

Through Space to Mars

Roy Rockwood

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THROUGH SPACE TO MARS

Or the Longest Journey on Record

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By Roy Rockwood

#4 in the "Great Marvel Series"

CHAPTER I

TWO CHUMS

"Mark, hand me that test tube, will you, please?"

The lad who had made the request looked over at his companion, a boy of about his own age, who was on the other side of the laboratory table.

"The big one, or the small one?" questioned Mark Sampson.

"The large one," answered Jack Darrow. "I want to put plenty of the chemical in this time and give it a good try."

"Now be careful, Jack. You know what happened the last time."

"You mean what nearly happened. The tube burst, but we didn't get hurt. I have to laugh when I think of the way you ducked under the table. Ha, ha! It was awfully funny!"

"Humph! Maybe you think so, but I don't," responded Mark with rather a serious air. "I noticed that you got behind a chair."

"Well, of course. I didn't want broken glass in my eyes. Come on, are you going to hand me that test tube, or will I have to come and get it? We haven't much more time to-day."

"Oh, here's the tube," said Mark as he passed it over. "But please be careful, Jack."

Jack measured out some black chemical that resembled gunpowder, and poured it into the test tube which Mark handed him. Then he inserted in the opening a cork, from which extended a glass tube, to the outer end of which was fastened a rubber pipe.

He paused in his experiment to laugh again.

"What are you making--laughing gas?" asked Mark.

"No. But--excuse me--ha, ha! I can't help laughing when I think of the way you ducked under the table the other day."

"Maybe you'll laugh on the other side of your countenance, as Washington White would say," commented Mark; "especially if that big tube bursts."

"But it isn't going to burst."

"How do you know?"

"Well, I worked out this experiment carefully. I've calculated

just how strong the new gas will be, and--"

"Ah, that's just it. It's a new gas, and you've never yet succeeded in making it, have you?"

"No; but--"

"And it takes a different combination of chemicals to make it from any you ever experimented with before, doesn't it?" asked Mark.

"It does. But--"

"Yes, and I don't see how you can tell, with any amount of calculation, just how much force will develop from those chemicals, as no one ever put them together before."

"Well, maybe I can't," admitted Jack. "But this tube is very strong, and even if it does break nothing very serious can happen."

"Unless the gas you expect to generate is stronger than you have any idea of."

"Well, I'm going to do it. I've got half an hour before Professor Lenton and his class comes in, and that's time enough. Here, just hold this rubber tube under this jar, will you? And be sure to keep the edge of the jar below the surface of the water. I don't want any of the gas to escape."

He handed Mark the end of the rubber tube, and the somewhat nervous student, who was helping his chum Jack in the experiment, inserted it under the edge of a large bell-glass, the open mouth of which was placed just under the surface of water in a shallow pan.

The two lads were students at the Universal Electrical and Chemical College. They stood high in their classes, and were often allowed to conduct experiments on their own responsibility, this being one of those occasions. Jack, who was somewhat older than his companion, was of a more adventurous turn of mind, and was constantly trying new things. Not always safe ones, either, for often he had produced small explosions in the laboratory of the college. Only minor damage had been done thus far, but, as Mark said, one could never tell what was going to happen when Jack mixed certain things in test tubes and placed them over a spirit lamp, or the flame of a Bunsen burner.

"Have you got that tube under the jar?" asked Jack as he lighted a large Bunsen flame.

"It's under," answered Mark. "But say, what are you going to do in case you prove that your theory is right, and that you can make a new kind of gas? What good will it be?"

"Lots of good. If I'm right, this will be the lightest gas ever made. Much lighter than hydrogen--"

"Lighter than the kind Professor Henderson made for use in the

Flying Mermaid, in which we went to the center of the earth?"

"No, I'm afraid I can't equal his gas; but then, no one can ever hope to. I'm going to make a new gas, though, and I'll show you that it will be much lighter and more powerful than hydrogen."

"More powerful, eh? Then I wish you'd have some one else hold this. I'm afraid the test tube will burst."

"What if it does? It can't hurt you--very much. But here, since you're so nervous, I'll put a pile of books all around the tube and the burner. Then, if it bursts, the books will prevent the pieces of glass from flying all about. Does that satisfy you?" and Jack began heaping some books about the burner, over which he was about to suspend the test tube containing the queer chemical.

"Yes," returned Mark doubtfully. "I suppose it's all right--unless the books will be blown all over."

"Well, I'll be jig-sawed!" exclaimed Jack with a laugh. "There's no satisfying you. You're too particular, Mark."

"Maybe; but I don't want to get hurt."

"You'll not be injured in the least. Look, you're quite a distance away, and even if it does explode and the books are scattered away, it can't hurt much to be hit by one of these volumes. There, I'm all ready now. Hold the tube firmly."

He placed the test tube in a support, clamping it fast, so that it would be held steady over the flame. Then he turned on more of the illuminating gas, which, coming through the Bunsen burner, was made intensely hot. A little column of flame now enveloped the big test tube containing the powder.

There was a little crackling sound as the heat expanded the powder, and the end of the test tube became quite red from the flame.

"That tube'll melt!" exclaimed Mark, peering over the pile of books. "It's too near the flame."

"Guess you're right," admitted Jack. "I'll raise it up a bit."

He turned down the flame and elevated the tube slightly. Then he took a position where he could watch the process of making what he hoped would be a new kind of gas. He wanted to be where he could see the vapor beginning to collect in the top of the tube, pass off through the glass in the cork, and then through the little rubber hose to the bell glass held by Mark. If the gas was generated too quickly, Jack knew he would have to turn down the heat slightly.

The crackling sound continued. Then, as Jack watched, he saw a thick, yellowish vapor collecting in the top of the test tube near the cork.

"It's coming!" he cried. "There's my new gas!"

"What's the name of it?" asked Mark.

"I haven't named it yet. I want to collect it in the jar and show it to Professor Lenton. He said he didn't believe I could make it."

The boys resumed their careful watching of the experiment. It was a nervous moment, for, from experience, Mark knew you never could tell what would happen when Jack began to try new combinations of chemicals. He was ready to drop down on an instant's warning, out of the way of flying missiles.

"See any bubbles in that pan of water yet?" cried Jack.

"No, not yet."

"That's queer. The test tube is full of the yellow gas, and some ought to be over to where you are now. I'm going to turn on some more heat."

He increased the Bunsen flame. The crackling noise was louder. The test tube became a fiery red.

"It's bubbling now!" suddenly called Mark.

"That's good! The experiment is a success! I knew I could make it. Is any of the gas coming up in the glass jar?"

Mark bent over to make a closer examination. There were a few seconds of silence, broken only by the roaring of the burner and the crackling of the black powder.

"Yes, there is vapor in the jar," he said.

"Good! That's the stuff!" cried Jack. "Now I guess Professor Lenton will admit that I'm right."

He turned the Bunsen flame up higher. A moment later he uttered a cry, for he saw the cork being forced from the test tube. The pressure of the new gas was too much for it.

"Lookout!" cried Jack. "She's going up!"

Then followed a sharp explosion, and the laboratory seemed filled with fragments of broken glass and torn books.

CHAPTER II

JACK MAKES OXYGEN

"There it goes! There it goes!" cried Mark, making a dive for the laboratory door, but slipping and sprawling on the floor.
"There it goes, Jack!"

"No; it's gone already!" cried Jack, who, even in the midst of danger and excitement, seemed to remain calm and still to have his appreciation of it joke.

"Come on!" cried Mark as he scrambled to his feet. "We must get out of here, Jack!"

"What's the use now? It's all over."

There was a tinkling sound, as fragments of the broken test tube, the bell-jar and other things began falling about the room.

Mark was fumbling at the door of the laboratory, seeking to escape.

"Come on back," said Jack. "It's all over. There's no more danger. We'll try it again."

Just then one of the pile of books, that had been blown on an upper shelf, came down, landing on Mark's head.

"No danger?" cried Mark, trembling from excitement. "No danger? What do you call that?" and he pointed to the books at his feet, while he rubbed his head ruefully.

"Well, there aren't any more," observed Jack, with a look upward.

Just then the door opened, and an elderly gentleman, wearing spectacles, entered the laboratory. He seemed much excited.

"What happened? Is any one hurt? Was there an explosion here?" he asked.

Then he saw the devastation on all sides--the broken glass, the scattered and torn books--and he noticed Mark rubbing his head.

"There was--er--a slight explosion," replied Jack, a faint smile spreading over his face.

"Are you hurt?" the professor asked quickly, stepping over to Mark. "Shall I get a doctor?"

"A book hit him," explained Jack.

"A book! Did a book explode?"

"No, sir. You see, I was making a new kind of gas, and Mark was helping me. He was afraid the test tube would explode, so I piled books around it, and--"

"And it did blow up!" cried Mark, still rubbing his head. "The test tube, and the other tube, and the rubber hose, and the bell-jar. I told you it would, Jack."

"Then you weren't disappointed," retorted Jack, this time with a broad smile. "I don't like to disappoint people," he added.

"What kind of gas was it, Darrow?" asked Professor Lenton.

"Well, I hadn't exactly named it yet," answered the young inventor. "I was going to show it to you, and see what you thought of it. It's the kind you said I couldn't make."

"And did you make it?" asked the instructor grimly.

"Yes, sir--some."

"Where is it?"

"It's--er--well, you can smell it," replied Jack.

Sure enough, there was a strong, unpleasant odor in the laboratory, but that was usual in the college where all sorts of experiments were constantly going on.

"Hum--yes," admitted the professor. "I do perceive a new odor. But I'm glad neither of you was hurt, and the damage doesn't seem to be great."

"No, sir. It was my own apparatus I was using," explained Jack. "I'll be more careful next time. I'll not put in so much of the chemical."

"I don't believe there had better be a 'next time' right away," declared Mr. Lenton.

"The next attempt you make to invent a powerful gas, you had better generate it in something stronger than a glass test tube. Use an iron retort."

"Yes, sir," replied Jack.

"And now you had better report for your geometry lesson," went on the professor. "I need the laboratory now for a class in physics. Just tell the janitor to come here and sweep up the broken glass. I am very glad neither of you boys was seriously injured. You must be more careful next time."

"Oh, Mark was careful enough," said Jack. "It was all my fault. I didn't think the gas was quite so powerful."

"All right," answered the professor with a smile as Jack and Mark passed out on their way to another classroom.

The two lads, whom some of my readers have met before in the previous books of this series, were friends who had become acquainted under peculiar circumstances. They were orphans, and, after having had many trying experiences, each of them had left his cruel employers, and, unknown to each other previously, had met in a certain village, where they were obliged to beg for food. They decided to cast their lots together, and, boarding a freight train, started West.

The train, as told in the first volume to this series, called "Through the Air to the North Pole," was wrecked near a place where a certain Professor Amos Henderson, and his colored helper, Washington White, lived. Mr. Henderson was a learned scientist who was constantly building new wonderful machines. He was

working on an airship, in which to set out and locate the North Pole, when he discovered Jack and Mark, injured in the freight wreck. He and Washington White carried the lads to the inventor's workshop, and there the boys recovered. When they were well enough, the professor invited them to live with him, and, more than that, to take a trip with him North Pole.

They went, in company with Washington and an old hunter, named Andy Sudds, and some other men, whom the professor took along to help him.

Many adventures befell the party. They had battles with wild beasts in the far north, and were attacked by savage Esquimaux. Once they were caught in a terrible storm. They actually passed over the exact location of the North Pole, and Professor Henderson made some interesting scientific observations.

In the second volume of this series, entitled "Under the Ocean to the South Pole," Professor Henderson, Jack, Mark, Washington and old Andy Sudds, made even a more remarkable trip. The professor had a theory that there was an open sea at the South Pole, and he wanted to prove it. He decided that the best way to get there was to go under the ocean in a submarine boat, and he and the boys built a very fine, craft, called the Porpoise, which was capable of being propelled under water at a great depth.

The voyagers had rather a hard time of it. They were caught in a great sea of Sargasso grass, monstrous suckers held the boat in immense arms, and it required hard fighting to get free. The boys and the others had the novel experience of walking about on the bottom of the sea in new kinds of diving suits invented by the professor.

On their journey to the South Pole, the adventurers came upon a strange island in the Atlantic, far from the coast of South America. On it was a great whirlpool, into which the Porpoise was nearly sucked by a powerful current. They managed to escape, and had a glimpse of unfathomable depths. They passed on, but could not forget the strange hole in the island.

Mark suggested that it might lead to the center of the earth, which is hollow, according to some scientists, and after some consideration, Professor Henderson, on his return from the South Pole, decided to go down the immense shaft.

To do this required a different kind of vessel from any he had yet built. He would need one that could sail on the water, and yet float in the air like a balloon or aeroplane.

How he built this queer craft and took a most remarkable voyage, you will find set down in the third book of this series, entitled "Five Thousand Miles Underground."

In their new craft, called the Flying Mermaid, the professor, the boys, Washington and Andy, sailed until they came to the great shaft leading downward. Then the ship rose in the air and descended through clouds of vapor. After many perils they reached the center of the earth, where they found a strange race of beings.

One day, to their horror, an earthquake dosed the shaft by which they had come to the center of the earth. The boys were in despair of ever getting to the surface again, but the professor had been prepared for this emergency, and he had built a strong cylinder, into which all the travelers placed themselves. Then it was projected into a powerful upward shooting column of water, which Professor Henderson hoped would take them to the surface of the earth. Nor was he mistaken. They had a terrible journey, but came safely out of it.

They opened the cylinder, to find themselves floating on the sea, and they were rescued by a passing vessel. Of course, they had abandoned the Mermaid, leaving the craft in the center of the earth, but they had brought back with them some valuable diamonds, which formed their fortune.

This ended, for a time, the experiments of the professor, who decided to settle down to a quiet life, and write out the observations he had made on the three voyages. The boys wanted to get an education, and, investing their share from the sale of the diamonds, they took up a course at the Universal Electrical and Chemical College. Each had an ambition to become as great an inventor as was Professor Henderson, with whom they continued to live in a small city on the Maine coast. Washington White and Andy Sudds also dwelt with the professor, Andy going off on occasional hunting trips, and Washington acting as a sort of body servant to Mr. Henderson.

Jack and Mark had completed one term at the college, and were in the midst of the second when this story opens.

They had not lost their love for making queer voyages, and one of their greatest desires was to help the professor turn out a craft even more wonderful than the Electric Monarch, the Porpoise or the Flying Mermaid. It was in this connection that Jack was experimenting on the new gas, when the slight accident happened.

"Are you going to try that again?" asked Mark, as he and his chum walked along to their geometry class.

"Sure," replied Jack. "I want that to succeed. I know I am on the right track."

"You came near getting blown off the track," remarked his companion, which was as near to a joke as he ever would come, for, though Jack was jolly and full of fun, Mark was more serious, inclined to take a sterner view of life.

"Oh, I'll succeed yet!" exclaimed Jack. "And when I do--you'll see something--that's all."

"And feel it, too," added Mark, putting his hand on his head, the book having raised quite a lump.

It was several days after this before the boys had the chance to work alone in the laboratory again, and Jack had to promise not to try his experiment with the new gas before this privilege was granted him.

"Want any help?" asked Dick Jenfer, another student, as he saw Jack and Mark enter the laboratory.

"Yes, if you want to hold a test tube for me," answered Jack.
"I'm going to try a new way of making oxygen."

"No, thanks! Not for mine!" exclaimed Dick as he turned away.
"I don't want to be around when you try your new experiments.
The old way of making oxygen is good enough for me."

"Well, I have a new scheme," went on Jack.

Soon he and Mark, whom he had again induced to help him, were busy with test tubes, rubber hose, Bunsen flames, jars of water, and all that is required to make oxygen.

Somewhat to his own surprise, the experiment Jack tried was a success. He collected a jarful of oxygen, generated in a way he had thought out for himself. It was much simpler than the usual method.

Just as he concluded the test, some one opened the laboratory door. It was Professor Lenton.

"I have a telegram for you," he said.

"A telegram?"

"Yes. It just arrived."

Jack tore open the yellow envelope.

"It's from Professor Henderson," he said.

"Is anything the matter?" asked Mark.

"I don't know," answered Jack. "It says: 'Come home at once.' I wonder what's wrong?"

"I hope nothing serious," said Professor Lenton.

"You may both prepare to leave this afternoon. I am sorry. Let me hear from you when you reach Professor Henderson. I trust nothing has happened to him. He is too great a scientist for us to lose."

CHAPTER III

WASHINGTON MEETS THE BOYS

All thoughts of experiments were driven from the minds of Jack and Mark by the telegram. They imagined that something had happened to their old friend, and it worried them. If he was

dangerously hurt, as might be, for he was constantly experimenting in a small way, it would mean that a great change must take place in their lives.

"What do you suppose can have happened?" asked Mark, as he and Jack went to their rooms to get ready to leave the college.

"I haven't the least idea. Maybe he wants us to go on another trip."

Mark finished packing, and Jack was not far behind him. Then the lads went to the railroad station, where they purchased tickets for home and were soon on a train. On the journey they could not help but refer occasionally to the telegram, though Jack kept insisting that nothing so serious had happened. Mark was not quite in such good spirits.

"Well, here we are," announced Jack, about three hours later, as the train pulled into a small station. "And there's Washington on the platform waiting for us."

Jack hurried out of the car, followed by Mark.

"Hello, Wash!" cried the fat lad. "How are you? Catch this valise!" and he threw it to the colored man before the train had come to a stop. Washington deftly caught the grip, though he had to make a quick movement to accomplish it.

"I 'clar t' gracious!" he exclaimed. "Dat suttinly am a most inconsequential mannah in which to project a transmigatory object in contiguosness to mah predistination."

"Whoa, there!" cried Jack. "Better take two bites at that, Wash!"

"Dat's all right, Massa Jack," answered the colored man. "I'se glad to see yo', an' I suttinly hopes dat de transubstantiationableness ob my--"

"Wow!" cried Jack. "Say that over again, and say it slow."

"Don't yo' foregather mah excitability?" asked the colored man rather anxiously.

"Yes, I guess so. What's the answer? How's the professor? How's Andy? What's the matter? Why did he send for us?"

"Wait! Wait! Please wait!" begged Washington. "One ob dem interrogatorial projections at a time, Massa Jack. Where am Massa Mark?"

"Here I am," replied Jack's chum, as he followed him out on the platform of the train, which had come to a stop.

"Dats right!" exclaimed Washington. "Let me hab yo' extended article ob transportation an' I'll jest expidite it in--"

"I guess you mean it, all right," interrupted Jack. "But what's up? Why did the professor send for us?"

"I doan't know, Massa Jack."

"You don't know?"

"Nopy. He jest done gone tell me to send dat transmigatory telegraph, an' dat's all."

"But why does he want us? He's not sick, is he?" asked Mark.

"Never felt bettah!" exclaimed Washington as he walked along the street leading from the depot, a valise in either hand. "His state ob health am equal to de sophistication ob de soporiferousness."

"You mean he sleeps well?" questioned Jack.

"Dat's what I done meant to convey to yo', Massa Jack."

"Well, why don't you say it?" asked Mark.

"Dat's jest what I done. I said--"

"Never mind," interrupted Jack.

"Then you can't tell us why the professor sent for us?"

"He's got company," went on Washington, as if he had just thought of that.

"Company?" exclaimed both boys.

"Yyais."

"Who is it?"

"Why, his name am Santell Roumann."

"What an odd name!" commented Mark.

"Is he a doctor?" asked Jack.

"He speaks wid a Germannes aceetnuation," said Washington. "He suttinly uses de most ogilistic conglomerations--"

"If he can beat you, he's a wonder," said Jack. "But where did he come from?"

"I 'clar t' goodness I doan't know. All I knows is dat he jest comed. One day he wasn't dere, and come next day he was."

"Does the professor know him?"

"Suah! He's a friend ob de perfesser," added Washington. "De perfesser was pow'ful glade t' see him."

"Then he must be some scientist," said Mark.

"Dat's it! He's chock full obscientistical bombasticness an' labiodentalisms," said the colored man.

"I guess the professor wanted us to meet him and learn something that we couldn't in college," spoke Mark. "Well, we'll soon be there."

"Yes," assented Jack. "I want to find out what it's all about. Santell Roumann--that's an odd name."

"An' he's a mighty odd man," supplemented Washington.

They reached the house a few minutes later, and went in the front door. The sounds of two voices came from the library. One of them was that of Professor Henderson. He was saying:

"I tell you it can't be done! It is utterly impossible! It is madness to think of such a terrible trip!"

"And I tell you it can be done--it shall be done and you are the very man to accomplish it," insisted the other. "You and your young assistants will succeed. I know you will. You will go with me, and we will make the longest journey on record."

CHAPTER IV

WONDERFUL PLAN

"I wonder what they can be talking about?" asked Mark of Jack, as they paused outside the library door.

"I don't know, but it concerns us."

"What makes you think so?"

"Because, didn't you hear the stranger speak of us as the 'young assistants'? That's us."

"Very likely. But who is the man in with Professor Henderson, and what is the wonderful journey he is talking about?"

"Dat gen'man in wid de perfesser am also a perfessor." Explained Washington in a whisper. "He's Perfesser Santell Roumann. Now I 'spects I'd better saggasiate mahself inter proximity t' de culinary reservation."

"You mean you've got to go to the kitchen?" asked Jack with a smile.

"Dat's what I approximated to yo'," replied the colored man.

"I wonder if we'd better go in now, or wait until Professor Henderson is through talking to Mr. Roumann?" asked Mark.

"Yo' am to go right in," remarked Washington. "Dem's de orders I got when I went t' de statione t' meet yo'."

"All right," assented Jack. "Come on, Mark. We'll find out what's wanted of us."

The two boys entered the library, whence the voices of Professor Henderson and Mr. Roumann could still be heard in earnest discussion. Mr. Henderson looked up as his proteges advanced to the middle of the apartment.

"Jack! Mark!" he exclaimed. "I am very glad you came so promptly. I have something very important to communicate to you--something that I hope will make up for the loss you suffer in being taken away from college in the middle of the term. Or, to be more correct, Mr. Roumann will impart most of the information, for it is at his suggestion that I sent for you."

"Are these the young assistants of whom you spoke?" asked the other man, and the boys noticed that he was a big, burly German, with a bushy, gray beard, and penetrating, blue eyes.

"This is Jack Darrow," said the professor, indicating the stout youth, "and the other is Mark Sampson. They have lived with me several years now, and we have had many adventures together."

