistening on one half where the sun struck it slantingly and a dirty grey-black on the shadowed portion. But white or grey, it was all the same blinding mist—the curse of the planet.

And now if I am to be kind to my readers I will spare them the details of the next ninety days. After our hardships upon Venus we were mentally and bodily exhausted and quite content for some weeks to rest in complete sloth. Then we felt the need of amusement and occupation and I, for one, passed the time very pleasantly by working my observations and specimens into the form of notes. Then I had a number of photographs to develop and print and additional astronomical pictures to take. I did not hurry my tasks and interspersed my working hours liberally with less serious occupations. Our cribbage tournament was revived and we even became interested in three-handed auction bridge for a while. Mason and Haworth were equally well occupied. We knew what to expect and were not too impatient. But hardly a single detail of this period stands out clearly in my memory.

Venus and all we had seen there had become a dream. It was difficult to believe that we had really been there. We seemed to have been living forever in this space ship, adrift in the abyss.

IT came as a distinct shock when Mason announced from the periscope that the Earth was growing visibly larger. But a glance at the ship's clock showed 189—2:57. We were due to land in less than two weeks! We clustered about the glass, observing with delight our native world. She showed about three inches across, like a tiny moon. And in fact her own moon was now distinctly visible, a gleaming disk three-quarters of an inch in diameter. And of exceeding interest to Mason this moon was, since the hidden side was exposed to our view and brightly lighted.

"It must be a new moon on Earth," said Mason and no remark he could have made would have brought to me more clearly the fact that we were wanderers in strange places.

We had the leisure to make a thorough observation of the hidden side of the Earth's satellite during the next week and Mason was vastly busy making notes, while I took photographs at his direction. Full details of his findings are of course available to the interested reader in his recently published monograph on the subject. And as all the world knows by now, nothing essentially different exists on that side than on the other. On the voyage out, we had been able to see a small sector of this unknown portion, but not until now had we such leisure and opportunity to make a detailed observation.

As the days passed the Earth took on additional form and detail. It was a glorious sight to our eyes! And a last look in the other direction showed a tiny dot of soft white light—all that could be seen of Venus. Soon I thought, we shall gaze on her from the Earth and see not the familiar evening star, but the cold unwinking eye of a reptile-man, or the baleful orb of *Dinosaur Tyrannus Rex!*

But Haworth was busy preparing for our landing maneuvers, and I was sufficiently familiar with these

by now to take an intelligent interest. When we had shut off our motors after leaving Venus we had exhausted the fuel of the second step of the *Asteroid* and discarded it, continuing our flight in the small eighty-ton third step formerly contained in its nose. It was in this small ship, of course, that the controls and cabins were centered. The fuel of this ship, in turn, had been almost entirely exhausted so that it was necessary, as Haworth pointed out, to make a perfect landing.

"For if we don't," he said, "we have no power left to rectify an imperfect one."

He had already turned the handle and set the pumps to work projecting our wings. This required practically no effort while we were still in space. It could have been done by hand, had that been necessary.

"I believe," he said, "we will endeavor to commence our landing circles at the equator. Then as we slacken speed we can verge northward, consequently shortening our circles. We will have to land where we can, of course, for we have no power to waste choosing a suitable spot."

I suggested that we would need to land in water and for that reason might do best to land near the equator line, for in this zone much more water occurs than land.

"And," I continued, "if any change be made from the equatorial circle, why not southward, for a less proportion of land exists in the southern hemisphere than in the northern?"

Haworth agreed with me, after a moment's thought.

"However," he added, "I believe we can find either the Atlantic or the Pacific Ocean easily enough and on the other hand, have you ever thought what might happen if we landed in the South Atlantic, thousands of miles from the ocean traffic lanes? One can be very thoroughly lost even on our own familiar Earth, you know."

This was true, of course, but I confess that any part of the Earth whatsoever had seemed safe haven a moment before he spoke.

"The northern hemisphere, in the temperate zone, is much the most civilized portion of the globe. As to a landing place, we might even be lucky enough to reach Long Island Sound—or perhaps even our little lake in Connecticut. And the Great Lakes have distinct possibilities, as well."

It may sound strange to hear a planet some eight thousand miles in diameter discussed in this fashion. But following this conversation I went to the periscope glass and gazed for many painstaking minutes before I could be sure I recognized the dark line that was the Mediterranean Sea!

Our landing maneuvers were to be the same as before: We entered the atmosphere at a high altitude (about seventy miles) and the air was so rare at this height that even our speed of almost five miles a second did not cause sufficient friction to endanger our ship. Our wings turned in a small arc, so that at first they were used to hold the *Asteroid* down towards the Earth, for our terrific speed tended to make us fly away again into space. But we used the wings to force us around the globe again and again in a circle.

We circumnavigated the world in less than an hour and a half at first. Then the friction slowly lessened our speed and permitted gravity to affect our course downward. Then the wings were inclined the other way, so as to support us in the air. As our speed lessened we descended still lower, until at last we were traveling at about two or three hundred miles an hour and ready for a landing, similar to that of a fast airplane. At such a speed a landing was difficult, but if made in smooth water our staunch metal hull would protect us from damage.

The whole maneuver went through exactly as planned. Haworth and Mason were at the controls as before, and the operation required some seventeen hours to perform. We entered the atmosphere of Earth at 202—0:14 by the ship's clock.

I could observe the periscope glass from my cot, except for occasional moments when Mason's head was in the way. The Earth had long since loomed up until it filled half the entire sky and as we entered the atmosphere I could see oceans and continents sweep by beneath us like a panorama designed by a madman. The strain and worry was visible on Mason's frowning face and Haworth clawed nervously at his black beard half the time. I myself was without special duty for the most part, although for a five-hour stretch I relieved Mason at the periscope.