"Ha! Hum! Yes!" murmured Mr. Roumann, then he said something in German.

"I beg your pardon," he went on quickly. "I have a habit of talking to myself in my own language once in a while. What I said was that I did not know the lads were so young. I am somewhat apprehensive--"

"Do not be alarmed on the score of their youth," cried Professor Henderson. "I assure you that they have had a peculiar training, and, in some scientific attainments, they know as much as I do. You will not find them too young for our purpose, in case we decide that the thing can be done."

"I tell you it can be done, and it shall be done," insisted Mr. Roumann.

"I have my doubts," went on Mr. Henderson.

Jack and Mark must have shown the wonder they felt at this talk between the professor and his friend, for their guardian turned to them and said:

"Boys, you must excuse me for not telling you at once the reason why I sent for you. The truth is that Mr. Roumann has laid a very strange proposition before me. It is so stupendous that I hardly know whether to consider it or not. I want to talk with you about it, and see what you think."

"They will go with us, will they not?" asked Mr. Roumann.

"That is for them to say," replied Mr. Henderson.

"Go where?" asked Jack, wondering if there was in prospect another voyage to one of the Poles, or a trip to the interior of the earth.

Professor Henderson looked at the other man. They were silent a moment.

"Shall I tell them?" asked Mr. Henderson.

"Surely," assented Mr. Roumann. "It all depends on you and them whether we go or remain on earth."

Jack started. Then there was a question of getting off the earth. He began to think there might be exciting times for Mark and himself.

"Mr. Roumann has proposed a wonderful plan to me," went on Professor Henderson. "It is nothing more nor less than a trip to--"

"Mars!" burst out the blue-eyed man. "We are going to make the most wonderful journey on record. A trip through space to the planet Mars! Such an opportunity for reaching it, and proving whether or not there is life on it, will not occur again for many years. It is now but thirty-five millions of miles away from us. Soon it will begin to recede, at the rate of twenty-eight millions of miles a year, until it is two hundred and thirty four millions of miles away from us. Then we may never be able to reach it. Now, when it is but thirty-five millions of miles away, we have a chance to get there."

"I still believe it is impossible," said Professor Henderson in a low voice.

"Nothing is impossible!" exclaimed Mr. Roumann. "We shall go to Mars! I say it! I who know! I who hold the secret of the wonderful power that will take us there, and, what is more, bring us back! I say it! We shall go!"

"Impossible!" said the professor again, shaking his head.

"Don't say that word!" implored Mr. Roumann. "I will prove to you that we shall go."

"Go to Mars!" exclaimed Mark.

"Thirty-five million miles!" exclaimed Jack with awe in his tones. "How can we ever cover that distance? No airship ever made would do it."

"Not an airship, perhaps," said Mr. Roumann, "but something else. I will tell you how--"

"Perhaps I had better explain from the beginning," interrupted Mr. Henderson.

"Maybe it will be better," assented the other.

"Boys, be seated," spoke their guardian, and Jack and Mark took chairs. "Mr. Santell Roumann is an inventor, like myself," went on Mr. Henderson. "I have known him for several years, but I had not seen him in a long time, until he called on me the other day

with his strange proposition. We used to attend the same college, but since his graduation he has been experimenting in Germany."

"Where I discovered the secret of the wonderful power that will take us to Mars," added Mr. Roumann.

"That is one point on which we differ," continued Mr. Henderson. "Mr. Roumann believes we can get to the red planet, which, as he correctly says, is nearer to us now than it will be again in many years. I do not see how we can get there through the intervening space."

"And I will prove to you that we can," insisted the other. "The power which I shall use is strongest known. But it depends on you and your young assistants."

"On us?" asked Jack.

"Yes," replied Mr. Santell Roumann. "If and Professor Henderson can build the proper projectile, we shall go."

"A projectile!" exclaimed Jack.

"A projectile," said Mr. Roumann again. "I have studied it all out, and I think the projectile, shaped somewhat like a great shell, such as they use in warfare, or, more properly speaking, built like a cigar or a torpedo, is the only feasible means of reaching Mars. We shall go in a projectile, two hundred feet long, and ten feet in diameter at the largest point. That will offer the least resistance to the atmosphere of the earth, though when we get within the atmosphere of Mars, and are subjected to its attraction of gravitation, we shall meet with even less resistance."

"Why?" asked Jack, who wanted to know the reason for everything.

"Because," answered Mr. Roumann, "from my observations I have proved that the atmosphere of Mars is much less dense than is that surrounding the earth, and the attraction of gravitation there is about two-thirds less. That is, an object that weighs one hundred pounds on the earth will weigh only thirty-three pounds on Mars."

"That's the stuff!" cried Jack.

"Why?" asked Mr. Roumann in some surprise.

"Then I'll have a chance to lose weight," replied Jack. "I'm getting too fat here. I weigh a hundred and eighty pounds, and that's too much for a lad of my age. When I get to Mars I'll only weigh--let's see, two-thirds of one hundred and eighty--" and Jack got out pencil and paper and began figuring.

"It's sixty pounds!" exclaimed Mark, who was quick at figures.

"How are we to get to Mars, Mr. Roumann?" demanded Jack.

"I will tell you," answered the blue-eyed man. "When you and the

professor have constructed the projectile, after plans which I shall draw, I will apply my new, wonderful, secret power, and--"

"If yo' gen'men will kindly project yo'se'ves hitherward, an' proceed to discuss de similitodinariness ob de interplanetary conjunction what am waitin' fo' yo' heah, de obverseness of de inner constitutions will be expeditiously relieved," spoke the colored man, suddenly looking in the room.

"Does that mean supper is ready, Washington?" asked Professor Henderson.

"Yes, sah. It suah do."

"Then why didn't you say so?"

"I did, perfesser."

"Well, perhaps you thought so. Washington has a very peculiar habit of using big words, just because they sound so imposing," went on the professor. "He spends all his spare time consulting the dictionary."

"I have noticed it," remarked Mr. Roumann, smiling.

"Well, suppose we go out to supper?" went on Mr. Henderson. "You boys must be hungry."

"I can eat," admitted Jack.

"You'll get stouter if you do," warned Mark with a smile.

"Can't help it. Wait until we get to Mars."

"Oh, yes, you didn't finish telling us how we were to get there, Mr. Roumann," said Jack.

"I'll tell you while we're at supper," said the scientist. "I confess that Washington's announcement came just at the right time. I am very hungry."

CHAPTER V

THE SECRET POWER

For a few minutes after they were seated at the table nothing was heard but the rattle of the dishes and the clatter of knives and forks. Washington was a fine cook, and there was a plentiful supply of just what the boys liked best.

When the meal was well under way, the dining room door opened, and a strange figure entered. It was that of rather an aged man, who walked with soft, cat-like tread, and who leaned forward, as if on the trail of some enemy or wild beast. His eyes were bright, however, in spite of his age.

"Andy Sudds!" exclaimed Jack. "I was wondering where you were."

"Well, snap my gunlock, if it isn't Jack Darrow!" exclaimed Andy.

"Any luck?" asked Mark, for he knew the old man must have been hunting.

"And Mark, too!" went on the old hunter. "Well, this is a surprise. No, I didn't have any luck--that is, what you could call luck. There's been a weasel carrying off our chickens and killing them, and I went out to shoot it."

"Did you catch it, Mistah Sudds?" asked Washington anxiously.

"I didn't 'catch' it," answered Andy with a grin. "I killed it. I guess the chickens will be safe now, Wash. But I'm hungry. I've been hiding out there by the chicken coop all the afternoon. But what brings you boys back from college?"

"We came home because we are going to take a trip to Mars," explained Jack.

"Mars! Mars! Good land! Where'll you folks go next?" exclaimed Andy. "Wash, pass me some of that cold ham."

"You said you would tell us now how we were to get there, Mr. Roumann," said Jack, who was anxious, as was Mark, to hear the particulars.

"And so I will," replied the scientist. "You must know that I have long been interested in the planet Mars, for several reasons. Some reasons I will tell you now, and the others I will disclose at a future time."

"Mars, you know, is the fourth major planet, computing their positions in distance from the sun. First there is Mercury, then--"

"I know," interrupted Jack; "Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. I learned them at school."

"That's right," said Mr. Roumann. "But, while Mercury is only about thirty-six millions of miles from the sun at its nearest point, the closest it ever comes to the earth is fifty-seven millions of miles, while, as I told you, Mars is now but thirty-five millions of miles away, a difference in favor of Mars of twenty-two millions of miles, quite a distance when one has to travel it. Neptune, the farthest of the major planets, is two billion eight hundred millions of miles from the sun, and it is separated from this earth by--"

"By two billion seven hundred and eight million miles," said Mark quickly.

"How do you make that out?" asked Jack in some surprise.

"By subtracting ninety-two millions of miles, which is the distance from the earth to the sun, from the number of miles

Neptune is away from the sun," said Mark.

"That's right," admitted Mr. Henderson. "You're very quick at figures, Mark."

"Well, let's get to Mars," said Jack. "Maybe Andy can find some new kind of game there."

"Me? I'm not going to any place so many millions of miles away from here," answered the old hunter, looking up from his plate. "It's good enough hunting here."

"Wait until you see," said Mr. Roumann with a smile. "I expect to find many marvels on Mars."

"If we get there," added Mr. Henderson.

"We'll get there," declared Mr. Roumann confidently. "As I said, I have long been interested in Mars, and one reason is that I want to prove that there is life on it--that it is inhabited by a superior race of beings. Another reason is that I expect to find on it a supply--or at least specimens--of a most valuable substance--"

Mr. Roumann stopped suddenly.

"Well?" asked Mr. Henderson questioningly, for there was an odd manner about the blue-eyed scientist.

"That is something I do not wish to speak about at present," said Mr. Roumann quickly. "I will tell you my other reason for going to Mars--when we get there."

"Now, as to the method. As I told you, Professor Henderson, and as I intimated to you boys, we will go in a long, torpedo-shaped projectile, which, though it will not be very large in diameter, will be long enough to contain all our machinery and ourselves, with a sufficient store of provisions for a year or more. But I know what you are going to ask, and that is: How can I send the projectile through space?"

"Well, I'll tell you--that is, partly tell you, for some parts of my secret can never be revealed. I have discovered a wonderful power, more wonderful than man ever dreamed of before. I have called it Etherium, for the reason that I expect it to carry us through the ether, or space that exists outside of the atmosphere of this earth and that of Mars.

"Now, professor, do you think you and your assistants can build a proper projectile?"

"We built an airship that went to the North Pole, we constructed a submarine that took us to the South Pole, and we had the Flying Mermaid, in which we went to the center of the earth," said Mr. Henderson. "I think we can build you the torpedo-shaped projectile. But what will make it move through thirty-five millions of miles of space?"

"I will!" exclaimed the other. "I and my wonderful, secret

power--Etherium! If you will build the projectile I will do the rest. I will give you the plans for the machinery at once, and you can begin as soon as you are ready. You have a large workshop here, I understand."

"Yes, we have all the means at our command," admitted Mr. Henderson.

"But it must be built in secret," stipulated Mr. Roumann. "No one must know about it until we are ready to leave. Several unscrupulous men have tried to steal my secret."

"We can construct the projectile and machinery so that no one but ourselves, and one or two trusty mechanics, will ever know about it," promised Mr. Henderson.

"Good! Now, when can you begin? As I told you, Mars is already beginning to move away from us at the rate of twenty-eight millions of miles a year. That is over two millions of miles a month, and every day counts."

"We will start at once," promised Mr. Henderson. "That is, if Jack and Mark decide they want to go. I will let them choose. Boys, do you want to try to go to Mars, or go back to college?"

"Mars! Every time!" cried Jack. "I want to begin to weigh less."

"I'll go wherever Jack goes," said Mark.

"Very well, then," assented the professor. "But you must remember, Mr. Roumann, that I am still unconvinced that you possess the secret of a power that will project a heavy object through space to Mars--thirty-five millions of miles away. I do not say it can't be done, only I want to be shown. I will aid you all I can, and I will accompany you. But I fear we shall never get to Mars."

"And I tell you we will!" insisted the other. "Come, I will prove it to you by mathematics, and by illustrating some of the force of my new secret power. Let us go to the laboratory."

The professor took from a valise, which sat in a corner of the room, a bundle of papers. Then, followed by the professor and the boys, he started for the private laboratory of Mr. Henderson.

As they left the dining-room they heard an unexpected noise at one of the windows. They looked quickly up, and Jack saw the face of a man staring in.

Before he could cry out, there came the sound of Washington's voice:

"Hey dar! Git away from dere! Skedaddle, now, or I'll prognostigate yo' inter modicum ob transmigratory infatisamatisms!"

The face disappeared from the window, and the sound of footsteps in rapid retreat was heard.

CHAPTER VI

BUILDING THE PROJECTILE

"Did you see that?" exclaimed Jack.

"What?" asked Professor Henderson quickly.

"Some one at the window," replied Jack.

"I saw the face," added Mark. "It was a man looking in."

"A man? What sort of a man?" inquired Mr. Roumann, and he showed some excitement.

"I couldn't tell very well," answered Jack. "I saw him for only a second. But the man was looking right in."

"Did he have a heavy black mustache?" asked the German, and strode rapidly toward the window.

"No, he didn't have a mustache at all," said Jack. "He was smooth-shaven. I'm sure of that."

"Then it can't be he," murmured Mr. Roumann.

"Who did you think it was?" asked Professor Henderson.

"I--I thought it was an enemy of mine," was the answer. "Some one who has been trying to discover my secret. But the man whom I fear has a heavy black mustache, and this one, you say, Jack, had none?"

"None at all."

"Then it's all right."

Jack thought of saying that the man might have shaved his mustache off, but he did not want Mr. Roumann to worry.

"I guess he was only a tramp," said Amos Henderson. "Some one wandering about looking for a chicken coop that isn't locked. Or, perhaps, seeking a chance to rob."

Jack said nothing, but from the glimpse he had had of the man's face, he did not believe the fellow was a tramp. There was too much intelligence shown. The face was an evil one, and seemed to indicate that the man had an object in peering into the window--a motive that was not connected with a chicken coop.

"I'll tell Andy to keep watch for a while tonight with his gun," went on the professor. "I don't like prowlers around here. I have some valuable tools in my machine shop, and they might steal them."

"Now, Professor Henderson," began Mr. Roumann, when he had taken his seat at a small table and spread out his plans in front of him, "I am only going to sketch briefly, for you and your young assistants, what I propose. As I have said, we will need a projectile, two hundred feet long and about ten feet through in the thickest part. In that we will build sleeping and living apartments, tanks to store the air which we will have to breathe while traveling through space, other tanks for water, a compartment for food, another for scientific instruments, and we will need a comparatively large space for my machinery."

"Why will it take up so much space?" asked the professor. "I thought you said the new power required only a small machine to generate it."

"That is true, but you see we will have to carry two kinds of machines."

"Two? Why is that?"

"Because we are going to travel through two, and perhaps three, different mediums. We are going to shoot through the atmosphere of the earth; then through the vast region beyond that, filled with what is called ether."

"And is that different from our atmosphere?" asked Mark.

"Much different," replied Mr. Roumann. "There is no air to it at all. The secret power which I have invented is perfectly adapted to project us through this ether. That is why I call it Etherium. Then when we reach Mars, we will find a different atmosphere, somewhat like this earth's, I expect, but which will require still another kind of power to move us in. I hope, however, that the same force which sends us through the limits of the atmosphere of this earth will take us through that of Mars. So that is why I need so much space for machinery."

"Well, I guess we can build the projectile for you," said Mr. Henderson. "It will take us nearly a month, though."

"No longer, I hope," said the German. "Every day is valuable. Once the projectile is finished we will enter it, seal ourselves up, and be shot through space. When we get to Mars--well, there are many things to do when we reach there."

"I shall be much interested in seeing if they have discovered a way of conquering the air," said Mr. Henderson. "If they are a race of superior intelligence, as some authorities believe, from the fact that Mars may have been inhabited for millions of years before this earth was formed, they must have advanced very greatly in science. The mastery of the air--in making flying machines--would be one of the surest tests."

"I think you will find the Martians a very learned race, professor," said Mr. Roumann.

"I want to see if the boys there are like the fellows on earth--playing baseball, football and so on," marked Jack.

"I shall be interested in the colleges," added Mark, "and in the great canals of Mars."

"I believe there will be plenty to interest us on the planet which glows so red at night," went on Mr. Henderson. "But, Mr. Roumann, it is only fair to tell you that the building of this projectile will cost considerable money. I do not hesitate on this account, but, as you know, the Flying Mermaid, in which we went to the center of the earth, had to be abandoned there. That was quite a heavy loss. I should not like--"

"You will suffer no loss in this case," interrupted Roumann. "I appreciate that the projectile cost a large sum. I have no money to advance you, but I can promise you that when we reach Mars you will be amply repaid. We shall be rich--rich beyond your wildest dreams. There will be gold in untold quantities--"

"I never heard that there was much gold on Mars," said Jack.

"Not in the form of gold," said the German, who was growing very excited, "but something that can be turned into gold. I am on the track of the most wonderful substance--that which gives Mars its red color--that which will--"

He stopped suddenly.

"I must say no more now," he added, calming himself by a strong effort. "Sufficient to state that you will never regret making the trip to the wonderful planet."

"But now about your new force--how powerful is it?" asked Mr. Henderson. "You promised to demonstrate it to me."

"Yes, and I will do so."

Thereupon the German plunged into a mass of figures and calculations, which were quite puzzling to the boys, but which seemed very clear to Mr. Henderson. The German drew several rough outlines, and the discussion became quite technical. Toward the close, the inventor of the secret force gave a demonstration of its power. By means of certain chemicals and an electric current he developed from the end of a wire a force sufficient to knock over a heavy block of steel, weighing over a ton.

"That is only a small sample of what my force will do," he said. "In the proper machine it will be ten times more strong. The conditions here are not exactly harmonious. Now, are you satisfied, Professor Henderson?"

"Yes. I could not help but be after that demonstration, it is wonderful."

"And you will make the projectile for me--for us?"

"I will. I'll start at once."

"Good! And I promise that you will come back from Mars even more wealthy than you were when you returned from the center of the

earth."

"Most of that wealth is now gone," said Mr. Henderson with a smile. "I have enough left, however, to build the projectile, and we'll start at once."

"Hurrah for Mars!" cried Jack.

"And the marvelous red substance!" added Mark.

"Hush! Not a word about that!" cried Mr. Roumann warningly. "That must be kept a profound secret!"

The next day the boys, Professor Henderson, Washington White, and some trusty machinists began the building of the Annihilator, as the projectile was to be called, because it was to annihilate space.

CHAPTER VII

AT TERRIFIC SPEED

"Now, boys," remarked Mr. Roumann one morning about a week after work had been in progress on the projectile, "I did not mention it, of course, but I hope you will not let it become known in the village that we are constructing a machine in which to proceed to Mars. It would not do to have a lot of curious people out here."

"Oh, you needn't worry about that," replied Jack. "We have built several things in the shop here, and no one ever knew about them until we were ready to have them start off."

"We'll tell Andy Sudds to keep on guard with his rifle," suggested Mark. "That will prevent curious persons coming too close."

"That will be a good idea," declared Mr. Roumann.

"You need have no fear of anything being discovered," put in Mr. Henderson, who was busy planning the engine-room of the strange craft.

"When we first came here we used to be bothered by curious persons, but I soon found a method of keeping them away."

"How was that?" inquired the German.

"Why, I ran a wire all around the shop, and charged the conductor with a mild current of electricity. Some people got shocked by coming too close, and after that they gave my place a wide berth. I'll do the same thing now."

"A fine idea," commented Mr. Roumann. "But what about Washington White? He is so fond of talking, and using big words, that he

may disclose our plans."

"No, I can trust Washington," declared the professor. "But, as a further precaution, I have not told him what our object is. All he knows is that we are building a new machine, but he does not know what it is for, nor where we are going."

"That's good."

"Maybe when he does find out he'll not want to go," added Mark.

"Do you intend to take him with us?" asked Mr. Roumann.

"I think so--if he'll go," replied Mr. Henderson. "He has always been with me, and he is very helpful on these trips. But I shall not tell him where we are going until we are almost ready to start. But now, Mr. Roumann, I'd like to consult with you about the installation of the motor, or whatever we are to call it, by means of which your secret force is to be used."

"A motor will be as good a name as any other. We'll call it the Etherium motor."

"What will we call the other one?" asked Jack.

"What other one?"

"The motive power by which we are to go through the atmosphere of the earth."

"Well, we can call that the atmospheric motor," replied Mr. Roumann. "However, there is no hurry about that. I want to get the work in the engine-room under way first."

He and the professor were soon deep in the discussion, while Jack and Mark, with the aid of the machinists, were busy constructing the main part of the projectile.

The first thing to be done was to build the shell of the projectile. This consisted of plates of a new and peculiar metal, invented by Professor Henderson. The plates were riveted together, in the shape of a great cigar, two hundred feet long. This work took some time, but, as the professor had in his shop the proper machinery for it, a small force could accomplish a great deal of work.

The rear of the projectile was to be occupied by the mysterious apparatus that was to drive it through space. In this compartment would be many strange machines, including the one which Mr. Roumann had invented to use the terrific and secret force of which he was the discoverer.

There were apparatus for distilling water from the atmosphere, others for manufacturing oxygen, dynamos for furnishing light to the interior of the Annihilator, motors for working the various small machines, and a number of other appliances.

Forward from the engine-room was a space to be used in storing away the food supplies, and the materials necessary for generating

the force used, as well as for making a new supply of air when needed.

Amidships was a living-room, with a plate-glass window on either side. There was not much space to move about in it, as, owing to the long and narrow shape of the projectile, economy of room was enforced. Still, the place was a lengthy one, with tables and chairs, which could be folded up out of the way when not in use. There was provision for a library of scientific and other books, and a piano played by electricity and brass disks, somewhat on the order of modern player-pianos.

"What are those apertures in the sides of the living-room?" asked Jack of Mr. Roumann, as the lad glanced over a sheet of blue-print paper, on which was shown a plan of the projectile.

"Those," said the German, "are for the guns."

"Guns!" exclaimed Mark. "Why, they're too big for guns. They are large enough to put a cannon through."

"And that is just what is going to be put through them, my boy," went on Mr. Roumann. "From those openings, and you will see that there are four of them, will protrude the muzzles of my electric cannons."

"Do we need them?" asked Jack.

"You can't tell what we'll need when we get to Mars," was the slow answer. "You must remember that we know nothing about the inhabitants of the planet. While I believe that the people there are of a very high grade of intelligence, we must be prepared for the worst. We may find them terrible savages, who will want to attack and destroy us. With the electric cannon we can defend ourselves."

"That's so," admitted Jack. "We had to fight the Esquimaux up north,"

"And the putty-men in the center of the earth," added Mark.

Forward of the living-room, and near what corresponded to the bow of the projectile, were the sleeping-rooms, consisting of two long, narrow compartments, with a passageway between them, like the aisle in a sleeping-car. The beds were berths against the wall, much as in the Pullman cars of to-day.

In the very "nose" of the Annihilator was the pilot house. Here were grouped together the wheels, levers, cams, gears, pistons and other apparatus that controlled the big projectile. Standing in it, and peering out through a heavy plate glass window, the operator could guide the machine in any direction he desired, and he could also regulate the rate of progress.

A number of scientific instruments were carried, for showing and registering the speed and direction of the Annihilator, the distance it was above the earth, and there was an indicator to note how near the travelers came to Mars. There was also a powerful telescope, and a number of cameras so arranged that they

would automatically take pictures.

"We'll have to travel through space pretty fast in order to cover thirty-five millions of miles," observed Jack, stopping in his work of helping rivet some of the plates.

"About how fast will we have to go, Mr. Roumann?"

"I have it all figured out," replied the German.

"I hope our projectile will stand it," remarked Mr. Henderson. "We did not have to make such terrific speed on our other voyages."

"I think that the Annihilator, as we have planned it, will not suffer from the strain of speed," when on Mr. Roumann, looking up from his study of some blue-prints. "You may be astonished when I tell you we shall have to travel at the rate of one hundred miles a second."

"One hundred miles a second!" exclaimed Jack. "That's pretty fast, isn't it?"

"It's at the rate of eight million six hundred and forty thousand miles a day," came from Mark, who was a rapid figurer.

"And to cover thirty-five million miles would take us less than five days," said Jack. "But such an enormous speed--"

"We must travel at about that speed," interrupted Mr. Roumann, "though I fancy we will be nearer ten days than five in reaching Mars."

"Why?" asked Jack.

"Because we will not dare travel at such terrific speed as one hundred miles a second through the atmosphere of the earth. We would be burned into cinders by the mere friction of the air. Therefore, I shall send the Annihilator comparatively slowly through the earth's atmosphere, and perhaps I will find that I shall have to do the same thing when we near Mars. But while traveling through the ether, or the space that is between the two can go as fast as we like, which will as Mark has said, eight million miles per day."

"But even that rate," began Jack, "is going to pretty fast."

"It is faster than almost anything except light," went on Mr. Roumann.

"Light travels one hundred and eighty-six thousand miles a second," stated Mark, who remembered his physics. "That's more than seven times around the earth in a second."

"Correct," said Mr. Roumann with a smile. "But sound, as you know, only goes a little over a thousand feet a second, at a temperature of thirty-two degrees above zero. In a warmer atmosphere it travels slightly faster. We are going much faster than sound ever travels. A cannon ball will travel about three thousand feet per second, so we are even going to beat cannon

balls. At least, we hope we are, when we get beyond the earth's atmosphere."

"That's going to be terrific speed," remarked Jack dubiously, as if there was some risk in it.

"You need not worry," said Mr. Roumann. "You know we are building the Annihilator with a double shell, with a space between the two walls."

"Yes?" said Jack questioningly.

"Well, in that space I intend to put a new kind of gas, that will absorb all the heat that may be generated by our flight through space," went on Mr. Roumann. "Now that you know you have nothing to fear, let us go on with the work."

CHAPTER VIII

A MYSTERIOUS THEFT

"Would yo' kindly permit me t' prognostigate yo' attention fo' de monumental contraction of impossibilitiness in de circumlocution ob attaining de maximum nutrition ob internal combustion?" asked Washington White about an hour later, as he poked his head into the workshop, where the professor, the boys and Mr. Roumann, together with the machinists, were busily engaged.

"What's that, Wash?" asked Jack with a wink at Mark. "Would you mind saying that over again?"

"Not in de leastest, Massa Jack," replied the colored man. "What I done intended to convey to de auditory sensibilities ob de auricular nerves ob do exterior contraption ob de--"

"Hold on, Washington!" cried Professor Henderson with a laugh. "That sounds as if it was going in be worse than the other. Did I understand you to say that you wanted us to come to dinner?"

"Dat's jest it, pertesser. I done 'spress mahself in de most disproportionate language what I knows how, an' yet it seems laik some pussons cain't understand de appreciableness ob simplisosity."

"Simplisosity is a new one," murmured Mark, while Washington, with an injured look at Jack, who was laughing, went back to his kitchen to prepare to serve the meal.

"I wonder what we'll get to eat when we get up above?" asked Jack, taking advantage of a lull during the meal, when Washington was in the kitchen, for it had been agreed that nothing was yet to be said to the colored man as to their destination, though Andy Sudds knew of their plans. But Andy could be depended on not to talk too much.

"Eat?" repeated the professor. "Why, I fancy that we will take enough along from the earth to last us, eh, Mr. Roumann?"

"Not altogether. I am positive that there is life on Mars, and where there is life there must be things to sustain it. Perhaps the food there will not be such as we are used to, but when our supply, runs short we will have to depend on what we will get there."

"How long do you expect to stay?" asked Mark.

"It is hard to say. When I get what I want I shall be ready to return--that is, after having studied the inhabitants and made some scientific observations."

"Maybe the Martians will like us so that they let us come back," suggested Jack with a laugh.

"Oh, I fancy we will be able to get away," said Mr. Roumann. "But now I must get back to the shop. I am having a little more trouble with my Etherium motor than I anticipated."

"I don't exactly understand how that works," said Jack. "The plans don't call for any opening the stern of the Annihilator for a propeller to project from, and there is no provision for a tube, such as we used to send compressed air from the Flying Mermaid. Nor is there anything in front to pull the Annihilator along."

"We need nothing like that," explained the German scientist. "The powerful force which I discovered does not need a tube or a propeller to enable it to be used. The simplest explanation of it is that it consists of waves of energy, which pass from certain square surfaces attached to the motor. The force flows from the plates right through the stern of the ship, passing through the metal without the necessity for any openings. The wireless waves, as they may be called, act on the ether, and, by pushing against it send the projectile forward, just as if it was a stream of compressed air acting on the atmosphere, or a propeller in the water. Of course, that is to be used when we pass beyond the atmosphere. In the latter space I shall use a different force, as I also shall when we approach Mars."

"Then you can't see this force?" asked Mark.

"No more than you can see the wireless impulses that flow from the wires of an aerial station."

"Yet it's there, just the same," spoke Jack.

"Indeed, it is," answered the scientist. "But, now I must get back to my motor."

"Yes," added Professor Henderson, "we must, all get busy. What are you going to do, Andy?"

"Well, I thought I'd go off hunting. I'm no good at building machinery. I thought you might like something for dinner--say a brace of ducks."

"Good!" cried Jack, who was fond of eating, which, perhaps, accounted for his stoutness.

It was a fine day, just right for hunting, and Andy set off with his gun over his shoulder.

"I wonder if there'll be any game on Mars," said Mark. "I think I'd like to hunt there with Andy."

"If other things are in proportion, the game there will be very different from that on this earth," said the scientist. "We may find monsters there which you never dreamed of."

"That'll be just the stuff for you, Andy," cried Jack.

"Well, bring on your monsters," said the old hunter, as he walked toward the little lake, where wild ducks abounded. "I'll try and shoot some for you."

"Andy takes everything as a matter of course," went on Jack. "No sort of animal seems to frighten him. If he should happen to meet a dinotherium, such as used to live ages ago, he'd shoot it first, and wonder about it afterward."

"And we, are likely to meet with stranger beasts than dinotheriums on Mars," said Mr. Roumann.

"What am dat dinotherium?" asked Washington, entering the room at that moment and catching the word.

"Washington wants to work that into his conversation!" exclaimed Jack with a laugh. "But you want to be careful, Wash."

"Why so, Massa Jack?"

"Because the dinotheriurn was a fearful beast. It was about twenty feet long, lived in the water, and ate all sorts of weeds."

"How long you say he was?"

"About twenty feet."

"He must eat a pow'ful sight ob weeds, den. Wish I had one."

"What for?"

"Cause mah garden am jest oberrun wid weeds. If I had one ob dem dinnasorriouses--"

"Dinotheriums," corrected Jack.

"Dat's what I said," observed Washington with dignity. "If I had one ob dem, I wouldn't hab t' weed mah garden. Where am one to be possessed ob, Massa Jack?"

"I guess you were born a few million years too late," was the lad's answer. "They lived a few centuries before the flood."

"Good land!" exclaimed Washington, his eyes opening wide.
"Before Noah built de ark?"

"Yes."

"Landy gracious! Dat animai'd be so old by dis time dat he couldn't chew de weeds after he pulled'em. Guess I'll hab t'do mah own weedin'."

"I reckon you will," added Mark.

They went back to the machine shop, and for the next week were very busy over the Annihilator. It was beginning to assume shape, and some of the machinery was installed.

One evening, after a hard day's work, when they 'were all seated in the big living-room of Professor Henderson's home, discussing the progress they were making, Jack suddenly held up his hand for silence.

"What's the matter?" asked Mark.

"I thought I heard somebody walking around the house," was the stout lad's answer.

"Maybe it's Washington," suggested the professor. "He generally goes out to see if his chickens are shut up. He is very proud of his flock of hens, and seems to hate to kill any for pot-pie."

They all listened. Plainly there was some one or some animal moving about under the windows of the living-room.

"That doesn't sound like Washington," said Mr. Roumann.

Just then the colored man, who had been upstairs, attending to some of the housework (for he was the only servant the professor kept), came down.

"Were you just outside, Washington?" asked Mr. Henderson.

"No, sah. I'se been upstairs, makin' beds."

"There it is again!" cried Jack suddenly.

The footsteps sounded more plainly, and one of the window shutters rattled.

"Dat's somebody after mah chickens!" exclaimed the colored man.
"I'se gwine t' git him, too!"

He started for the door, but the professor held him back.

"Let Andy go," he said. "He will make less noise than any of us."

He looked at the old hunter and nodded. Andy understood, and, taking his gun from a corner, slipped out of a side door, making no more noise than a cat.

The others, left in the living-room, waited in silence. They could hear the stealthy footsteps, which, however, seemed now to be moving away.

"I wonder who or what it can be?" murmured the professor. "This is the second time some one has been sneaking around here. I don't like it."

"It does look suspicious," admitted Jack. "Do you suppose the man you spoke of, Mr. Roumann, who you thought might try to discover your secret, has traced you here, and is endeavoring to steal it?"

"No, I hardly think so. I took good care to conceal my movements, and not even my closest friends know that I am here with Professor Henderson, making a projectile, the trip of which will astonish the world. No, I think this must be some other person."

"It's a pusson after mah chickens!" insisted Washington. "If yo'll allow me, perfesser, t' project mahself inter de promixity of his inner consciousness--"

"No, you just stay here," decided Mr. Henderson. "You might get into trouble if you went out and tried conclusions with a thicken thief, which I suppose is what you are trying to say you want to do."

"Dat's what I did say, perfesser."

They could no longer hear the footsteps, but the silence of the night was suddenly broken by the report of Andy's gun.

"There! He's shot at him!" cried Jack.

"I hope he disabled dat chicken stealer!" yelled the colored man. "Anybody what'll steal chickens--"

"Hush!" commanded Mr. Henderson.

Another shot rang out, and then the sound of footsteps could be heard.

"He's running past here," called Jack, hurrying to the door.

He caught sight of a dark figure rushing past, and was about to follow, but the outline was immediately lost in the darkness, and Jack that it would be a useless move. Andy came up.

"Did you hit him?" cried Jack

"No. I only fired over his head," replied the old hunter.

"Who was it?"

"I don't know, but it was some man prowling around, and for no good purpose, I take it."

"Did he steal any of my chickens?" asked Washington.

"No; he wasn't near the coop."

"I guess it was only a tramp," said Mr. Henderson.

"I hope he doesn't go near the machine shop," added Mr. Roumann.
"Still, if he did, the two machinists sleeping there would hear him."

They returned to the room, and Andy stood his gun in a corner. The weapon was seldom far from him.

"What was he doing when you saw him?" asked Mr. Henderson.

"Just sneaking along the window here as if listening."

"Maybe he was trying to hear what we were talking about," suggested Jack.

"Or trying to discover my secret," added Mr. Roumann quickly.
"Fortunately I never talk about the secret of the power. But I shall be anxious about the machine shop."

"Suppose we go out and take a look around it," proposed Mark.
"Ned and Sam will know if any intruder has been sneaking around there."

They all went out where the Annihilator was in process of building, but the machinists said they had not been disturbed, and they were sure no one had stolen anything.

There was no further disturbance that night, but when Mr. Roumann paid an early visit to the machine shop the next morning, he uttered a cry of surprise.

"What is it?" asked Jack, who accompanied him.

"The plates--the plates of the Etherium motor!" cried the scientist. "They have been stolen!"

CHAPTER IX

A CRAZY MACHINIST

For a moment Jack stared at Mr. Roumann. He did not appreciate the seriousness of the announcement. The scientist was hurrying here and there, looking under benches and on tables for missing plates.

"Do you mean the plates that make the motor go?" asked Jack.

"No, not those, but the plates from which the mysterious force is projected into space--the plates that give the forward motion to the projectile. They have been stolen. They were taken last

night, and the man Andy fired at stole them!"

"Will that prevent us from making the trip?"

"No. I have duplicate plates."

"Then little harm is done."

"No particular harm is done to the projectile, but I am afraid that, with the plates in his possession, the man may discover the secret of the power that I use. Oh, I should have locked them up, but I thought they would be safe."

"What has happened?" asked Mr. Henderson, entering the machine shop at that moment. The scientist told him, and expressed his fear.

"Do you really think there is any danger that the man, whoever he was, will learn how to use the plates?" inquired the professor.

"Perhaps, and then, again, perhaps not. I think it will be very difficult for him to work out the secret of the power from the plates, for they are only a small part of the mechanism. Still, he may do so. I am convinced now that this man is either the same one of whom I stand in fear, or he is some one hired by him to steal my secret."

"Then we had better notify the police," suggested Mark.

"No, that would never do," answered Mr. Roumann. "I would have to describe the plates, in order to have the authorities identify them in the possession of the thief, and I do not care to do that. No; the best plan will be to hasten work on the Annihilator, and start for Mars before the thief can gain any advantage from the plates. If he should succeed in discovering from the plate how to make the power that is discharged in wireless currents, it will take him a long time, and we can be away before then. Let us hasten our work and start for Mars."

"You say you have duplicates of the plates?" asked Jack.

"Yes. I was afraid lest something happen to one set, so I made three. Well, it will do no good to worry, but I wish I had the plates back."

"I don't see how he got them," observed Mark. "There doesn't seem to be anything broken, to indicate how the thief got in, and he certainly didn't touch Professor Henderson's live wire."

Not a window or a door had been forced, and the two machinists, who slept in the shop, declared they had heard no suspicious sounds during the night. It was a mysterious theft, and there seemed to be no means of solving it.

At Mr. Roumann's suggestion they all increased their hours of work on the Annihilator. They wanted to have it finished ahead of the time set, and it seemed that this would be done.

Day after day, and far into the night, they labored. Bit by bit

the machinery was installed, the supplies were gathered together, the great water tanks were built, to provide a supply of the fluid in case of any accident to the distilling apparatus. The Etherium motor was almost finished, and the other, motor, which was to drive the Annihilator through the earth's atmosphere, was nearly ready to install. The steering apparatus necessitated considerable labor, and when it was finished Amos Henderson declared they had made a mistake, and would have to build it all over again.

This lost them a week, and time was precious, as there was no telling what the thief would do with the stolen plates.

"I tell you what, but we're going to have a better ship than any of the others we built," remarked Jack one day, as he and Mark were putting the finishing touches to the living-room.

"This isn't a ship," said Mark. "It's a projectile."

"I guess I can call it a ship if I want to," was the retort. "It's going to sail through the air, and it's an airship, of course. Wait until you see the one I'm going to build when I get that new gas invented."

"I'll not go with you," said Mark. "There's too much danger of being blown up."

"There won't be, after I have it perfected. But say, won't it be fine when we're shooting through space to sit here in an easy chair and read a book and eat sandwiches?"

"I guess you think as much of eating as you do of reading, Jack."

"Well, almost, that's a fact. I must cut out some of my eating, too. I've gained five pounds this week, because of not doing any studying. But wait until I get to Mars. Then I'll weigh less."

"I hope Mr. Roumann lets us help run the machinery," went on Mark.

"I guess he'll have to. He'll need help, and I understand that he and the professor, you and I, and Washington and Andy are the only ones going along. He and the professor can't run the affair all alone, and they'll have to have our help. Wash and Andy won't be much good at machinery."

"That's so. My! Think of steering a two hundred-foot projectile through space, when we're moving at the rate of one hundred miles a second!"

"Great, isn't it?" commented Jack.

"It would be a bad thing if it ever got away from us," said Mark.

"Yes; or if we steered into a comet."

"That's so. We may run into one of those things--or a shooting star."

"As long as we don't fall into the sun and get burned up we'll be all right," went on Jack. "And when we get to Mars I know what I'm going to do."

"What?"

"Go for a sail on one of the big canals. Mars is covered with them, astronomers say."

"Maybe the Martians won't let you."

"Maybe not. I wish we could start to-morrow."

"Well, we can't. The Annihilator isn't near done. We will be at her for two weeks yet."

The boys were busy for some time fitting up the living-room. They were in the midst of this occupation, and were conversing about the strange experiences in store for them, when Jack was startled by hearing a strange voice say:

"Say, don't you want some help building this airship?"

He looked up, to see a man standing near one of the entrances to the projectile--an entrance that would be closed when the Annihilator was finished. The man was a stranger, and from his appearance Jack judged that he was a mechanic.

"How'd you get in here?" asked Mark, for he knew it was against the rules for any stranger to enter the machine shop, much less approach the projectile.

"I walked," replied the man. "I saw the door open, and I heard hammering going on in here. I knew it was a machine shop, and as I'm a first class machinist, out of work, I thought I'd apply for the job."

"How'd you get past the doorkeeper?" inquired Jack, for he knew that Andy Sudds was supposed to be on guard with his gun.

"He wasn't at the door," went on the man. "There was nobody there, so I walked in. Can't you give me a job on the airship?"

"How do you know it's an airship?" asked Jack.

"Oh, I know. I know lots of things," and the man winked one eye at the lad. "I built a balloon once."

"Did you?" asked Mark. He began to think perhaps the man might be able to aid them.

"Sure I did. I know about airships. I'll work for low wages, and I'll keep my mouth closed. Oh, I know what patents mean. Say," he went on in a whisper, "you'd be surprised to know where I went in my balloon. I'll tell you," and he looked around as if to make sure no one was listening.

"Where did you go?" asked Jack.

"Up to the moon," was the surprising reply. "And, say, it's all a mistake about it being made of green cheese. It's green apples--that's what it's made of. I know, for I was there, and I ate some. They gave me an awful pain in my head, too," and the man passed his hand across his brow. "A fearful pain," he went on.

Jack and Mark looked at each other. They did not understand the man's strange talk and actions.

"You don't believe me, do you?" the stranger asked. "Well, if you want a good machinist, hire me. I know all about airships and traveling through space. Why, I once did a dance on the tail of a comet, only the comet got mad and shook me off. I'll show you how I danced."

He threw a somersault, lighted on his hands, and began to waltz about in the somewhat contracted space of the living-room of the projectile. Then he set up a loud shout as he regained his feet.

"That's how!" he cried.

The boys were alarmed. The man was evidently crazy, or perhaps he might be doing this for effect, in order to disarm their suspicions, so that he could discover Mr. Roumann's secret. They did not know what to do.

"Come on, we'll all have a dance!" cried the man. "My name is Axtell--Fred Axtell. I used to live on the moon--tra-la-la!"

His loud voice attracted the attention of Mr. Henderson, who was working at the far end of the shop. The professor ran toward the place where the strangely acting man was, the latter having now emerged from the ship, followed by the boys.

"Here we go! Off to the moon!" cried the man, and catching up a big hammer he began to pound on the sides of the Annihilator as if he would destroy the projectile.

CHAPTER X

WASHINGTON IS AFRAID

"Here! Here! Stop him! Grab that man!" cried Mr. Roumann, as he rushed toward Axtell, who was hammering away madly.

Jack and Mark started for the fellow.

"Keep away!" cried the machinist, swinging the sledge toward the boys. "I want to work on an airship, and I'm going to do it. I'll make some dents in it, and then I'll straighten them out! Whoop!"

Mr. Henderson hastened forward. He took in the situation at a glance.

"That man is insane!" the professor whispered to the German scientist. "Let me deal with him."

"Do something quickly," pleaded Mr. Roumann, "or he will damage the projectile."

"This is the way I work!" cried the insane man, and he brought down the hammer with great force on the rounded sides of the Annihilator. He made quite a dent in it.

"Stop him!" begged Mr. Ronan.

Mark and Jack had retreated out of reach of the big hammer, the professor and the German were consulting together, and in the door of the shop appeared Andy Sudds with his gun. He had gone away for a moment, in which interval the crazy machinist had appeared.

"Andy will scare him with his gun," whispered Jack to Mark.

Just then Mr. Henderson called out:

"If you want work, I can give it to you."

Axtell stopped his pounding of the projectile, laid his hammer down, and asked in a mild voice:

"Can you give me work now?"

"Of course," answered the professor, as if it was the most natural thing in the world to give work to insane persons. His calm manner and soothing words had a quieting effect on the lunatic. The glare died out of his eyes.

"Come with me," went on Mr. Henderson. "I have some work outside."

"What is it?" asked Axtell suspiciously.

"I want you to dig a hole so we can put this airship in it," whispered the professor. "Come outside."

He wanted to get the man out of the machine shop, where he could better deal with the fellow.

"That's just the kind of work I want," declared the unfortunate person. "I love to dig holes in the ground. I once dug one clear through to China. Get me a shovel."