"If we could only make a landing somewhere near the United States," Haworth was repeating over

and over to himself.

Mason laughed.

"It would be a fine thing if we ended up shipwrecked in the middle of the ocean! Do try and land in New York harbor, old man! Near Quarantine, if you can, for I understand they are most particular down there about vessels arriving from foreign ports!"

For the last two minutes I relinquished the periscope controls to Mason. We were over Spain at the time and traveling west at less than two miles a second. Haworth was jubilant.

"We'll just about make it," he prophesied.

And we did. We had been scudding over the Atlantic for an hour and a half, at constantly lessening speed, when I noticed that the surface of the water showing in the glass had become more detailed. Instead of a smooth sheet of lead-colored matter, separate ripples were now discernible. Then the ripples grew into small wave lines and these enlarged until the familiar seascape spread before us not a mile below.

"Hold fast!" warned Haworth.

We all made sure of our fastenings and positions.

Suddenly the waves loomed up swift and huge in the glass and a great white splash wiped out all vision. At the same time the *Asteroid* gave a terrific lurch and rolled over and over several times. Then all was still once more, except for a strong steady heave of the vessel in the trough of the seas. Our cabin was now as it had been several times before: Our floors had turned into the circular hull wall, for the ship floated upright. None of us had been hurt in the slightest, but the cabin was a chaos, for the kitchen cabinet had burst open and the Encyclopedia Britannica was indiscriminately mingled with pots and pans and a thoughtlessly open can of photograph-developing fluid!

The ship's clock read 202—17:02. The voyage was over.

We climbed, the three of us, up the rungs on the water tank, through the opening in what was now our ceiling, and into the pump-room, now above us. Mason wrenched at the lever and flung open the vestibule door. I darted into the vestibule and opened the air-lock door to the outside world. The ocean breeze was full in our faces and filled the cabin with a delicious odor. It was unbelievably invigorating after six months in artificial atmosphere, and three weeks of Venus' steamy air, impregnated with chlorine. We crowded in the tiny entrance, arms about each others' shoulders, and breathed it in as if we could never have enough.

THE rest is history. Everyone within reach of a radio or newspaper knows that Captain Turnbull of the British tramp-steamer *Gardenia* picked us up a hundred miles east of the Long Island coast. Haworth offered him enormous largesse if he would tow the *Asteroid* into New York and we even lived aboard our own little vessel during the twenty four hours this required, (the wind was quartering against him). The captain, good man, left the management of his own ship to his first mate when he found out what was afoot, for he was aboard our vessel most of the short trip, staring open-mouthed at one or the other of us, listening and asking questions.

The *Gardenia* had a radio on board and it had been in frantic use, evidently, for when we reached New York harbor the official city tug met us and we were constrained to leave the *Asteroid* in charge of Captain Turnbull and be officially welcomed by the City of New York. Haworth arranged that our rocket ship would be anchored in an inaccessible section of the harbor and well-guarded and that we would come back for her later on. Then we went with the officials.

Many of you who read this may have seen us riding through bedlam in an automobile that day and wondered what we were thinking about. For myself, I was thinking how happy I was and how glad and good it felt to see a million or so human beings once again—particularly since they seemed glad to see me! We couldn't have had too much fuss and noise to suit my taste just then—although I will admit there is a limit to all pleasures, as we have since found out.

One more scene and I am done. A few nights ago, Dr. Mason and myself dined at the Charles Bascomb Haworth mansion in Connecticut at Mr. Haworth's special invitation.

"Bigelow," he said, "your moving picture films and photographs have been sold on a royalty basis to a

well-known syndicate."

I nodded.

"Do you know what the royalties have amounted to in the single month that have elapsed since our return? Over two and a half million dollars!"

I suppressed an exclamation and Mason looked up with raised eyebrows.

"I have estimated the entire cost of the *Asteroid*, including all test flights, and find it amounts to very little more than that sum," continued Haworth. "It is certain that in a few months more, what with further royalties on the pictures and the income from your book and Mason's scientific writings, we will have a substantial income above all costs of the expedition. This, naturally, we share equally."

So the voyage to Venus, barren of treasure as it seemed at first, has finally resulted in modest wealth for us all. I have bought over the ownership of *Lens and Bellows* and find I have made a very comfortable investment. Mason and I still live together, though he talks of starting off for the Mount Wilson Observatory next month to spend at least a part of his sabbatical year as originally intended!

Haworth, as the world knows, has buried himself in his Connecticut estate. What is not generally known is that he is working. He says he has an idea and Mason and I find it uninteresting to visit him, for his time is spent entirely in his study where he sits brooding over books, stroking his beard the while, or pacing the floor in deep concentration. As Mason says, "Of course we are welcome to go for walks with him—the length of the study and back! But I'm tired of being confined to rooms."

With the enormous mass of public interest directed upon the subject, it is not surprising that as I write no less than three space ships are building. Both the ships of the German Interplanetary Society and the French Air Corps are designed for voyages to the moon's frozen surface. The American Interplanetary Society (their membership jumped to 50,000 last week, I am told) plan a vessel to visit either Mars, or Venus for a more satisfactory exploration. All three of us have been invited to take places—in fact to assume leadership—in this expedition.

It would be idle to say that I am content to remain in comfort here forever. It is good to be back, of course, but there is something very irritating to me about the half-finished nature of our exploration on Venus. With fog-piercing searchlights a very great deal may be possible on that planet. The General Magnetic Company has been good enough to turn their laboratories to work on this problem. If they succeed and if a ship is available I won't say what might eventually happen. But that lies in the bosom of the future.

THE END