He seemed to have forgotten all about the projectile, and meekly followed Mr. Henderson. The latter led him some distance from the shop, talking soothingly to the man, and promising that he should soon have a shovel. But there was no necessity for going to these measures.

Axtell suddenly caught sight of Washington coming toward him, and he exhibited the greatest fear.

"Hide me!" he exclaimed to the professor. "Hide me in the airship! Here comes the king of the cannibal islands!" And away he ran at top speed and disappeared in the woods behind the Henderson place. A search was at once made, but he could not be located.

Andy was rather worried lest he be blamed for not remaining on guard, but no one thought of censuring him, as he was such a faithful watchman and had only left the shop in answer to a call from Washington, who thought he heard some strange animal after his chickens.

"But I'll not desert my post again," declared the old hunter, as he looked to the loading of his gun.

"If any other crazy men get inside, they'll have to answer to me."

Work on the projectile was resumed, and for a week went on uninterrupted. It was nearing completion, though there were many details yet to look after. Mr. Roumann was having more trouble with his Etherium motor than he anticipated.

"The atmospheric motor is all right," he declared, "and it works to perfection," which was indeed true, for in tests they made they found that the motor, the force of which was only less powerful and complicated than the secret power that was to hurl them through space, would easily send the projectile through the comparatively thin atmosphere of the earth. They did not actually move the Annihilator, since to do so would mean they would have to take it out of the shed. But they made tests and experiments with heavy objects, applying the force to them, and, by calculation, Mr. Roumann and the professor found that the force would actually send the projectile on the start of its journey.

"But there is one point about my Etherium motor that still bothers me," said the German.

"Can I help you solve it?" asked Mr. Henderson.

"No, thank you. I think I am on the right track. I will have it perfected in a few days, and then we will be off for Mars. I can scarcely wait until I get to that wonderful planet, thirty-five millions of miles away, where I hope to get possession of a most wonderful substance. Once we are on Mars--"

"Scuse me, Mistah Roumann," interrupted Washington White, who happened to be in the machine shop at that moment, and overheard what the scientist said, "scuse me, but did I done heah yo' promulgate de ostentatious fact dat yo' is gwine to de planet Mars?"

"That's where we're going, Wash," replied Jack, for it had been decided that the colored man could now be told of their destination.

"Yo' means dat red star what shines in de sky?"

"That's the one, Washington."

"An' how far did yo' say it was from heah?" was the question directed at Mr. Henderson.

"Well, it's about thirty-five millions of miles from the earth."

"And is yo' all goin'?"

"Yes, we expect to."

"Is dis heah contraption yo' done been buildin'?"

"Yes."

"And is I gwine, too, perfesser?"

"I calculated on taking you, Washington. You went north and south with me, and down into the center of the earth. I thought you'd like to go on this trip."

Washington laid down the hammer he had come in to borrow to fix the chicken coop. He looked around on the circle of smiling faces.

"I--I 'spects I'd bettah be lookin' fo' annudder place, perfesser," he said quietly.

"Why, you aren't afraid to go to Mars, when you went with us in the Flying Mermaid down into the earth, are you?" asked Jack.

"'Scuse me, Massa Jack," said the colored man solemnly, "dis trip am wuss dan any ob de udders. It suah am. Good land a' massy! T' t'ink ob being projected transmigatorially in de obverse tangent ob de parallelism circumdelegated on de inverse side ob a duodecimo. It's too altogether imparipinated fo' dis chile! I'se afraid dat's what I is! I'se too much afraid t' go," and Washington started to run from the shop, as if he feared that the big projectile would take after him.

CHAPTER XI

A STRANGE EXPLOSION

"Here, come back, Washington," called Mr. Henderson.

"No, sah! I ain't gwine t' entrust mahself 'n any sech t'ing as dat!" cried Washington. "I ain't gwine t' be shot up froo de sky. Why, good land a' massy! 'Sposin' we was t' hit a star, or land on de moon? I'd look purty, wouldn't I, hangin' on one ob de moon's horns? How's I eber gwinee git down? I axes yo' dat. How's I gwine f git down?"

"Well," said Professor Henderson with a laugh, "if you did get caught on one of the horns of the moon, Washington, I guess it would be a pretty hard matter to get down."

"Dat's what I done said," insisted the colored man.

"You could slide down a moonbeam," said Jack with a laugh.

"Yes, an' mebbly git hit by a comet or be kamked sensible by a piece ob star," objected Washington, as if Jack's plan was a feasible one. "No, sah, I ain't gwine along nohow. Dis ole earth am good enough fo' me. I don't want to die an' go floatin' through space. When I dies I wants t' be buried decent-like. I ain't gwine wid yo' at all."

It began to look as if Washington's revolt was a settled fact. Yet they depended on him to go. However, Professor Henderson solved the problem for him.

"Who will cook my meals for me, if you don't go, Washington?" he asked solemnly.

"Is you really goin', perfesser?"

"I certainly am."

"An' yo' t'ink it's safe?"

"Yes, or I shouldn't go. But I can't have much comfort if I don't have my meals right, for I can't cook very well, and as for Jack and Mark--"

"Hu! Dem boys can't cook wuff a cent. Is dey gwine t' go 'long?"

"We sure are," answered Jack.

"Hu! Den I 'spects I'se got t' go," said the colored man, scratching his head in perplexity. "I can't let de perfesser go alone, wid nobody t' do his cookin' fer him. Well, I'll go, but--but I'se mighty skeered, jest de same."

"You needn't be, Washington," said Mr. Henderson kindly. "We will be perfectly safe in the Annihilator, and when we get to Mars I am sure you will like it there."

"I've got to, wedder I does or not," said Washington simply. "Well, t' t'ink ob me seein' dis work goin' on, day after day, an' me nebber suspectin' dat yo' was goin' on sech a transmigatory flight in de direction ob an interplanetary sphere what transmits effulgent rays transversely an' pyritiferilously changes 'em inter crimson light most advantageously."

"I guess you're all right now, after getting that out of your system," observed Mark.

It was two days after this that Jack and Mark, who were working in the shop with Mr. Roumann, suddenly heard him utter a cry.

"Has anything happened?" called Jack, dropping his tools and hastening to the engine-room, where the scientist was.

"Yes!" cried the German.

"What?"

He was pacing rapidly up and down the contracted space, waving a piece of metal above his head. Jack thought he might have hurt himself.

"I have discovered what was the matter with my Etherium motor!" exclaimed Mr. Roumann. "I didn't bend this piece of metal properly. That was why the machine did not work satisfactorily. Now it is all right. We can start in a week."

"That's good!" said Mark, who had joined his chum. "Are you sure it will work now, Mr. Roumann?"

"Quite sure. But we will have a test to make certain. Send Professor Henderson here, Please."

The other scientist came from the house, and the test was made. To the delight of all the Etherium motor worked perfectly. The slight adjustment of the piece of metal had been all that was needed.

"Now we can get ready to leave in a week," repeated the German enthusiastically.

In fact, the projectile was finished, and all that was necessary was to put in the stores and some supplies, turn on the power, and they would be off through space.

The actual starting of the Annihilator was, of course, to be left entirely to Mr. Roumann. He had not disclosed to his companions the secret of the force that was to make it move, nor had he told them how to work the Etherium and atmospheric motors. He would start the machinery in operation, and he had promised to show the professor and the boys how to control it, but the secret of the wonderful power he kept to himself.

"I think we can let the two machinists go now," said Mr. Henderson at the conclusion of the tests. "We shall not need them any more if we are almost ready to start."

"No, we can dispense with their services," agreed Mr. Roumann; and, accordingly, Ned and Sam were paid off, and left, promising to say nothing of the wonderful apparatus on which they had been working.

The next week was a busy one. Mr. Roumann spent most of his time in the engine-room, assembling the machinery of the two motors, and arranging the connections between them and the pilot house in the "nose" of the projectile. The strange gas had been forced in between the two shells of the projectile, to absorb the heat that would be generated by friction, and nearly all the stores had been put aboard.

The electric guns were installed, ready to be run out of the openings of the living-room to repel any attack of the Martians, and then the ports were closed tightly.

Finishing touches were being put on the Annihilator, and Mr. Henderson and his German friend were kept very busy. As for the boys, they helped wherever they could, and did considerable work, for they had been well trained by their guardian.

Andy remained on guard at the door with his gun. He said he was going to take no more chances with the crazy machinist.

Nothing further had been seen or heard of the mysterious thief who had stolen the plates, and it was supposed that he was unable to make any use of them.

One afternoon, about three days before the time set to start for Mars, Mr. Roumann was working alone in the machine shop. The boys and Professor Henderson had done all there was for them to do, and the Annihilator was practically finished.

"Are you going to take along any extra-sized bullets, Andy?" asked Jack of the old hunter, who was on guard, as usual, at the door.

"I don't see why I should. I guess the regular ones will do when I get to Mars."

"I don't know about that," went on Jack. "We may find bigger game than elephants or sea lions there."

"If we do, I'll use a new kind of explosive electric bullet Mr. Roumann told me about," declared Andy. "It has a charge of electricity in it, and he says it will kill the biggest animal that ever lived, with one shot."

"Then you're all right," said Mark. "Well we'll soon be on our way now."

"I suppose Washington will want to take some of his chickens along?" ventured Jack.

"Well, I don't see why he can't," said Andy. "They take pigeons up in balloons, and I guess chickens would live in the Annihilator--at least, until we ate them,"

They stood about the entrance to the machine shop, talking of various topics, but they always came back to the subject of the wonderful journey before them.

Suddenly Jack, who had strolled a little away from the door, looked toward the rear of the big shed that housed the projectile, and uttered a cry. Mark heard him, and ran to his chum's side.

"Look!" exclaimed Jack, pointing to two men who were running away from the shop. "Who are those men?"

"One is that crazy machinist!" cried Mark.

"And the other is the tramp we saw looking in the window that night!" added Jack. "Come on! Let's catch them! They may have done some damage! Andy! Here! With your gun! Quick!"

The old hunter hastened to join the boys. He reached them in time to see the two intruders making for the woods back of the shed.

"Hold on there!" cried Andy, quickly raising his gun and firing over their heads.

But the men did not stop. Hardly had the echoes of Andy's weapon died away, than there sounded a loud explosion from the shop. A cloud of smoke poured from the windows.

"They've blown up the projectile!" cried Mark. "Come on!"

They ran toward the place where the explosion had occurred. As they neared the end of the shed Washington came running out. He showed great fear.

"Come quick! Come quick!" he cried.

"What's the matter?" shouted Jack.

"Somebody's blowed de place up, an' Mr. Roumann am killed!" was the answer.

CHAPTER XII

THE ELECTRIC REMEDY

"Get Professor Henderson!" directed Jack, "Where is Mr. Roumann, Washington?"

"In heah!" exclaimed the colored man, pointing to the shop. "He am all blowed to pieces!"

Jack and Mark were terribly afraid. The smoke of the explosion hung all about. They rushed through it, and into the shop. Part of the side of the wooden building had been blown out.

"Where is he?" asked Mark. "I can't see anything."

"Over here," called Jack, as he saw a huddled heap in one corner. As the smoke cleared away he could see pieces of machinery scattered all about.

"Is the projectile damaged?" asked Mark anxiously.

"Doesn't seem to be--at least, on the outside," answered Jack, as he looked at the huge shape of the Annihilator looming up before him. "But I'm afraid it's all up with Mr. Roumann."

He bent over the German scientist. The man seemed lifeless.

There was quite a cut on his head and his clothes were torn.

"He's breathing a little!" cried Jack. "We must get Professor Henderson here. He'll know what to do--if anything can be done for him."

"They must have exploded a bomb in here," said Mark, as he looked around at the ruin about them.

"Something like that," admitted Jack. "Here, help me carry Mr. Roumann out of the fumes," for there was a choking smell in the shop.

The two boys found it hard work to carry that limp form out, but they managed it. Just as they got outside the shop they saw Professor Henderson running toward them, followed by Washington and Andy.

"What has happened?" asked the inventor, for he had not been able to learn much from Washington's excited account.

"I don't know," answered Jack. "We heard an explosion, just after we saw two men running away from the shop, and we found Mr. Roumann senseless."

Professor Henderson bent over, and placed his hand on the heart of his friend.

"I'm afraid he's dying," he said.

"Dying?" cried Jack in dismay.

"Yes; and if he expires, the secret of the wonderful power will die with him. We will never be able to get to Mars!"

The professor placed his ear against the breast of the unconscious man.

"There is still a spark of life," he remarked. "Perhaps I can save him. I will try my electric remedy."

He got up and hurried to the house. Mr. Henderson had invented a number of medical appliances, not the least of which was an affair, different from an electric battery in that it allowed a current to be administered internally. It was this that he now decided to try on the unfortunate German.

He came back in less than a minute with a curious machine. It was shaped like a box, but on the outside had a number of shiny knobs, and several wires ending in brass handles.

Professor Henderson placed a brass handle in each of the palms of the German, directing Mark and Jack to hold them there. Then he placed several of the shining knobs at the back of his head, and ran a long wire around his waist.

"Now, Andy," ordered the inventor, "if you will take hold of this rod and place the end of it on his tongue when I open his mouth, I think we may be able to revive him."

This was done, and Mr. Henderson turned on the current. There was a buzzing sound from the box, and a slight tremor was visible throughout the whole body of the unconscious man.

"It is beginning to work!" exclaimed the professor. "He is coming to!"

Mr. Roumann opened his eyes.

"Take the rod from his tongue, Andy," directed Mr. Henderson.

The hunter did so, and the German, looking curiously about him, asked:

"Is the projectile damaged?"

"It doesn't seem to be," replied Jack quickly.

"Are you much hurt?" asked the professor.

Mr. Roumann passed his hand slowly across his head.

"I feel rather strange here," he said. "There seems to be some injury."

Mark silently pointed to the cut. Mr. Henderson quickly examined it.

"The skull is not injured," he announced. "It is merely a scalp wound. Wait a moment now and I will give you something to make you feel better."

From a small pocket case he took a spoon and a bottle. He poured out a strong-smelling liquid, and administered a few drops to the German. The latter's pale face at once became flushed.

"I think you will be all right now," said Mr. Henderson. "But it was a narrow escape. Do you feel well enough to let us take you to the house?"

"I think so. But guard the shop well. That crazy machinist came back, and some one was with him. Then came an explosion--and I don't remember any more."

"I'll guard the place!" exclaimed Andy. "And if any of those chaps come around--well, they'll wish they hadn't," and he looked significantly at his gun.

Mr. Roumann was getting better every moment, and was soon able to stand. He was assisted to the house, where Mr. Henderson attended to the injury on his head.

Then, after some more medicine had been administered, and the electric remedy had been applied again, the German announced that he felt almost as good as ever, except for an aching head.

"How did it all happen?" asked Mr. Henderson, and Jack and Mark told what they knew of the explosion.

"I was working over an extra air-pump that I wish to take along with us," stated Mr. Roumann, "when I was startled by seeing two strangers standing near my work bench. One I recognized as the insane machinist who was here before. The other--"

"The other was the same one who looked in the window one night, and who, I believe, stole the power plates," interrupted Jack.

"I wish I had known that," went on Mr. Roumann. "I would have made him give them back. But I did not have time to do anything. Before I could stop him the crazy machinist had thrown something at me, which I now know must have been a bomb. Then came the explosion, and knew nothing more until you revived me. Is the place much wrecked?"

"I think not," answered Jack.

"We will go look in a little while; just as soon as we see that you are all right," announced the professor.

"Oh, I am all right. Go now. I am anxious to know."

Having assured himself that the German was able to walk to the shop, Mr. Henderson an assent, and the two boys, Washington and two scientists started for the place where Annihilator was kept.

"How did you happen to see it, Washington?" asked Mark.

"I was out fixin' a loose board on mah chicken coop," explained the colored man, "when I seen dem two rapsCALLIONS come runnin' out ob de place. I knowed dey hadn't no right dere, an' I hollered at 'em. But dey didn't stop, an' de nextest t'ing I knowed dere was a big bang. I run in, an' I seed Mistah Roumann all blowed to pieces."

"Hardly as bad as that," said the German with a smile.

"Well, almost," insisted Washington.

They reached the machine shop. The smoke had all cleared away, but the fumes from the bomb were still noticeable.

"I wonder what their object could have been?" said Jack.

"I believe they are urged on by some of my enemies," was the German's reply. "But let us see what damage has been done. I hope it is not much."

Pieces of broken machinery, twisted wheels, bent levers, shattered cogs and smashed plates were all about one corner of the shop. But the great projectile was still in place. It had not even been jarred.

Mr. Roumann went to an opening in the side that led to the engine-room. No sooner had he entered than he uttered a cry.

"The Etherium motor is damaged!" he exclaimed, and with fear in their hearts the others followed him inside the Annihilator.

CHAPTER XIII

AN ALARMING THREAT

The main machines in the engine-room were the two motors, one designed to send the projectile through the atmosphere, the other intended to propel it through the space filled with what is called ether.

It was to these two massive machines that the eyes of all were now directed. The smaller one, the atmospheric motor, did not appear to have been damaged, but several wheels and pipes of the other were broken and twisted.

"Is it ruined?" asked Professor Henderson.

Mr. Roumann was anxiously looking at the apparatus to see what damage had been done by the bomb.

"Can't we go to Mars?" inquired Jack.

"I think so," was the reassuring reply of the scientist. "It is not damaged so much as I feared. The wheels and pipes are easily replaced, and as long as the generator and the distributing plates are not disturbed, I can easily repair the rest. But it was a fortunate chance that the bomb did not explode nearer the projectile. Otherwise we would have had to give up our journey."

"And we would have had to if you had been killed," remarked the professor. "I thought the secret of the power was going to die with you!"

"It will," replied Mr. Roumann, "but not just yet. I shall never disclose the source of the power until I reach Mars, get what I am after, and come back. Then I may bequeath it to you, Professor Henderson, in return for the kindness of yourself and your young assistants."

"I will appreciate that. But you had better go to the house now and let me doctor you up."

"No, I feel well. I want to get right to work repairing the damage. It will delay us several days, but we cannot avoid it. I wish I could catch the men responsible for this outrage."

"Have you any idea who they were?"

"No; but I suspect they were in the enemy of mine. A man who used to work for me, but whom I discharged because of dishonesty. His name was Zeb Forker."

"One of the men who threw the bomb was same one who was at the window one night," said Mark. "Do you suppose he could be

Forker, Mr. Roumann?"

"No, I do not believe so. But we will not discuss that now. I fancy the men will not bother us again."

"I'll tell Andy to keep a better watch," said Mr. Henderson.

"And we'll help him," added Mark. "There is little for us to do on the projectile now, and we can do guard duty, Jack and I together."

It took Mr. Roumann several days to repair the damage done to the Etherium motor by the bomb. During that time Andy and the boys were constantly on guard about the shop, but the crazy machinist and his companion did not return.

Washington White agreed to stand guard part of one night, and, as the others were tired, they agreed to it. But a fox or some animal got in among the colored man's chickens, and at the first sound of alarm from his favorite fowls, Washington deserted his post and rushed for the coop. Jack, who was awakened by the noise, looked out of the window.

"It is some one trying to get in, Wash?" he asked.

"Dat's what, Massa Jack."

Jack awakened Mark, and the two hurried down with their guns. They found the colored maw making a circuit of his coop.

"I thought you said some one was trying to get in," observed Jack.

"So dey was, Massa Jack. I done heard de most, tremendousness conglomeration of disturbances in de direction ob my domesticoryian orinthological specimens, an' I runned ober to see what it were."

"You mean that something was after your chickens?" asked Mark.

"Dat's de impression I done endeavored to prognostigate to yo', but seems laik I ain't understood," replied Washington with an injured air.

"Oh, I understand you, all right," said Jack, "but I thought you meant some one was gettin in the machine shop."

"No, dere ain't been no one dere, but I was skeered dat somebody was after mah chickens, but I guess it were only a rat. I'll go back an stay on guard now."

"No, you'd better go to bed," decided Jack. "Mark and I will finish out the night."

"All right," agreed Washington, who, to tell the truth, was getting sleepy.

There were no further disturbances, and Mark and Jack found their tour of duty rather lonesome.

"Well, I suppose we'll start in a day or so," marked Jack, as they paced about the big shed which housed the great projectile.

"Yes. The motor seems to be in good working order again. But say, I've just thought of something."

"What?"

"Suppose something should happen to Mr. Roumann or to the motor while we were half way to Mars? I mean, suppose he should die, why, we wouldn't know how to stop the motor, and we might keep on going forever."

"Oh, I guess he'll tell the professor enough about it so that in case anything happened we could start it or stop it. It's only the secret of the power that he wants to keep."

"I wonder what he wants to go to Mars for, anyhow?"

"Well, you know what he said. That he wants to get possession of some wonderful substance. I guess it is the same stuff that makes the planet seem red to us."

"What's he going to do with it?"

"I don't know."

"Wonder what it is?"

"I don't know that, either. Maybe it's some sort of a mineral, like radium."

"Radium would be valuable, if he could get that. Maybe that's what he's going after."

"No, I think not. If it was, he wouldn't be particular about not telling us. We'll just have to wait and see."

The following two days were busy ones, as many little adjustments had to be made to the machine. But at last Mr. Roumann announced that all was completed.

"We will start day after to-morrow," he said. "All the stores are in the projectile, I have every thing arranged, and we will begin our trip Mars."

"Are we going to go up like a balloon, through the roof of the shed?" asked Jack. "If we we'll have to take the roof off."

"No, we'll start out through the great doors," said the German. "My plan is to elevate the nose or bow, of the projectile, point it toward the sky, at a slight angle, by means of propping it up on blocks. Then we will get in, seal all the openings, and I will turn on the power, and off we go. We can shoot right through the big doors at the end of the shed, and no one will know anything about it, for we will leave the earth so fast that before any one is aware of our plans we will be out of sight."

"That is a good idea," commented Mr. Henderson. "Have you boys

put everything in the projectile that you'll need?"

"I guess so," replied Jack, "though it's hard to tell what you really will need on another planet."

"All I want is my gun and some ammunition," declared Andy Sudds. "I can get along with that."

"How about you, Washington?" asked Jack.

"Well, I suah would laik t' take mah fowls along."

"I don't see how you can do that very well, Wash," objected Mr. Henderson. "We would have to carry food for them, and our space is very limited at best. I'm afraid you'll have to get rid of your chickens."

"Couldn't I take mah Shanghai rooster?" begged the colored man. "He's a fine bird, an' maybe dem folks on Mars nebber seed a real rooster. I suah does hate to leab him behind."

"Oh, I guess you could take him," agreed Mr. Roumann.

"I'll gib him some ob my rations," promised Washington. "He eats jest laik white folks, dat Shanghai do. Golly! I'se glad I kin take him. I'll go out an' make a cage."

"What will you I do with the rest of your fowls, Wash?" asked Mark.

"Oh, a feller named Jim Johnson'll keep 'em fer me till we gits back. Jim's a cousin ob mine."

The next day was spent in jacking up the prow of the projectile so that it pointed in a slanting direction toward the sky.

"Am yo' aimin' it right at Mars?" asked the colored man, pausing in the work of making cage for his rooster.

"No; that isn't necessary," said Mr. Roumann. "Once it starts upward, I can steer it in any direction I choose. I can send it directly toward Mars."

"Hit's jest like a boat," observed Washington.

"That's it."

"Well, to-morrow we start," spoke Jack that night, as they were gathered in the dining-room of the professor's house after supper, discussing the great trip.

"And to think that in ten days we'll be on thirty-five millions of miles away from the earth!" added Mark.

"It's a mighty long way," said Andy. "Mebby we'll never git back."

"Oh, I guess we will," declared Jack "We got back all right from--"

His words were interrupted by a breaking of glass. One of the windows crashed in, and something came through it into the room. It fell upon the floor--a square, black object.

"Dat's one ob dem bombs!" cried Washington. "Look out, everybody! It'll go off!"

There was a scramble to get out of the room, Washington falling down on the threshold. Jack, who was in a corner, behind some chairs, found his way blocked. This gave him a chance to take a little longer look at the object that had been thrown through the window.

"That's not a bomb!" he cried. "It's something wrapped in black paper."

The professor, Mark and Mr. Roumann stopped their hurried egress. They came back and looked at the object. As Jack had said, it was something tied up in black paper with pink string.

"It doesn't look like a bomb," observed Mark.

"More like a brick," said Jack, and started toward it.

"Maybe it's an infernal machine," suggested Mark.

Jack hesitated a moment, listened to detect any possible ticking of some hidden clock mechanism, and then, as no sound came from the object, he picked it up. Rapidly tearing off the paper, he disclosed a harmless, red brick.

"Some one wanted to scare us," remarked Andy.

"There's a paper wrapped around the brick--a white paper," said Professor Henderson.

"So there is," spoke Jack as he removed it. "There's writing on it, too."

He held it up to the light.

"It's a message," he went on, "and not a very pleasant one, either."

"Who's it from?" asked Mr. Roumann.

"It's signed 'The Crazy Machinist', Jack, and this is what it says:"

"Beware, I am still after you! I will yet blow you sky-high!"

"He threw that in through the window!" cried Mark. "He must be outside here. Let's see if we can't catch him."

"That's right," added Jack. "Andy! Washington! Come on!"

The boys, followed by the hunter and the man, hurried from the house.

CHAPTER XIV

OFF FOR MARS

It was dark outside, and coming from the lighted room, the searchers at first could discern nothing. Then, as their eyes became accustomed to the gloom, they could make out objects with greater distinctness.

A movement in a tree, just outside the broken window, attracted the attention of Andy.

"Here's something!" he cried.

He raised his gun, which he had caught up as he rushed from the house, and fired high enough in the air, so as not to hurt whoever was in hiding. The flash of the weapon showed a man in the act of sliding down the trunk.

"Catch him!" cried Jack.

They all made a rush for the tree, but the flash of Andy's gun, while it revealed the man to them, also had the effect of momentarily blinding the men and boys. For an instant they could see nothing, and when the effect of the flash passed away the man was not in sight in the semi-gloom. They could hear him running through the underbrush outside of the garden, however, and took after him.

But the crazy machinist, if indeed it was he, got away, and after a vain search through the garden and about the machine shed, they all returned to the house, Mr. Roumann and the professor having joined in the hunt.

"What do you suppose he did it for?" asked Mark, when they were again gathered in the dining-room, examining the strange message.

"He wanted to scare us," suggested Jack.

"No, I really think he means to do us an injury," said Mr. Roumann. "He has some fancied grievance against us, or he is being used as a tool by Zeb Forker. Perhaps the man who stole the plates was with him, and he hoped to get some more during the confusion. I think we had better take a look at the machine shop."

They acted on this suggestion, but an examination there showed that nothing had been disturbed. No one had been in the place.

"I'm going to sleep here to-night," said German scientist. "I'm not going to take chances at the last moment. I'll stay here."

"So will I," decided Andy, and with his gun he mounted guard outside, while Mr. Roumann made up a bed in the projectile. They

were not disturbed, however, any more that night.

"Now for Mars!" cried Jack, as the sun rose the next morning, and he jumped out of bed. "Hurry up, Mark! One would think you didn't care about going!"

"Well, I guess I do, but I don't see what good it does to get up so early. We aren't going to start until ten o'clock."

"No; but I couldn't sleep any longer," declared Jack. "I'm going out to take a look at the Annihilator."

He quickly dressed, and was on his way down stairs when there arose quite a commotion out of the garden. Washington's voice was heard crying:

"Come back heah, yo' unregenerated specimen ob a ungrateful bipedical ornithology! What fo' yo' want t' distress mah longanimity fo'? Come back heah!"

"What's the matter, Wash?" asked Jack.

"Oh, dat Shanghai rooster got away jest as I were shuttin' him up in de cage, an' I'se been runnin' all ober de garden after him. 'Pears laik he doan't want t' go t' Mars."

"Wait a minute and I'll help you," volunteered Jack. "Come on, Mark," he added. "Washington's pet has got away."

The two boys went below, and, with their aid, the colored man succeeded in catching the rooster, which, crowing a loud protest, was shut up in a wooden cage and taken to the shop, ready to be placed in the projectile.

There was little to do at the last moment. Professor Henderson had arranged for a relative to come and live in the house during the time of the journey to Mars, and this gentleman arrived about nine o'clock.

Meanwhile, the last of the stores and supplies had been put in the Annihilator, a final inspection had been given the machinery, and all the scientific instruments were in place.

Washington carried the cage containing his rooster into the storeroom, where there was a large quantity of provisions, sufficient to last for a year, in case, after reaching Mars, the travelers should find on the planet no food which they could eat.

There was a plentiful supply of water, and machinery for distilling more out of the atmosphere. The gas that occupied the space between what might be termed the two skins of the projectile had already been pumped in, and nothing remained to do but for the adventurers to enter the great airship, as it might be designated, seal up the ports, turn on the power and start.

Mr. Roumann looked critically to the bracing up of the Annihilator, to see that it was slanted just right. Then he went carefully over every inch of the great machine, to make sure that

there were no openings which were not closed. As he reached the port that communicated with the storeroom, he found it only partly shut.

"Did any one of you open this?" he asked suddenly.

"I didn't," replied Jack. "Why do you ask?"

"Because I was sure I closed and locked it from the inside early this morning," was the answer. "Washington, did you open it when you put your rooster in there?"

"No, sah. I went in de inside way. I didn't tetch it."

"That's very strange," murmured Mr. Roumann, as he locked the port, and each one, in turn, had denied meddling with it. "I was sure I locked it."

The matter appeared to give him a little uneasiness, but, as he had much to do to get the projectile ready for the flight, he had to leave the solution of the matter until another time.

The great doors of the machine shed were thrown open. They were designed to allow such large bodies as airships to pass out, as Professor Henderson had, in years previous, constructed a number of aeroplanes and dirigible balloons. So there would be no trouble in speeding the projectile directly out of the shop.

The great question, now that all was finished, was whether or not the projectile would move, and in the manner and with the speed necessary to get to Mars. There had been no chance for a trial flight, and it all depended on whether or not Mr. Roumann had correctly estimated the powers of his motors.

He was sure he was right, and, from calculations made, Professor Henderson was also positive. But it yet remained to prove this.

"Well, we may as well get in," said Mr. Roumann at length. "Everything is done that can be done. The next thing is to start the motors, and--then we'll see what happens."

It was a nervous moment. Once they were in, side the great projectile, sealed up, would they ever be able to emerge again? It was a momentous question.

"Well, here goes!" exclaimed Jack with a jerky laugh as he stepped into the Annihilator.

"I'm with You," added Mark as he followed his chum.

"Come on, Washington!" cried Jack from within.

"Wait till I take one mo' look at terra cotta!" said the colored man.

"You mean terra firma, I guess," spoke the professor.

"Yes, sah. Dat's hit. Terra flirma--de earth. I wants t' bid it good-by."

Andy Sudds, still carrying his gun, went in next. Then followed Amos Henderson, and finally the German scientist. The latter clamped fast the cover of the opening by which they had entered. The interior of the Annihilator was brilliant with electric lights.

Mr. Roumann made his way to the pilot house, to see that all the levers and wheels that controlled the engines were in working order. Then he went to the engine-room, where he adjusted the two motors.

"Well," he said a bit nervously, "we are all ready to start."

"Let her go!" cried Jack gaily.

There was no crowd on hand to see them off. Professor Henderson's relative was the only spectator.

Mr. Roumann and Mr. Henderson went to pilot house again. They held a brief consultation.

"Come here, boys, if you want to see us start the motors going," called the professor.

Jack and Mark stood in the doorway. Mr. Roumann grasped a lever. He threw it over. There was a spark as the electrical contact was made.

"The atmospheric motor is now ready to start!" he remarked. "Push that knob, Professor Henderson."

The professor pushed in a small, shiny knob. Mr. Roumann turned a small wheel, and closed another electrical switch.

Instantly there was a trembling through t whole length of the projectile. Would it move? Would it leave the earth and go to Mars?

There was a moment of hesitancy, as if the great machine had not quite decided.

Then came a more violent vibration. There was a humming, throbbing, hissing sound. Suddenly the boys, and all within the projectile, felt it swaying. A moment later it began to shoot through space like a great rocket.

"Hurrah!" cried Jack. "We're off!"

"Yes," added Mr. Roumann joyfully, "we are on our way to Mars!" and he grasped the steering wheel and peered through the thick plate-glass windows of the pilot house into the vast space before them.

SOMETHING ABOUT MARS

"Are we really in motion?" asked Jack, after a moment's silence. "It doesn't seem so."

"We are certainly in motion," declared Mr. Roumann. "See this dial?"

He pointed to one near the steering wheel. The hand on it was gently vibrating between some of the figures.

"We are traveling that many miles a second," went on the scientist. "The atmospheric motor is not working as fast as I hoped it would, but we are going fast enough. When we start the Etherium machine we shall go much more speedily."

"And when will that be?" asked Mark.

"I can't tell exactly. It will not be until we have passed through the atmosphere of the earth, and there is no way of ascertaining in advance just how thick that stratum is."

"Then how will you know?" asked Jack.

"By means of my instruments. When the hand on this dial points to zero I will know that we are beyond the atmosphere, and that it is time to start the Etherium motor."

"How do you know in which direction to steer?" asked Mark. "Can you see anything out of that window?"

"Not a thing," replied the German. "Look for yourself."

Jack and Mark peered through the plate glass. All they could see was a sort of white, fleecy mass of clouds that surrounded the great projectile.

"It's just like when we were above the clouds in the Electric Monarch," said Jack.

"Exactly," agreed Mr. Henderson.

"But if you can't see anything, how can you tell where to steer?" asked Mark.

"By means of this instrument," replied Mr. Roumann, indicating another among the many on the wall of the projectile. "This is automatically kept pointed at Mars, and by means of a hand and dial I can tell how to keep the Annihilator aimed directly at the red planet."

"Even when it is on the opposite side of the earth from us?" asked Jack.

"We are now far above the earth," was the answer, "and the planet on which we lived offers no obstruction to my telescope being pointed at Mars, even though it is daytime, when Mars is on the opposite side of the earth."

"Have we traveled as far as that?" asked Jack in awestruck tones.

"We have come just thirty thousand miles since leaving the earth," replied Mr. Roumann.

"But we don't seem to be moving at all," objected Mark.

"That is because we are shooting through space so fast, and because you can see no stationary objects with which to make a comparison, as when you are traveling on a railroad train," continued the German. "And, as we are not dependent on tracks, or roads, with their unevenness, there is no motion to our projectile, save that of moving through space. That is why it seems as if we were standing still."

"But thirty thousand miles!" cried Jack. "I thought the earth's atmosphere was variously estimated at from only forty to two hundred miles in thickness."

"The oxygen atmosphere may be," agreed Mr. Roumann. "As a matter of fact, the atmosphere we are now in would not support life for you and me a single instant. But it is atmosphere, nevertheless, or my instruments would indicate something different, and my atmospheric motor would not work. No, I expect to be traveling through the atmosphere for several days yet. Then we shall reach the true ether, and the Etherium motor will be put into operation."

"Well," said Jack, "this trip isn't going to be very strong on scenery, anyhow."

"No," agreed Mr. Roumann. "We shan't be able to observe anything but this fleeciness until we get to Mars."

"We can see the stars and moon at night, can't we?" asked Mark.

"There isn't going to be any night," replied the German with a smile. "We are now in the region of perpetual day."

"No night!" repeated Jack blankly.

"No. Just stop to think for a moment. We have left the earth, and are many thousands of miles away from it. You know that which causes night and day on the earth is the rotation of it on its axis. Half the time the part we are living on is turned away from the sun, and the other half of the time turned toward the sun. Now, the sun is fixed in space. We are also in space, and we are so comparatively small that there will never be any shadows to cause night. We are like a small point in space, and the sun is constantly shining on us. We do not revolve, so there will no night, only day."

"Are we headed for the sun?" asked Mark

"No, for Mars. But as we will take good care not to head for any other planet, so as to get it between us and the sun, we shall never have any darkness,"

"But it doesn't look like sunshine out there," objected Jack, pointing out of the window.

"No, because we are surrounded by a mass of vapor. I think it will presently pass and we shall see the sun. The difference in temperature between the projectile and the surrounding atmosphere causes us to be enveloped in a sort of cloud. When the outer shell of the Annihilator is the same temperature as the atmosphere through which we are flying, we shall emerge into sunlight."

This happened a little later, and soon they could observe the great ball of fire hanging in space.

"It seems to be smaller than when we were on the earth, doesn't it?" asked Mark.

"It is seemingly smaller," replied Professor Henderson. "We are going away from the sun you know. Mars is not as close to it as we are on our planet--I mean the one we have just left--is ninety-two millions of miles from the sun, while Mars is one hundred and forty-one millions of miles away, though its orbit is so eccentric that distance varies about thirteen millions of miles. That is, it may be thirteen millions of miles more than its mean, or average, distance, so that at times it is as far away from the sun as one hundred and fifty-four millions of miles."

"My! That's a good ways," observed Mark.

"Yes," went on Mr. Henderson, "and, in consequence, the light and heat received by Mars from the sun is a little less than half of that which our earth receives."

"Whew! We'll be mighty cold in winter--if we arrive in winter," said Jack with a shiver.

"Unless the Martians have a means of making up for this loss of light and heat," said Mr. Roumann. "I believe they have."

"I shall be much interested in seeing how the great canals on the planet are dug," said Professor Henderson. "I have seen a map of Mars, made by a scientist named Schiaparelli, and he has drawn a number of large bodies of water, among which are intermeshed continents and islands. The surface of Mars must be a curious one."

"I believe we shall find it so," spoke Mr. Roumann. "Astronomers tell us that the water on it is never frozen, except near the poles. There great ice caps are to be found."

"But what makes the planet so red?" asked Jack.

"That," said Mr. Roumann quickly, "is what hope to discover and use for our benefit, but I not wish to discuss it now."

They talked of Mars for some time further, discussing the many queer features, and during this time the Annihilator was shooting through space at terrific speed. Inside the projectile the

adventurers moved about, living and breathing, comfortably as if they were on earth, for the great tanks of stored air provided all the oxygen they needed. Nor did they feel either heat or cold thanks to the marvelous construction of the projectile.

"Isn't the year on Mars longer than the year on earth?" asked Jack as he and Mark stood near the entrance to the pilot house, interested in watching the various indicators record the speed they acquired, the distance traveled, and the density the atmosphere.

"Yes; it is about twice as long," answered Roumann. "But I shall tell you more about Planet--"

"If you'll kindly promulgate yo'se'ves in dis disrection yo' will find sufficient condiments an' disproportionate elements to induciate a feelin' ob intense satisfactoriousness," exclaimed Washington White, poking his head in from the sleeping room compartment.

"That means dinner is ready," cried Jack. "That's the stuff! Our first meal on the trip to Mars!"

CHAPTER XVI

THROUGH THE ETHER

"What's that, Washington?" asked Mark, as the colored cook put something on the lad's plate. "It looks like chicken."

"It tastes like chicken," added Jack, after making a test.

"It am chicken," declared Washington. "I roasted some ob mah fowls, an' put 'em in de cold storage room. I was purty suah dere warn't any chickens on dat red planet where we're goin'."

"Probably not," answered Professor Henderson. "It was a good idea, Washington. Pass me some, please."

"Ain't Mr. Roumann comin' to dinnah?"

"Not now," answered the scientist. "He will stay in the pilot house until I relieve him."

"It seems mighty queer to be sitting down to a meal, and all the while we're shooting along at fifty miles a second," remarked Jack.

"Yes; it doesn't seem as if we were moving at all," agreed Mark.

Indeed, the dining-room of the Annihilator was a very comfortable place, though the space was rather contracted, due to the shape of the projectile and the necessity for carrying a great quantity of stores. The living-room served as the place for serving the

meals, which were prepared in a sort of galley or kitchen off the engine-room.

"It's like eating in a dining-car on a railroad train," observed Andy Sudds, "only it is more steady. No curves, and nothing like that."

"Do you like it?" inquired Mr. Henderson.

"Well, it's nice, of course, and there isn't any better cook than Washington, but, to tell the honest truth, I've eaten with more satisfaction when I made a fire in the woods and boiled coffee and fried bacon. I'm sort of hampered for elbow room."

"Still, it isn't as crowded as when we all got in the cylinder and were shot up from the center of the earth on the geyser," commented Jack.

"That's right," came from Mark.

Professor Henderson, having finished his meal, went to the pilot house to relieve Mr. Roumann.

The latter paid a visit to the engine-room before sitting down.

"Is everything all right?" asked Jack.

"The motor is working like a charm," was the reply. "I shall soon expect you boys to take your turn at guiding the projectile through space."

"I want to wait until we get into the ether," said Jack. "We'll go faster then. It's something wonderful to steer a machine going a hundred miles a second."

"I should say so; six thousand miles a minute," observed Mark. "The fastest automobile would seem like a snail compared to it."

"Yes, and we are going faster than some stars," added Mr. Roumann.

"But there isn't anything to see," objected Andy. "Now, I like scenery when I travel."

"Well, it's something to always be in sight of the sun," put in Mark.

"Yes, and when we get to Mars there'll be plenty to look at," suggested Jack. "We can see the rings around it."

"Mars hasn't any rings around it," retorted Mark, who had a good memory for scientific facts. "That's Saturn you're thinking of."

"Oh, yes, so it is. But hasn't Mars got a lot of moons, or something like that? Seems to me I've heard about 'em."

"Mars has two moons, or satellites," stated Mr. Roumann, who had studied much about the red planet, "but they do not amount to much, compared to our moon. One is about ten thousand miles from

Mars, and is called Deimos, and the other, which is but sixteen hundred miles from the planet, is called Phobos by astronomers."

"And how far away is our moon from the earth?" asked Mark.

"It varies from about two hundred and fifty-two thousand miles to two hundred and twenty-one thousand miles."

"Then I should think the people on Mars would get more light from their two moons, so much closer to them, than we do from our moon, so far off," remarked Jack.

"No, they don't, at least as far as we know. The one closest to them gives about one-sixtieth of our moonlight, and the outer one about one twelve-hundredth, so you see that's not much. A peculiar feature of the inner moon is that it makes a revolution about Mars in seven hours, or more than three times in a day, and it rises in the west and sets in the east, while the moon farthest away from the planet rises just as our moon does, in the east, but it comes up only once in about five days."

"Golly!" exclaimed Washington, who had been listening. "Dat suah am a funny place. Two little moons, one shootin' around you three times a day, an' de odder one circlin' around once in five days! Land a' massy! I'll git all turned around up dere!"

"Yes, you'll have to be careful, Wash," cautioned Jack. "If you go out for a moonlight walk you may have to come home in the dark."

"Den I ain't goin'; an' when I do I'll take a lantern."

Mr. Roumann told the boys much more of interest about Mars, and then, taking them to the engine-room, he showed them something about adjusting the motors and other machinery, though he did not disclose the secret of the power.

"Now we'll go to the pilot house, and I'll show you some things there," he concluded.

They found Professor Henderson at the wheel.

"Is everything all right?" asked the German.

"I think so," answered the scientist. "This airship doesn't behave exactly as the ones I constructed before, but it seems to be moving along at good speed."

"Yes, we have increased our rate of progress," stated Mr. Roumann. "We are now going nearly fifty-five miles a second. At that rate we shall be beyond the atmosphere sooner than I expected."

The remainder of that day they kept on shooting forward toward Mars, nothing occurring to mark the passage of time, save the monotonous ticking of various clocks. There was nothing to be seen, save the glare of sunlight outside.

"Aren't we ever going to meet with world, or a wandering star, or

something?" asked Jack rather discontentedly.

"There's no telling when we may pass near one," said Mr. Roumann.

"S'posin' we hit one?" asked Washington, his eyes becoming large with fear.

"There's not much danger. My instruments will warn me when we approach any of the heavenly bodies, and we can steer clear of them. The only things we have to fear will be comets, and their orbits are so irregular that there is no telling when we may get in the path of one."

"What will happen when we do?" asked Mark.

Mr. Roumann shrugged his shoulders.

"We'll do our best to get out of the way," he said.

"And if we can't?"

"Well--I guess that will be the end of us."

This was a new danger, and one the boys had not thought of before. But the German scientist did not seem to attach much importance to the matter.

They traveled on for two days, nothing of moment occurring. The Annihilator, true to its name, fairly ate up space, though they were still far from Mars.

It was on the morning of the third day. The two boys and Professor Henderson were in the pilot house, and Mr. Roumann was in the engine-room, adjusting the Etherium motor, for he expected to shortly put it in operation. Suddenly Jack, who was looking at one of the instruments on the front wall, uttered a cry.

"What's the matter?" asked Mark.

"We're approaching something!" was the answer. "Some sort of heavenly body. Look at that indicator!"

The hand or pointer on a peculiar dial was moving violently to and fro.

"Call Mr. Roumann," suggested the professor. "I don't know just what to do."

Mr. Roumann hurried into the pilot house, gave a quick glance at the indicator, and exclaimed:

"We are nearing a planetoid, or, as some call them, an asteroid!"

"Is there any danger?" asked Mark.

"No. Fortunately the instrument gave us timely warning. I shall simply steer to avoid it. It is a small, unnamed planet flying around in space. There are many of them."

"Can we go close enough to it to see it?" asked Jack, who was a curious lad.

"I think so. I'll try it, anyhow."

Mr. Roumann made some adjustments to the levers and wheels controlling the motor, and, by turning on a little more power on one side of the projectile, caused it to swerve to one side. A few minutes later he called out:

"Look from the window!"

The boys gazed out. They saw that they were rushing past a dark mass, that looked as if it was composed of heaped up, black rocks, piled in fantastic masses, with great chasms here, and towering peaks there. It seemed to be several miles in diameter, and looked like a great ball.

"A small, dead world," remarked Mr. Henderson. "I suppose our planet will be like that some time."

"I hope not by the time we get back to it," commented Jack. "I wonder if we will ever get back to earth again?"

It was the first time he had expressed any doubt on this score.

"There's the last of the dead planet!" Mark cried.

They looked to see the black mass vanish into space.

"Yes, and we have reached the end of the atmosphere!" suddenly cried Mr. Roumann as he glanced at a dial. "Now we will begin to travel through ether."

He adjusted some levers, turned two wheels, threw over electric switches, and there came a perceptible jar to the projectile.

"What was that?" asked Jack.

"I have disconnected the atmospheric motor," explained the German, "and the Etherium one is now working. We are shooting along through ether at the rate of one hundred miles a second."

CHAPTER XVII

A BREAKDOWN

After the first trembling, due to the increase of speed, the sensation of traveling at one hundred miles a second was no different from that when they had been speeding through the atmosphere at fifty miles a second.

"We'll soon be on Mars now," observed Jack.

"Oh, we'll have to keep going for several days yet," declared Mr. Roumann. "But I believe we shall eventually reach there. The Etherium motor is working better than I dared to hope. It is perfect!"

As they were constantly in the glare of the sun, there was no night for those aboard the Annihilator, and they had to select an arbitrary time for going to bed. When any one wanted to retire, he went to the bunk-room, which was kept dark, and there slumbered.

For two days the Etherium motor kept sending the projectile through space. The adventurers divided their time in looking after the machinery, taking scientific observations or reading the books with which the small library was stocked. Occasionally Jack or Mark would play the electric piano, getting much enjoyment from the music.

"If folks on earth heard these tunes up in the air, I wonder what they'd think?" asked Jack.

"Humph! I guess we're too far off for them to hear anything that goes on inside this projectile," said Mark. "Why, we're nearly seventeen millions of miles above the earth now."

"Good land a' massy! Don't say dat!" cried Washington, who was setting the table for dinner.

"Why not? It's a fact," declared Mark.

"I knows it is, but don't keep dwellin' on it. Jest s'posin' we should fall. Mah gracious! Sebenteen million miles! Why, dat's a terrible ways to drop--it suah am!"

"You're right," assented Jack. "But hurry up dinner, Washington. I'm hungry."

The two boys were in the midst of the meal when they felt a curious sensation. Jack jumped up from the table.

"Do you notice anything queer?" he asked Mark.

"Yes. It seems as if we were falling down!"

"Exactly what I thought. I wonder if anything could have happened?"

The Annihilator was certainly falling through space, and no longer shooting forward. This was evident, as the motion was slower than when the projectile was urged on by the mysterious force.

"Let's go tell Mr. Roumann and Professor Henderson," suggested Mark.

They started toward the pilot house, but met the two scientists rushing back toward the engine-room.

"Has anything happened?" asked Jack.

"Yes," answered the German. "The Etherium motor has stopped working!"

"And are we falling?" asked Mark.

"Yes, in a sense," answered Mr. Henderson, as the other inventor hurried on. "The gravitation of the earth no longer attracts us, but we are not heading in a straight line for Mars. We may be falling into some other planet, or the sun."

Then he, too, went to the engine-room, and the boys followed. They found the place strangely quiet, since the throbbing and humming of the main motor had ceased. The dynamos that kept the light aglow and the air and other pumps were in motion, however.

"What's the matter?" asked Mr. Henderson.

"There's been a breakdown," was the reply of the German. "And it looks to me as if some one had been tampering with the motor."

"Tampering with the motor?"

"Yes. Some of the plates have been smashed. I believe there is some one concealed on board--some enemy of mine--who hopes to destroy us."

"What can we do?" asked Jack.

"Nothing, until the motor is repaired," replied the German scientist.

"But we are falling--"

"Yes, I know. But we can't fall with anything like the speed with which we were traveling, and though we may go downward, comparatively speaking, for a day or so, we can quickly regain our former place as soon as the motor is running again."

"But can you fix it?"

"Yes, I have some spare plates. But I wish you boys would make a search through the projectile."

"What for?" asked Mark.

"For the person who smashed the plates. I believe some one is concealed here who seeks to kill, us. We must find him."

"And I think I know who it is!" exclaimed Jack.

"Who?" asked Mr. Henderson.

"The crazy machinist. I believe he sneaked here through that open port leading into the storeroom."

"That's it!" cried Mr. Roumann. "He must have done this. See if you can't find him."

"Come on, Mark," said Jack. "We'll look for the rascal."

"And I'll help," added old Andy. "I'm pretty good on the trail. Maybe I can locate him."

"Do so, then," advised the German. "The professor and I will repair the motor."

CHAPTER XVIII

A VAIN SEARCH

The boys, with the old hunter, immediately began a search. Washington was needed to aid the two scientific men, who quickly prepared to substitute new plates for the smashed ones. The broken plates looked as if they had been struck with a sledge hammer.

Once the adventurers got used to the different motion of the projectile, which was now falling in some unknown direction of its own weight and not forced onward by the power of the motor, they did not notice anything strange.

"Let's begin at the pilot house and work back," proposed Andy. "If that crazy machinist did the damage, it would be natural for him to want to get as far away as he could from the engine-room. That place would be the pilot house."

So they searched there, but there was no sign of any one. Indeed, it would have been a pretty small person who could have concealed himself in the prow of the projectile, occupied as it was with all sorts of mechanism.

"Well, he isn't here, that's certain," declared Andy, who had brought his gun along. "Now for the bunk-room."

There they had no better luck. They peered under the berths, above them, and even turned back the sheets and blankets to look for the intruder. He was not to be found.

Nor was he in the living-room, which was looked over from top to bottom, and every corner examined.

"If he's any place, it must be in the storeroom," declared Jack.

"Unless he's outside the projectile," suggested Mark.

"He couldn't live for a minute in a place without atmosphere," was Jack's opinion. "No, he's in here somewhere, and we must find him."

But it was more easily said than done. The storeroom contained many things, piled together, and it would have been easy for a person to conceal himself among them. The boys and the old hunter looked in every possible place, as they supposed, even

taking down many boxes and barrels to peer behind them, but they did not find the man they sought.

"I don't believe he's here," said Jack as he paused in the hunt.

"Say, do you know, I have an idea," said Mark. "Maybe that motor broke itself."

"How could it do that?"

"Well, it might have got to going too fast, and the power may have broken the plates. Anyhow, we didn't hear any person in the engine-room, and there doesn't seem to be any one here."

"That's so."

"I'll make an affidavit that there ain't a person on this airship but ourselves," declared Andy.

"Let's ask Mr. Roumann if it's possible that the motor smashed itself," proposed Jack, and, having no further place to search, they went back to where the two scientists and Washington were busily engaged.

"Yes," replied Mr. Roumann, after Jack had stated his question. "It's possible for that to have happened, but not very probable. I think some person is hiding on board here, and that he did it."

"But we can't find any one."

"That may be. He is well concealed. Well you can't do anything more. Suppose you two boys turn in and help us?"

Jack and Mark were glad to get busy, and for several hours they labored in the engine-room, where the two scientists were toiling. As this rendered it unnecessary for Washington to be there, the colored man went to his kitchen, while Andy again made a vain search of the projectile, looking for the crazy man.

Though Mr. Roumann had provided duplicates of the power plates for the Etherium motor, it was quite a task to take out the broken pieces and insert the new ones.

"Can't you run the atmospheric motor while we're fixing this one?" asked Jack. "That would prevent us falling, I should think."

"No, for the reason that there is no atmosphere for it to work on," declared Mr. Roumann. "But don't worry. We shall soon be under way again. We will be somewhat delayed in reaching Mars, that is all."

They labored hard all the rest of that day and part of what corresponded to the night, though of course the daylight outside never ceased. Little of it could penetrate the projectile, however, for the big car was all sealed up, save for the observation window in the pilot house and one on the side.

"There," announced Mr. Roumann, after inserting the last new

plate. "I think we are all right."

It had been nearly eighteen hours since the motor had so suddenly stopped.

"Will you start it now?" asked Jack.

"Yes. I wish you and Mark would go to the pilot house and turn on the power. Do it very slowly. Mr. Henderson and I will stay here and see how the motor behaves."

It was an anxious moment when the power was turned on the repaired machinery, but, to the delight of all, the motor again began to give out the mysterious force. The projectile ceased to fall, and once more was hurled onward.

"That's the stuff!" cried Jack, as he noted the needle of the indicator moving around, showing that they were again headed for Mars.

Once more they were shooting through the ether. The wonderful motor worked even better with the new plates, and Mr. Roumann said they had increased their speed about twenty-five percent.

"So we will soon make up for what we lost," he added.

They were all tired that night, for the work of making the repairs had not been easy, and Andy had gone over the whole projectile many times, looking for the hidden insane man.

"I don't believe he can be here," was Mr. Henderson's opinion.

"He certainly is," declared Mr. Roumann, "and we shall have more trouble from him."

"I hope not," ventured Professor Henderson.

It was on the second day after the accident, when the Annihilator was speeding along, that Jack and Mark, who were in the pilot house with Mr. Roumann, noticed a peculiar trembling of one of the needles on a dial designed to indicate the nearness of heavenly bodies.

"We're coming close to something," said Jack.

"We certainly are," admitted the scientist, with an anxious look at the instrument.

"Maybe it's Mars," suggested Mark.

"No, it can't be that planet."

"What is it?" inquired Jack. "Look, the needle went all the way around that time."

Mr. Roumann bent over the gauge. Then he consulted some charts of the sky, and made a few calculations.

"Boys, I am afraid we're approaching a large comet," he said

gravely. "And, what is worse, it is attracting us toward itself. We are in great danger!"

CHAPTER XIX

ESCAPING A COMET

The two boys looked at the German scientist. He was gazing, as if fascinated, at the swiftly moving needle of the gage that had told of the nearness of the comet.

"How far from it are we?" asked Jack.

"Many thousands of miles," replied Mr. Roumann. "But that distance is nothing compared to the rate at which we are traveling. We are almost certain to crash into it, or the comet will collide with us."

"And when it does, what will happen?" inquired Mark quietly.

"That is hard to say," was the answer of the German. "We know very little about the composition of comets. They may be composed merely of flaming gasses, or they may be a train of burning meteors, held together by attraction. The head may be some vast, blazing world, as large as our planet. In fact, comets are very baffling to astronomers."

"Well, if a comet is nothing but gas, it won't hurt if we run into it, will it?" inquired Jack.

"That's just the trouble. We don't know that it is gas," said Mr. Roumann. "It may be solid, and then to rush into it at terrific speed would mean that we would be demolished. Also, if the gas is flaming, you can easily imagine what would happen to the Annihilator. There would be nothing left of it--or us--in less than an instant."

"But isn't there some way of escaping it?" asked Mark.

"I'm going to try," responded Mr. Roumann. "Jack, ask Professor Henderson to step here. I wish to consult him."

Jack delivered the message, and it was overheard by Washington White. Something in Jack's manner told the colored man that there was trouble aboard.

"What's de mattah?" he asked.

Jack saw no reason for concealing the danger from the cook.

"We're heading into a comet," he, said.

"What? One ob dem tings wid long, fiery tails, Massa Jack?"

The youth nodded.

"Am we gwine t' hit it?"

"I'm afraid so."

"Well, I hopes we does!" exclaimed Washington with great earnestness. "I hopes we knocks it clean outen de universe, dat's what I hopes."

"We're a great deal more likely to be knocked out ourselves, Wash."

"No, sah! Don't yo' believe anyt'ing like dat!" exclaimed the colored man. "I know dis airship. I helped build it, an' it's de strongest one de perfesser eber made. A comet won't be one, two, six wid it. We'll jest knock a piece of his tail off, at's what we'll do. I don't laik comets. Dey allers brings bad luck. Onct, when I was a young feller, I had a ten-dollar gold piece. Dat same year a comet was observed, an' de fust t'ing I knowed somebody done up an' stole mah ten-dollar gold piece. Comets brings bad luck, an' I knows it; Golly! I want t' see one ob 'em busted all t' pieces."

"I guess you don't appreciate the danger," said Jack gravely, as he followed Professor Henderson back to the pilot room, where the two scientists began to consult.

"We have decided on a plan, Mr. Henderson and myself," said Mr. Roumann. "The fact that so little is certainly known concerning comets makes it difficult to know what to do. We might keep on our course and come to no harm, merely pawing through a gaseous mass which makes up the comet's tail. But there is a danger that we might strike the solid head of it, for that the head is solid, and of a glowing, fiery mass, which gives off a train of sparks, is my belief. To collide with a fiery ball, larger than the sun, would indeed be terrible. So we have decided to try to pass through the less dense part the tail of the comet."

"Can't we steer to one side, or above or below the comet?" asked Jack.

"Impossible," replied Mr. Roumann. "We have made some calculations, and have ascertained that this is Donati's comet--the one of 1858--and the head of it is two hundred and fifty thousand miles in diameter. The tail is many millions of miles long, and as many thick. To pass entirely beyond it would consume much time. In fact, we could not move quickly enough to escape it, as we are now being attracted out of our course toward the comet."

"How far off is it now?" asked Mark.

"About seven hundred and twenty thousand miles."

"Then we'll be up to it in about two hours," went on Mark, making a rapid calculation.

"I only hope we don't get into it, as well as up to it," commented Jack.

"We all do," observed Mr. Henderson. "But now, boys, we are going to do our best to escape. Mr. Roumann will remain in the pilot house to steer the projectile, while you and I will attend to the Etherium, motor."

"Try and see if you can get any more speed out of it," advised the German. "Use the accelerator plates, as I instructed you. Perhaps we can pass so quickly through the gaseous tail, or a portion of it, that we shall not be harmed."

"Even if it blazes?" asked Jack.

"Even if it blazes. The gas between the two shells of our projectile will absorb an enormous quantity of heat. It is our only hope."

Their hearts filled with apprehension, the two boys accompanied Professor Henderson back to the engine-room. There the scientist changed the plates on the motor, and made some adjustments, as suggested by Mr. Roumann, so that more speed would develop. Anxiously they watched the gages, to see if the motor did work any faster.

"It's increasing!" cried Jack, as he watched the needle swing, until it indicated a rate of one hundred and thirty miles a second. "We are going faster than we ever went before."

"And we need to," observed Mr. Henderson. "A comet is a terrible mass to escape from."

In spite of the increased speed of the projectile, it could not be noticed by those within it. For all they could tell they were stationary, but they were really flying through the ether at enormous velocity. For over an hour the motor was worked at the increased rate. Then, leaving the boys in charge for a few minutes, Mr. Henderson went to the pilot house to ask Mr. Roumann if there was any chance of escape. He met the German coming toward the engine-room.

"Well?" inquired the professor.

"No, not well--bad," was the gloomy answer.

"Why so?"

"I can't force the Annihilator to one side or the other. I have tried, time and again, to steer it away from the comet's head and into the less dense part of the tail, but, so far, without success. The rudder arrangement appears to be affected by the comet and will not work."

"What can we do?"

"Nothing, unless, perhaps, we can get a little more speed out of the motor. The rudder might work then."

They tried, but without success. Not a bit more speed could the Etherium machine be induced to give out. Indeed, Mr. Roumann admitted that it was working faster than he had ever expected it

would.

"I'll go back and make one more attempt to steer out of the way," he said.

He was gone for perhaps ten minutes. In that time Mr. Henderson, aided by Jack and Mark, tried to adjust the motor differently, but unavailingly. Mr. Roumann came hurrying back from the pilot house.

"It's of no use!" he exclaimed. "We are heading right toward the point of the comet. We must prepare for the worst!"

There was silence for a moment. It was an awful fate to meet, and they realized it. Then Washington White, looking into the engine-room from his kitchen, exclaimed:

"Now, don't yo' all go t' worryin' 'bout dat ole comet. It can't hurt us, an' we'll knock it into smithereens!"

"You talk that way because you know nothing of comets," said Mr. Roumann solemnly.

"I don't know nuffin' 'bout 'em?" demanded the colored man. "I knows too much ob 'em, dat's what I does. Didn't I lose mah ten dollars?"

He stopped suddenly. From without there came a terrible roaring sound, that grew louder and louder.

"The comet!" cried Mr. Roumann. "We are almost upon it. That roaring is caused by the flaming gases!"

There was nothing that could be done. There was no place to go--no place to run to--no place in which to hide. They could only stand there and wait for total annihilation, which they expected every moment.

The roaring grew louder. It was like the howling of a mighty mind. The projectile seemed to tremble.

Then there came a brilliant light, rivaling even that of the sun, in the rays of which they constantly were. The light streamed in through the plate-glass ports in the engine-room. It showed violet rays, purple, orange, green, yellow--all the colors of the rainbow.

"We'll be consumed in a moment!" murmured Mr. Roumann. "We are in the midst of the comet!"

Several seconds passed. There was no increase in temperature. After all, would the wonderful gas in the space between the two shells of the projectile absorb the terrific heat?

The light faded away. Only the glow of the sun remained. The Annihilator shot onward.

Mr. Roumann rushed to the pilot house. He uttered a cry.

"We have escaped the comet!" he called to the boys and Professor Henderson, who followed him. "We went right through a small section of the tail. And I was mistaken in thinking it was composed of flaming gases. It is only nebulous light. There is no harm in a comet, after all!"

"Dat's what I said all along," remarked Washington White, as he went back to his kitchen. "All a comet is good fer is t' bring bad luck. Look at mah ten dollars. I wish we'd batted dis one inter pieces!"

CHAPTER XX

THE MOTOR STOPS

They were hardly able to realize their escape. That is, all but Washington. He took it as a matter of course.

"How did it come about?" asked Jack.

"It's hard to say," replied Mr. Roumann. "I couldn't steer away from the comet, but it's probably just as well that I could not. It seems that the mass of queer light attracted us to it, but to a certain section where we came to no harm. And we must have gone through it at an angle, or we would have been much longer within its influence."

"Can we see the comet?" asked Mark.

"There it is," replied the German. "Only it doesn't look as a comet does when you view it from the earth. We are too close to it."

They looked from the side window of the projectile. Far off appeared to be a great mass of clouds, except that instead of being white, the mass was colored with many hues, It was so vast in extent that they could see neither the beginning nor the ending of it.

"Our first comet," remarked Jack.

"And I hope our last," added Mark.

"Yes, indeed," interjected Mr. Roumann. "Now I think we will slow down the motor somewhat. We must save some of the energy for our return trip, though I have a large surplus. Still, we cannot be too careful."

"Are we once more headed for Mars?" asked Mark.

"Yes, we are pointing directly toward it. Perhaps you boys will go and slow down the motor, while Professor Henderson and I make some scientific notes concerning the comet. It will be great information to the astronomers on earth. Many of their theories

will be changed, I fancy."

Jack and Mark started for the engine-room.

They passed through the living or dining-room, where Washington was setting the table for dinner.

"What I done tole yo'?" he demanded triumphantly. "I wasn't skeered ob no ole comet."

"That's right, Wash," admitted Mark. "You had one on us that time."

Andy Sudds was in one corner of the room, oiling his gun.

"Getting ready to go hunting?" asked Jack.

"Well, I heard Mr. Roumann say we'd be on Mars in a few days," replied the old man, "and if there's any game there I want to get a shot at it."

"That's right," said Jack. "I guess I'll take--"

He got no further. From the engine-room there sounded a tremendous racket, as if some one was pounding on the machinery with a big hammer.

"What's that?" cried Mark.

"Something's happened to the motor!" exclaimed Jack. "Maybe it's going too fast! Come on!"

They ran to the engine-room. The sight that met their eyes was a startling one.

Standing with his back to them was a strange man. Over his head he was swinging a sledge hammer, which he brought down with great force upon the Etherium motor.

"I'll smash it! I'll stop this machine! I'll send us all to the bottom of the universe!" the man was muttering.

"Quit that!" cried Jack, springing forward.

The man paused and turned.

"The crazy machinist!" shouted Jack. "Hell break the engine all to pieces!"

"That's what I will!" replied the infuriated man. "I'll end this voyage now!"

Once more he brought his hammer down on the machine, and the motor, with a hissing of gas and a shower of sparks, stopped working.

Jack and Mark were brave lads. They sprang upon the man, though he was large and strong, and his strength was added to by his insane fury.

In an instant they were in the midst of a fierce fight. The maniac tossed them aside as if they were mere infants, but they returned to the attack. They sought to hold his arms to prevent him from doing any further damage with the hammer. Fortunately for the lads, the man was forced to drop the weapon, to enable him to grapple with his two assailants.

"Can you hold him?" cried Mark.

"Not very well," panted Jack, as his grip of the man's arms was broken and he was flung across the room.

"Help! Help!" suddenly cried Mark. "The crazy machinist is here!"

Washington and Andy, in the living-room, heard the yells of the boys. They rushed to the scene, and, taking in the situation at a glance, flung themselves upon the unfortunate man, aiding the boys in holding him.

Even their strength was not sufficient, and it was not until Mr. Roumann, leaving Professor Henderson in charge of the pilot house, had come up, that they were able to secure the maniac.

He was quickly bound with ropes, and placed in the storeroom as a prisoner, while the German turned his whole attention to the motor, a part of which had been broken. Once more the Annihilator had ceased to advance, and was falling through space.

"Can you fix it?" anxiously asked Jack, who was panting from the terrible struggle.

"Yes," replied Mr. Roumann. "Fortunately he did not smash a vital part. I will soon have it running again."

In less than half an hour the motor was repaired, and was speeding the projectile on its way. It was not set at the greatest power, however, as Mr. Roumann did not want to put too much strain upon it.

"Now I have time to inquire how it happened," he said to the boys. "Tell me about it."

They related how they had come upon the crazy machinist.

"Then he has been hidden on board all the while," commented the German. "I was not mistaken in thinking some one opened that port after I closed it. He sneaked in here the night before we started, and has been waiting his chance to do us some damage. It was he who smashed the plates."

"But where could he have concealed himself?" asked Jack.

"I don't know. We'll see if he will tell us."

They went to the storeroom, where the maniac was bound.

"Why did you try to damage my machinery?" asked Mr. Roumann.

"Because it is an infringement on my patent," was the surprising answer. "I invented a perpetual motion machine, for making dog biscuits, and you have used it to make your airship go. Therefore I smashed it. I have the sole right to make dog biscuits for the king of the cannibal islands. I'm his private secretary."

"He is hopelessly insane," murmured Jack.

"I fear so," agreed Mr. Roumann. Then he asked: "Where have you been hiding?"

"Ah, I fooled you, all right," said the man with a cunning laugh. "It was just like a game of hide and seek to watch you hunting for me, and me looking at you all the while. Ha, ha! Oh, I had a good place."

"Where was it?" asked Mr. Roumann soothingly.

"Right up there," answered the machinist, pointing to the roof of the storeroom. The German made an investigation, and discovered a small compartment where it had been intended to make a port, but the idea for which had not been carried out. This left a space in the wall of the projectile, large enough for a man to conceal himself in. No one would suspect he was there.

"I sneaked on board one night," went on the man. "I managed to open a port into the storeroom. And I lived high, I can tell you."

"Golly! He's been at mah kitchen stuff!" exclaimed Washington.

"Did that other man come aboard with you?" asked Jack. He referred to the tramp who had peered in the window of the professor's house.

"No. He's been elected King of France," was the answer. "He had to go over there to get his crown fitted on. I'm all alone here. A few minutes more and I would have smashed that engine."

"I guess you would," responded Mr. Roumann. "Well, we'll take good care that you do not get loose again."

The bonds of the maniac were made more secure, and Washington White was told to keep, close watch over him.

It was the day after this occurrence, though Jack and Mark had not gotten over talking about it, that they were in the pilot house with Professor Henderson. The projectile was speeding along rapidly, and from calculations that had been made it was believed they would arrive at Mars in about two days.

"I'll be glad of it," said Jack. "I want a chance to stretch my legs."

"And grow lighter," added Mark. "You're fatter than ever since you began this trip."

"That's because I don't have any exercise. But I'll make up for it. I understand that on Mars one can jump twice as far as he can on the earth, due to the less dense atmosphere."

"Well, we'll soon see," said Mark.

Mr. Henderson suddenly bent over one of the indicators. He pressed a lever, turned a wheel, and then exclaimed:

"The Etherium motor has stopped working 'again! I wonder if the maniac is loose!"

"We'll see!" cried Jack, as he and Mark hurried toward the engine-room. They found Mr. Roumann there.

"The motor has stopped!" exclaimed Jack.

"I know it."

"Has there been an accident?"

"No."

"What's the matter, then?"

"We have completed our journey through the ether. The motor will only work in that."

"And that means--" began Mark.

"That we have reached the atmosphere of Mars!" exclaimed Mr. Roumann in triumph.

CHAPTER XXI

MARS AT LAST

Anticipating, as they had for some time past, such an announcement, it was none the less startling to the boys.

"Then we are really nearing Mars?" exclaimed Jack.

"Not only nearing it, but we will be there within twenty-four hours," answered the German scientist. "I was looking for this. I expected the Etherium motor to stop as soon as it reached the atmosphere of the planet, and it has done so. We will not have to start it again until we make the return trip. I will now again put into operation the atmospheric motor, and we will see how it behaves. Kindly inform Mr. Henderson, so he will understand what is taking place."

Mark hastened to the pilot house with this message, and then returned to watch Mr. Roumann, the professor agreeing to remain at the steering wheel until relieved by his friend.

Mr. Roumann began adjusting the second motor. It had been kept in readiness for instant service, and did not require much attention.

"I don't see why we have to use it at all," said Jack.

"Why shouldn't we?" Mark wanted to know.

"Because if we are near Mars it ought to attract us, just as if we were near the earth. We ought to fall right into it."

"That is just the danger," commented Mr. Roumann. "We don't want to fall. We want our projectile under perfect control, and I can only attain that end by using the motor. Besides, we are not near enough to Mars to be attracted by its force of gravitation, even supposing it is the same as that of our earth. We might not be attracted at all, and if we did not use the motor we might float around the planet as if we were a moon. No, if we wish to reach Mars we must use the atmospheric motor."

A few minutes later it was started, and the Annihilator was once more speeding along, this time under new power, and not quite so fast. All on board the projectile found themselves anticipating what they would see on the new and wonderful planet they were soon to visit.

"It hardly seems possible," murmured Jack, "that we have made such a journey--the longest on record."

"It will be more wonderful if we get back to earth," spoke Mark.

"Oh, I don't know," went on his chum. "We may like it so on Mars, that we'll want to stay. And there isn't any reason why we shouldn't, provided we find nice people there. We haven't many friends, Mark. Our best ones are right here with us. We could just as well stay as not."

"Yes, provided, as you say, that the Martians are nice people. But you must remember that we're going to be strangers in a strange land."

"Well, one always treats strangers politely," declared Jack. "I guess we'll get along all right. Anyhow, I'm glad we're near there."

"So am I," declared Mr. Henderson. "I will be able to make some scientific observations, and, perhaps, write a book about them when I get back to earth. I might make some money out of it."

"You won't need to make money, if what I suspect is true," said Mr. Roumann.

"What is that?"

"Well, I can't go into details now, but I hope to secure something that will make our fortunes. There is only one thing I fear."

"What is that?"

"The Martians may prevent me taking any of it away. But I am not going to borrow trouble. Let us see how the motor is working."

They had all gone, with the exception of Andy and Washington, to the pilot house, and they now returned to the engine-room.

"Ha! That is rather strange!" exclaimed Mr. Roumann as he looked at the buzzing machinery.

"What's the matter?" asked Mark.

"The atmospheric motor is running much faster than I ever saw it go before. I wonder if that crazy machinist could have gotten loose and meddled with it?"

"I'll look," volunteered Jack, but he soon ascertained that the man was still securely bound.

The motor was humming and snapping away, and a gage connected with it showed that it was forcing the Annihilator along at the rate of two hundred miles a second.

"That is faster even than we moved when the Etherium machine was working at its best," said Mr. Roumann with a puzzled look. "Can I have made a mistake in my calculations? I hardly think so."

"Jack, run to the pilot house, and see if the automatic steering apparatus is all right. Also see what the speed gage there indicates." Jack hurried off, and soon returned.

"We're heading right for Mars, as indicated on the chart," he said, for there was an arrangement whereby the projectile could be automatically steered.

"What speed does the gage there show?" asked the German scientist.

"Two hundred miles a second."

"The same as here," murmured Mr. Roumann. "I wonder what can cause it?"

He leaned over the motor, and made some calculations. Then he exclaimed:

"I have it!"

"What is the reason?" inquired the professor.

"It is because we are speeding through an atmosphere much less dense than that of our earth. There the motor would only work at a certain speed. Here, in the atmosphere of Mars, it goes more than twice as fast, because there is less resistance."

"Is that good or bad?" asked Jack.

"Good. We shall reach the planet all the sooner now. Boys, get ready to land on Mars in a few hours!"

The news was startling in itself, but so many strange things had happened on the trip that this only produced a momentary impression.

"Yo' say dat we am shortly goin' t' promulgate eurseves inter conjunctionary juxtaposition wid de exterior circumference an' surface ob de planetary sphere commonly called Mars?" asked Washington White.

"If you mean whether or not we are near Mars, why, we are," answered Jack with a laugh. "But, Wash, if you use such language as that I don't know what the Martians will think of you."

"I knows," answered the colored man with great dignity. "Dey'll take me fo' jest what I am--a mostest profundity educationalized specimen ob de human fambly. But I'se glad we's so neah Mars."

"Why? Are you tired of being cooped up here?" asked Mark.

"Not prexactly, but mah Shanghai rooster am. He's dat lonesome dat's he's homesick for t' git out an' do a bit ob scratchin' on de ground."

"Look out that he doesn't fly away when he gets on Mars," cautioned Jack. "Things there are twice as light as they are on the earth, and he'll only weigh a pound or so, instead of two or three."

Washington grunted, but said nothing. He served a meal, probably the last one that would be eaten before their arrival.

"We have been just twelve days, so far, on our journey," declared Mr. Roumann. "That is a little longer than I calculated, but it was due to unexpected troubles."

"Well, we've been very comfortable here," commented Mr. Henderson.

And indeed they had. Except for the rather cramped quarters, and the absence of scenery, they had lived as well as they could have done at home. They had plenty to eat and drink during their marvelous trip through space, they had enjoyed the reading of books, had listened to fine music, and had been traveling in perpetual sunlight.

What was before them? Every one asked himself that question.

On and on the projectile sped. Mr. Roumann, who had taken charge of the steering wheel called the attention of the boys to a small, dark object off to the right.

"What is it?" asked Jack. "It looks like a bright ball of fire."

"One of the moons of Mars," was the answer. "That is Deimos, and we are now but ten thousand miles from the planet, for that is the moon distance from Mars."

"How small it is!" commented Mark.

"Yes, it isn't much like our moon, but I suppose it answers for the Martians."

"But if we're only ten thousand miles away from Mars, and are traveling at two hundred miles a second, we'll be there in less than a minute!" cried Jack.

"We would, only I have shut down the motor. We are now approaching only from the force of the attraction of gravitation, and that, I find, is much less than on our earth. At the proper time I will reverse the motor, to make our landing easy."

The indicators showed that the Annihilator was now traveling along at about the rate of a fast automobile.

"We're almost there!" cried Mark.

Mr. Roumann adjusted the machinery. Sometimes he speeded it up, and again he slowed it down. He found he had the projectile under perfect control. Once again he set the motor in motion, approaching Mars at a fast rate.

They shot past another shining body.

"The second moon!" he called to the boys. "We are but sixteen hundred miles away now."

"Get ready to land!" cried Jack. "All ashore that's going ashore!"

"Maybe we'll land in the water," spoke Mark.

"No, I can so regulate the projectile that such a thing won't happen," declared Mr. Roumann.

"I will send it ahead for a few seconds, and then see what happens."

They sped forward. Suddenly there loomed up before them a great mass. It seemed to be rushing to meet them. It looked something like the earth, as seen from a balloon at a great height.

"Mars!" cried Mr. Roumann. "There is the planet we aimed for! Mars at last!"

He reversed the motor. The motion of the projectile became less. Nearer and nearer it approached the wonderful planet on which all their thoughts were centered.

"But it isn't red!" objected Jack.

"Wait until night," said the German. "We are approaching it from the daylight side."

"Am we goin' t' ram it hard?" asked Washington.

"I trust not," was Mr. Roumann's reply.

He reversed the atmospheric motor still more. They were so near the planet now that they could distinguish land and water, great buildings, patches of woodland and open spaces.

"There are people there! I see people!" cried Jack.

Indeed, there did seem to be a mass of beings looking up at the approaching projectile.

Very gently the Annihilator came nearer and nearer. There was no doubt now but that Mars was inhabited--but by what a strange race! Before those in the projectile had time to wonder at the inhabitants, they felt a sudden jar. The Annihilator came to rest. It had landed in a soft bed of sand.

"Welcome to Mars!" cried Mr. Roumann, opening a door in the side of the craft and stepping out, followed by his companions. They were at once surrounded by a throng of the queerest people that they had ever imagined.

A great shout arose, and as the adventurers stood in a group near their craft, they suddenly found themselves being moved forward toward the crowd by some strange, mysterious force.

CHAPTER XXII

QUEER PEOPLE

"Hear! Hold on! Quit shovin' me!" cried Washington White. "Stop, Massa Jack!"

"I'm not pushing you," replied the boy, who, with the others, was being moved forward against his will. "I can't seem to stop!"

Nor could the rest of them. It was just as if some one had commanded them to walk forward toward the crowd that stood waiting for them, and they could no more avoid obeying than they could had they been pulled by wire cables.

"What can it be?" murmured Mr. Roumann. "Hold back, all of you. They must have attached invisible wires to us, and are going to make prisoners of us!"

"There are no wires on me," observed Mark, carefully feeling about him.

"Nor me, either," added Jack.

"I'll soon make 'em stop!" exclaimed Andy Sudds, and raising his gun to his shoulder, he fired over the heads of the Martians, intending to frighten them.

To the surprise of the adventurers the gun only made a faint sound, about half as loud as it usually did, and they saw something small and black pop out of the muzzle, and sail lazily

through the air for a short distance, then fall.

"Would you look at that!" exclaimed the hunter in great disgust. "Look how my bullet flew! First time I ever saw a bullet come from a gun! We're in a strange land, friends!"

"I have it!" cried Professor Henderson. "The attraction of gravitation on Mars is a third of that on the earth. The atmosphere is also less dense. Your gun only makes half the noise, Andy, and the bullet doesn't go nearly as fast, nor with nearly so much force. That's why you could see the bullet. It went very slowly. Your gun is of no use here."

"And is that what makes us move?" asked Jack. "Because we're so light?"

For they continued to advance toward the crowd, which seemed to be anxiously awaiting them.

"That's partly the reason, I guess," replied the professor. "The other part is that they are exerting some strange force upon us. We'll find out later what it is."

"I wish dey'd let me be!" exclaimed Washington, vainly struggling to hold himself back.

"What queer people!" exclaimed Jack. "Look at what large heads they have!"

"And what small bodies!" added Mark.

It was indeed so. They found Mars, at least the portion where they had landed, to be inhabited with a strange race of beings.

There were men and boys and a few women in the crowd, but they were unlike any men, boys or women they had ever seen. Their heads were about three times as large as those of the ordinary person, and the eyes, ears and nose were of extraordinary size. Indeed, the eyes bulged out in quite an unpleasant fashion, and the ears of the Martians were not unlike those of an elephant in proportion, though they were shaped more like those of a human being. As for a Martian nose, it was elongated, and capable of being moved in any direction, as were also the ears.

As the adventurers felt themselves being urged forward, by what means they knew not, they noted that the Martians were staring at them with their great, protruding eyes, that they were listening to their talk with their great ears thrust forward, and were lifting their flexible noses toward the travelers as if to get wind of them, as wild beasts do.

"They're certainly sizing us up in great shape," observed Jack. "But whatever kind of clothes have they got on?"

Well might he ask, for the Martians seemed to be covered with a combination of fur and feathers. They wore no garments that could be put on or taken off, but seemed to be provided by either Nature or skill with suits that were a part of themselves. Men, women and children were all attired alike.

Suddenly the travelers felt themselves come to a stop. A murmur arose from the crowd, and from the midst of the assemblage there stepped forth a man, who seemed to be a sort of leader. On his head was a golden band, and attached to it was a small, glittering triangle. He approached quite close to the little party, and the boys noticed that he seemed to float along, rather than to walk, and that his progress was very swift. He looked searchingly at the strangers with his big eyes, and then addressed them in a queer language. By the tones of his voice it was easily guessed that he was asking them questions, and it did not take much of an imagination to guess that he was inquiring whence they came, how they had arrived, and what they wanted.

"I can't understand his language," remarked Mr. Henderson, turning to his friends. "Can any of you?"

They all shook their heads.

"Let me try him in German," suggested Mr. Roumann, and he gave a brief explanation, in that language, of their trip from the earth. The man with the glittering triangle on his head did not comprehend.

"I can speak several languages," remarked Amos Henderson. "Let me tackle him."

Accordingly, the professor spoke in several languages, including the Esquimau, which he had picked up on his journey north, and in the language used by the inhabitants in the center of the earth. But to all these the leader only shook his head.

"Suppose we try Latin?" suggested Mark, who was a proficient pupil in that language. "Latin is a very old language. Maybe he understands that."

"Go ahead," said Jack.

Mark accordingly began to recite part of the first book of Caesar, beginning: "All Gaul is divided into three parts," which every schoolboy knows. But this was no better.

"Let me try a bit of Greek on him," said Mr. Roumann. "I used to be a pretty good Greek scholar."

But Greek appeared to be an unknown tongue to Mars. The leader, however, seeing that the strangers had arrived at the end of their resources, called to some persons in the crowd, and these, coming forward, addressed the world-dwellers in different dialects. But they were no more understandable than had been the first speech of the man with the glittering triangle.

"Guess we'll have to resort to first principles, and draw pictures for them," said Mark.

Just then Jack uttered an exclamation, and pointed to the head of the leader.

"What's he doing? Making faces at you?" asked Mark.

"No; but look at that triangle!" exclaimed Jack. "It's a right-angled one."

"Well, what of it?"

"This: If they understand triangles, they must know something about mathematics and geometry. Suppose we draw for them that problem in geometry which states that the sums of the squares constructed on the base and altitude of a right-angled triangle is equal to the square constructed on the hypotenuse? If he knows that, maybe we can get to some understanding with him."

"Go ahead and try," assented Mr. Henderson.

Jack accordingly took up a stick, and drew in the sand the geometrical problem of which he had spoken. It is one of the simplest. No sooner had he done so than the Martians set up a cry.

"What's the matter?" asked Jack. "I hope I haven't made them mad."

"No; they appear to be delighted," said Mr. Roumann. And sure enough, the Martians showed evidences of pleasure. They pointed to the triangle on the head of their leader, and then to the one Jack had drawn.

Then, from somewhere in the rear of the crowd, there came another man. He was slightly larger than his companions, but that was not saying much, for, aside from their great heads, the Martians were all little people, not much more than up to Andy's shoulder, and Andy was not much over five feet in height.

But it was not the size of the newcomer that attracted the attention of the travelers so much as it was the device he had in the golden circle on his head. For this device was exactly the same as the one Jack had drawn in the sand to illustrate the problem. It was a triangle, with squares drawn out from the three sides. He looked at the drawing in the sand, and made a low bow to the newcomers.

"Well, that appears to have taken their fancy," said Mark. "I can't understand it."

"I can," spoke the professor quickly. "The Martians are a very learned people. That's why their heads are so large and their bodies so small. They make a special study of the sciences, and geometry and mathematics probably are their favorites. That is why they understand Jack's problem. Science is the same throughout the universe, though conditions may differ on different planets. I think we have arrived at a means of communicating with the Martians, at least until we have learned their language."

The Martian with the triangle and squares on his circlet of gold appeared to be a grade higher in authority than the one with the simple triangle. He now addressed the travelers, but they could not understand him.

Seeing this, he stooped and drew in the sand another geometrical problem, leaving it half completed.

"You finish it, Mark," said Jack, and the boy did so, much to the delight of the crowd.

"They all are well up in geometry," declared Mr. Roumann.

"But I'd like to understand what force it was that made us move?" spoke Jack.

"I'll see if I can find out," said Mr. Henderson, and he made motions to indicate that they would like to know what power it was that moved them away from the projectile.

A smile came to the face of the leading Martian. He pointed to his big head, and then to the travelers. Then he fixed his great eyes on them.

Instantly they felt themselves being moved backward to the projectile. They went a few feet, then were moved forward toward the crowd again. Then they found themselves stationary.

"It's thought force!" cried Jack. "That's what it is. They simply will for a thing to be done, and it is done--at least with persons from another planet. They have the power to make us move by merely wishing it."

"Then they ought to be able to read our thoughts," spoke Mark.

"Maybe their power extends only to motion," suggested Mr. Henderson.

The chief leader spoke again, and it was evident that he was asking if the explanation and demonstration he had given was satisfactory. The professor nodded his head to indicate that it was.

The leader addressed the throng of people, and they turned and started away. The leader remained, and turning to the adventurers he pointed off toward a distant city, and indicated that they were to go there.

"And leave our projectile behind!" exclaimed Jack. "We don't want to do that."

This did not meet with the approval of the others. They were in a strange land, and the Annihilator might be the means of saving their lives. If they left it there was no telling whether or not they would ever see it again.

As well as he could Mr. Henderson made motions that they did not like to leave their craft behind. But the Martian, with a frank smile, seemed to say that it would be safe.

"Guess we can't help ourselves," remarked Mr. Roumann. "If we don't go they'll make us. Better go willingly. Besides, I want to see their city."

"But what about our prisoner--the crazy machinist?" asked Jack.

"Oh, I guess he will be all right. He had a good meal just before we landed, and he was asleep. We'll go with these queer people, and come back to-night to the projectile," said Mr. Roumann. "Come on."

They started to follow the leader, who beckoned them forward. He went off at a rapid pace, and the travelers found themselves being urged on just as speedily by that mysterious thought force.

"This is a great way of traveling," observed Jack.

"It suah does beat walkin'," commented Washington White, who, after his first fright, appeared to take it all as a matter of course. "But I hopes dat dey's got suffin' t' placate mah inner conscientiousness wid, 'case I'se gittin' mighty hungry."

"Oh, I guess these people have to eat, even if they are mostly brains," suggested Jack. "Anyhow, we've got plenty in the projectile."

"If dat air crazy man don't git loose an' cat it all up," added Washington. "I shorely hopes dat he doesn't hurt mah Shanghai rooster."

"Never mind about him. Look what a wonderful country we're in," said Mark.

And indeed they were in a strange land.

CHAPTER XXIII

THE RED LIGHT

At first glance Mars had not seemed to be much different from the earth they had left, but when the travelers had gotten over their first astonishment at seeing the strange people, they saw that there were many points of dissimilarity.

In the first place, there appeared to be a great deal of water about them. There were canals or broad rivers on every side, with only narrow strips of land dividing them. The Annihilator had landed on a broad, sandy plain, one of the largest on the planet, as it afterward developed, and so gentle had been the descent, that the projectile was not injured in the least. But leaving that vicinity, and following their guide, the travelers found themselves in the midst of a network of waterways.

"These must be some of the canals the astronomers see," observed Jack.

"Yes," assented Mark. "There isn't much land to spare. I should

think the Martians would be a sort of water race. But they don't appear to have any boats."

"Yes, they do," put in Mr. Roumann. "Here comes one now."

Sure enough, there suddenly appeared on a broad river or canal, along which they were being moved by that mysterious force, a large open boat, in which were several Martians.

"Well, I wonder how that moves?" said Jack. "They're not rowing, they have no sail, and I can't see any engine."

"Maybe thought power moves the boat, too," suggested Mark.

"It certainly seems so," rejoined Mr. Henderson.

The travelers found themselves stopping, and their leader, turning, said something to the persons in the boat. There was a brief conversation in the strange language, and the adventurers found themselves moving into the craft, which stopped close to the bank of the canal. When they were seated the boat started off again, and though Jack and Mark, as well as the two men, looked closely to ascertain what was the motive power, they could not discover it.

"Unless it's in that small box," said Jack, pointing to one made of some shining metal, in the stern of the boat.

"Perhaps it is," assented Mr. Roumann. Then he made some motions to the guide, asking whether or not the substance in the box contained the motive power.

The man with the squared triangle on his head seemed to hesitate a moment, and then, with a motion to the Martian in charge of the boat, he said something, and the latter opened the box. Mr. Roumann looked eagerly into it, as did the others, and the German uttered a cry of surprise.

And well he might, for all the box contained was a lump of what seemed to be red clay. There were no wheels, no machinery of any kind, and there appeared to be no propeller on the boat with which the box was connected. Nevertheless, the craft continued to move along swiftly, and the Martian had indicated that the object in the box made it go.

"The red substance!" exclaimed Mr. Roumann in a low voice. "I wonder if this can be what I seek?"

Once more he looked at the crimson mass in the metal box. He reached forward his finger as if to touch it, but the chief Martian, with a warning cry, suddenly dosed down the lid.

"Humph! I guess they're afraid we'll steal it," exclaimed Jack.

"Maybe it's dangerous to touch," added Mark.

The Martians conversed among themselves in low voices, and from the glances they cast at the travelers every now and then, from their great, protruding eyes, it was evident that the little men

were discussing the strangers.

"Has yo' folks any adequate perceptionability ob de exteriorness in de inverse ratio ob de objectiveness ob de transportation projection ob our destination?" asked Washington White, breaking a rather lengthy silence.

"Do you mean where are we going?" inquired Jack.

"Dat's what I done axed yo'."

"Well, we don't know," went on the lad. "But we seem to be approaching some big city."

Off in the distance, on the side of a hill, which rose from the midst of a great lake or canal, were many glittering buildings. It was a city of large size.

"The question is, what are they going to do with us when they get us there?" spoke Mark. "Maybe they're cannibals."

"They are too highly an educated race for that," replied Mr. Roumann. "No, I fancy they will treat us well. They will want to know about the planet we came from, as well as we want to know about them. I think they will treat us with respect."

"They certainly have, so far," remarked Mr. Henderson. "I only hope none of them meddle with our projectile."

"I'm a little apprehensive about that myself," added Mr. Roumann. "And I trust that crazy man does not get loose. But we can't help ourselves, and we'll hope for the best."

They were now close to the water-front of the city, and they saw the shore lined with a great throng. Evidently their approach had been heralded, and they were being eagerly awaited.

"Looks as if we were going to have quite a reception," remarked Jack. "I hope it's a pleasant one."

"If it isn't, we can't help ourselves," went on Andy. "I can't use my gun in a land where the bullet has about as much force as a pea in a putty shooter. But if they attack us we can pick up stones and fire at them."

"Stones won't be much more effective than the bullets," said Mr. Roumann.

"Why not?"

"Because they'll be light, too. Things here will weigh only about a third as much as they do on earth. In fact, that is one reason why we are moved about so easily by their thought power. We are only a third as heavy as we were on earth, though we weigh more than the Martians, for all that."

By this time they were at the dock, and they found themselves being moved out of the boat, and up to the pier, through the crowd of people.

Their guide--the Martian with the squared triangle--called out an order, and the crowd opened up a living lane, through which the adventurers passed. They could not help noticing how polite the Martian inhabitants were, for there were no idle remarks on the appearance of the strangers, such as would have taken place under similar circumstances on earth. But the Martians made up for it by staring with their great eyes, listening with their great ears, and sniffing, the air with their long noses, though they kept a profound silence.

At the end of the pier the travelers found some queer carriages waiting for them. They were boxes, fitted up with soft cushions, and were on runners, like those of a sled. Jack looked and saw that the street was paved with a substance like glass, very slippery.

"We're going to have a sleigh ride!" he exclaimed; "but I don't see any horses to pull us."

"Maybe these are automobile sleds," suggested Mark.

"If they are, there's no motor in them," declared Jack, making a careful examination.

"Then they move by the same power as do the boats," was his chum's opinion. "Yes, see the metal box?" and he pointed to one in each vehicle.

The leading Martian motioned for Jack and Mark to get in one sled, Mr. Roumann and Professor Henderson were assigned to another, and Washington and Andy to a third. The leading Martian took his place in the vehicle with the two men, while two others of the queer people got in the remaining two sleds, which the boys dubbed the vehicles. No sooner had they done so than they started off as if by magic, sliding over the smooth, glass-like streets.

"Well, they certainly have the transportation problem down to a science," remarked Jack. "This beats a taxicab all to pieces."

"That's right," agreed Mark. "But say, this is a mighty fine city."

The boys looked on either side of them. The street, which was thronged with the queer feather and fur covered inhabitants, led between rows of stately buildings, all built of some light-colored substance. The designs were like those usually seen in fantastic fairy pictures--beautiful in the extreme.

The street led to a great public square, and as the vehicles swung into it, the boys could not repress a murmur of delight. For, at the head of the square was a great palace of glass, its walls so transparent that everything going on within could be seen from without.

"This must be their city hall, the palace of justice, the main administration building, or whatever they call it," said Jack. "Evidently the Martians don't believe in conducting politics in

the dark."

"Well, it's going to be dark pretty soon," observed Mark, "for the sun is setting."

"And look at what a small sun it is," added Jack.

For the first time they noticed that the great luminary was much smaller than it appeared to them on the earth. It was about half the size, but, though Mars must have received considerably less heat from it than did the earth, it was not at all chilly, but, on the contrary, warmer than on the earth at the same time of year.

The little sun slowly sank down behind the distant hills, and when the sleds came to a stop in front of the glass palace, the boys and others found themselves being moved up the broad steps.

"Evidently there's going to be an inquiry concerning us," commented Jack.

They were taken into a vast audience chamber. At one end was a raised platform, upon which were seated a number of Martians. Each one had a golden circlet on his head, and in the center of each band was some geometrical figure.

In the middle of the throng on the platform was a Martian attired in a golden, shimmering robe. And on his head was a small circlet, made apparently of diamonds.

"He must be the high muck-a-muck," said Jack in a whisper.

"Hush!" cautioned Mark.

As the adventurers felt themselves advancing toward the raised platform, there came a shout from the throng. And the words sounded like:

"Silex Corundum!"

At this the Martian with the diamond circle on his head arose and bowed.

"That must be his name," whispered Jack.

"Hush!" spoke Mark again, and he who appeared to be a sort of chief or king began to speak.

He made quite a lengthy address, and as he went on it grew darker, with the approach of evening.

Suddenly, from various points in the great room, there glowed a red light, until the apartment was as bright as day. And the boys, looking up, saw that the light streamed from the sides of small metal boxes fastened to the glass walls.

"The mysterious red substance!" murmured Mr. Roumann. "It is a source of power, it gives forth light, and what will it not do? I must certainly secure some of it!"

The red glow increased as it grew darker outside, and, looking through the glass sides of the palace, the boys saw that the palace was surrounded by a great crowd of Martians, who were watching what went on within.

CHAPTER XXIV

A MARVELOUS SUBSTANCE

"Say, that's a good way to have a building," observed Jack in a low voice to his chum. "Those who can't get in can see just as well what's going on as if they were here. But I wonder what he's saying?"

"Probably telling his people about us," replied Mark, and this seemed to be so, for Silex Corundum, as they later learned was the name of the ruler of Mars, frequently motioned toward the adventurers, who stood in a group in front of the platform.

Much interest was manifested by the throng, and even those on the platform, who seemed to be members of a sort of council or governing body, could not restrain their interest.

When the chief ruler had ceased speaking the Martian with the triangle on his head--the one who had first greeted the world travelers, stepped forward, and made an address.

"He's telling 'em how we got here," was Mark's opinion, and Jack nodded.

When this one had finished, the guide who had conducted them to the palace had his turn, and at greater length he described the strangers, the curious craft in which they had arrived on the planet, and many other details, which, of course, our friends could not comprehend.

This done, Silex Corundum made another address, and at its close a great blackboard was brought forward, some pieces of chalk were handed to Mr. Roumann and to Professor Henderson, and by signs they were invited to illustrate something of themselves and their wonderful journey.

"What shall we draw?" asked Mr. Henderson.

"First see if you can make them understand something of the earth where we came from," suggested Mr. Roumann; and the professor, who was a good draughtsman, soon placed on the board a sort of map of the universe, indicating the position of Mars, the sun, the other planets and the earth. To his surprise a delighted shout told him that he was understood. The chief ruler, with a rapid motion, pointed to a great telescope, located in one corner of the big audience chamber. He motioned for the travelers to look through it, and after it was adjusted he pointed to the

drawing of the earth on the board, and indicated that the adventurers could see their own planet through the telescope.

Mr. Roumann looked first. Then he uttered an exclamation.

"Can you really see our earth?" asked Jack.

"I can! Look for yourself! This is a marvelous telescope! No wonder the Martians understand something about us. They can clearly make out the shapes of our continents."

Jack peered through the eyepiece. There, far off, shining in the light of the distant sun, which was now on the other side of Mars, he saw the earth they had left about two weeks ago. It was like looking at some map in a geography, and he could clearly make out the shapes of North and South America.

"Take a look, Mark!" he cried. "I almost thought I could make out the place where we live, and where we built the Annihilator!"

In turn they all gazed at the earth, distant thirty five millions of miles, but which was made very plain to them through the powerful glass.

Silex Corundum made a motion as of some body flying through space, and looked inquiringly at the travelers.

"He wants to know how we got here," interpreted Mark.

"I'll draw a picture of the projectile," said Mr. Roumann, and he put on the board one containing many details. So interested was the chief ruler and his cabinet, that they all came down off the platform to examine it more closely. They appeared to understand everything but the Etherium motor, but Mr. Roumann illustrated the force by which it was worked, by pointing to the metal boxes containing the red substance, which gave out light as well as power, indicating that some force like that worked the motor.

This appeared to satisfy the questioners, and after some talk among themselves they motioned that the travelers would be given a place to sleep.

"I'd a heap sight radder hab soffin' t' eat," said Washington, when it was made known that they were to retire. "I'd jest like to git back t' mah kitchen. I jest know mah Shanghai rooster needs some corn, an' as for dat crazy man, maybe he's broken loose."

"That's so," agreed Mr. Roumann. "If we don't get back, we can't give him anything to eat."

"Let's try to make them understand," suggested the professor, and, accordingly, with chalk, they pictured that they had left behind them, in the projectile, an enemy of theirs, who was bound and helpless. Silex Corundum appeared to understand, and he indicated that the unfortunate man would receive attention.

The travelers were then led out of the palace. They found

instead of being urged along by the thought power, however, that they were now allowed to walk. And they also noticed that they could go very rapidly, with little exertion, due to the fact that they only tipped the scales at about a third of their usual weight.

"This is better," observed Jack. "I'd rather walk than be floating along the way we were."

"Yes, I guess they were so anxious to question us that they couldn't wait for the ordinary forms of locomotion," said the professor. "Now that they know something about us they will let us do as we please for a while."

One of the Martians, who seemed to be a minor official, led them out into the street. They found that it was lighted by means of the same metal boxes that were in the palace.

Overhead were the two tiny moons of Mars, but they gave but little light, and had it not been for the wonderful red substance the streets would have been quite dark.

"This stuff is what makes Mars seem so red when we look at it with telescopes from our earth," observed Mr. Roumann. "It is a very marvelous chemical. I must get some to examine."

"I wonder where they'll put us?" asked Jack, but his question was answered a few moments later, when they were ushered into a finely built house of generous size, and by signs their guide indicated that they were to make this their home. It was nicely furnished, though in a different manner from houses in the world, and there were many scientific books and instruments in it.

"The Martians must study all the while," observed Mr. Henderson. "No wonder they have such big heads. All their intellectual faculties are wonderfully developed."

"At the expense of their arms, legs and bodies," said Jack. "I fancy I could fight half a dozen of their biggest men."

"But we're not going to," said Mr. Roumann. "At least, not as long as they treat us decently."

"And now for something to eat," added Henderson.

Their guide showed them a dining-room, where they found a table filled with food that looked very appetizing. The Martian motioned for them to eat.

"I want t' find where mah kitchen is goin' t' be," declared Washington. "If I'm goin' t' cook heah, I want t' see how I'm goin' t' do it."

The Martian seemed to understand what was wanted, for he led the way to another apartment, where it was evident that cooking was done, as there were pots, pans and what looked like a stove in it.

"But I don't see no coal," objected the colored man. "How I

gwine t' cook without coal t' make a fire?"

The Martian opened the square iron box that seemed to be the stove. Inside was a small metal box, which he also opened, disclosing a lump of the red substance.

"They cook with it, too!" exclaimed Mr. Roumann. "And I have no doubt that they warm their houses with it in winter. A wonderful substance--most marvelous! It exceeds my wildest dreams--light, heat and power! Our fortunes are made! It is good that we came to Mars!"

"And it's a good thing they've got something to eat!" remarked Jack. "Come on, I'm half starved."

"I'll wait on table fo' yo'," said Washington, as they went back to the dining-room, and the Martian left. They sat down, and the colored man was about to pass the victuals, when, to the surprise of all, the center of the table began to revolve, and the dishes of food went with it, passing slowly in front of each one in turn.

"Good land a' massy!" cried Washington. "It's bewitched! Look at de table movin'!"

CHAPTER XXV

SEEKING THE TREASURE

They all stared at the strange sight. It was rather odd to see the entire middle portion of the table going around, while the outer part, at which the adventurers sat, was stationary. But the boys and men, with the exception of Washington, recognized it as very convenient.

"What are you frightened at, Wash?" asked Jack.

"At dat table, dat's what! It's a ghostest table."

"A ghost table?"

"Yep! Spirits am workin' on it! I ain't goin' t' stay heah. I'se goin' back t' de ship, where I kin move t'ings fo' mahself."

"Don't be alarmed," said Mr. Henderson. "It's all right, Washington. The table moves by some hidden mechanism, which doubtless was set in motion by the Martian who were just here, or the mere sitting down to our places may have started it."

They all got up to make an examination, and the table center at once ceased revolving, proving that some connection existed between it and the chairs. But they could not discover the machinery. There was a small metal box underneath the table, but that was all.

"That must contain some of that marvelous red substance which gives light, heat and power," declared Mr. Roumann. "I must certainly get a supply of it. In fact, that is what I came to Mars for. That is the object of my trip, and if we can get a sufficient quantity of it, our fortunes are made."

"Is it so valuable?" asked Mark.

"It is the most valuable treasure in the universe," replied the German. "Long ago I suspected some such thing must exist on Mars, or else how, receiving only half the light and heat from the sun that we receive, can the inhabitants exist? And that they do live, and live well, we have seen. It must be due to the red substance, and if we could only get some back to earth it would be worth millions. Think of simply putting a bit of it in a stove and having heat, or hanging up some in a room and getting light from it. But, more than this, think of having it move machinery, I would not be surprised but what I could transform it into energy that would operate the motors of the Annihilator."

"But wouldn't you need a new supply every once in a while?" asked Jack.

"I think not. I believe it is like radium, and will last forever. In fact, you notice that the metal boxes it is contained in, except the ones in the boats, are securely sealed. If they had to be putting in a fresh supply every so often, they would make the boxes so they would open more easily. We must get some of that treasure."

"But how?" inquired Mr. Henderson.

"I don't know, but I will find out a way. When we have been here a few weeks we will be better acquainted with the Martians and their language, and can make a search."

"Well, if you folks is done talkin' about treasure, I'm goin' to eat," observed old Andy. "I'm hungry!"

"So am I," added Jack, and as they all sat down again the table began revolving. They found it a convenient arrangement once the novelty had worn off, and they were soon eagerly talking, over the meal, of the wonders they had seen, and speculating on what might be before them. Washington, having nothing to do, went to see about beds for the night, as the travelers were tired.

"Well, Wash," asked Jack, as the colored man returned, "did you find the beds making themselves, or waltzing around the room?"

"Nope, dey seemed t' be ordinary, respectable beds. But I ain't goin' t' take no chances in 'em. I'se goin' t' sleep on de flo'."

"Why?"

"'Cause I don't want t' wake up in de middle ob de night an' find mahself squashed inter a jellyfish. I believe de beds am bewitched same as de table is."

"Nonsense," said Jack. "They're all right. This is a fine place to live."

They found the beds good to sleep in, and nothing disturbed them. Washington, however, stretched out on the floor, and he arose early to prepare breakfast on the stove, which never needed to have a fire built in it, because of the marvelous red substance. By an arrangement of levers and valves the heat could be increased or diminished at pleasure.

The same Martian who had conducted the travelers to the house returned soon after breakfast, and by signs and motions indicated to them that the crazy machinist left in the projectile had been properly cared for. The Martian also indicated to the world-dwellers that they were free to go where they pleased about the city, which they learned was called Martopolis, and was the largest city on the planet.

"We'll take a walk," suggested Mr. Roumann, "and maybe we can find where they keep the red stuff, or where they get it from."

They strolled about the streets of Martopolis, noting many strange sights. The queer little people were hurrying to and fro, with a peculiar gliding motion, much faster than the ordinary walk, yet it was not a run. The peculiar lightness in weight of everything on Mars probably accounted for this, as the travelers themselves found they could move about very swiftly, and with little fatigue.

Nor did the world-dwellers attract as much attention as they expected they would. The Martians appeared to have satisfied their curiosity regarding the strangers the previous night, and now gave them but passing glances. Even the boys did not follow them.

Every one seemed to be busy, and the travelers noted many schools, in which the children were industriously studying, though it was early morning. Observatories, with great telescopes, were numerous, and astronomers were gazing at the sun or different parts of the heavens, even in daylight.

"They are a very learned people, and they never seem to cease from acquiring information," commented Mr. Henderson.

"Well, I'd like to acquire some information about where that red stuff is," said the German. "There is one of the metal boxes that contain some, up on that pole."

He pointed to one that evidently served as a street lamp at night.

"And there's a policeman near it," said Jack. "Ask him."

A Martian stood leaning against the light-pole, much as does an officer of the law on earth. That he was some sort of an official was evidenced by the uniform he wore.

Mr. Roumann approached the Martian, and made signs that he would like to see the light box. The officer shook his head vigorously,

and said something rapidly.

"I guess they don't allow strangers to touch it," observed Jack.

"Evidently not," admitted Mr. Roumann. "I wonder if he knows where it comes from?"

He made more signs, asking, as well as he could, where the substance in the box was obtained. The officer pointed to the distant hills, but again shook his head in protest, and spoke for some time very earnestly, as if warning his questioner not to venture after it.

"Guess they must guard it pretty closely," said Mark.

"Well, I'm going to have some, anyhow," declared the German. "We'll take a stroll over toward the hills."

They passed through the city, no one offering to stop them. On every side they observed something new or strange, and they were particularly struck by the absence of all noise. Everything was done silently. There were no trolley cars, no wagons or trucks, no puffing automobiles, and no confusion.

The Martians moved noiselessly about, and the sleds, with their queer motive power, made no sound. They seemed to be the only vehicles in use, save the boats, and these sleds were of many sizes, some as large as big trucks.

"Do you think it will be safe to leave the projectile so long?" asked Jack.

"I think so," replied Mr. Roumann. "These people will not bother with it. In fact, they all seem too busy. I want to get some of that valuable red stuff."

They kept on, until they found themselves out of the city and into the country districts. Here there was more water than land, great canals and lakes being scattered here and there, with narrow paths or roads winding in and out among them.

"It's always flood time here," observed Jack. "We must get one of those boats."

They approached the hills, which seemed to rise out of a great lake.

"There is where the treasure is--in those hills," said Mr. Roumann. "They're not more than a mile off. Let's hurry there and get some."

They came to a narrow strip of land connecting two lakes, and as they were crossing it, there suddenly appeared from a little hut, about half way over, several Martians, who opposed their progress.

CHAPTER XXVI

IN PERIL

"Well, I wonder if we can't go any farther?" asked Mr. Roumann, as he and his companions came to a halt, and noticed that the little men held what looked like small sticks in their hands.

"It seems as if they didn't want us to," observed Mr. Henderson. "Looks as if they were on guard."

"Let me get at 'em with my gun," spoke Andy. "I'll soon show 'em--"

Then he stopped suddenly, as he recalled how useless his firearm was on Mars.

"You'll have to get some stronger powder, and heavier bullets, to hunt here, Andy," said Jack.

"I wonder if they have guns?" came from Mark.

"They only look like sticks," said Jack.

Mr. Roumann, by signs and motions, indicated that he and his companions would like to travel along the narrow path to the hills. The leading Martian, who was dressed like the officer at the lamp-post, while the others were less elaborately arrayed, shook his head. His big mouth broke into a smile, however, as if he wanted to be good-natured about it.

"He doesn't want us to go," said the professor.

"Evidently not, but we're going just the same," retorted Mr. Roumann. "We're more than a match for twenty of these little creatures, and there are only ten here. Come on."

"Do you think it will be safe?" inquired Mr. Henderson.

"Of course. They can't harm us."

The German scientist took a step forward. The others were about to follow him when the leading Martian uttered a command, and his men pointed their sticks at the travelers.

"Look out! Dey's goin' t' shoot!" exclaimed Washington, stooping down.

"They can't shoot with those things," declared Mr. Roumann, for there seemed to be no mechanism about the sticks.

They all pressed forward, but to their surprise it was just as if they had met with an invisible stone wall. They could not advance a step farther. They were halted by some strange power, and it appeared to come from the sticks, which the Martians kept pointed at the strangers.

"Why--why! I can't seem to move!" cried Jack, pushing with all his might. But, though nothing could be seen in front of him or the others, they might just as well have tried to push over the glass castle in the public square.

"We can't go on," called Mr. Roumann.

The Martian officer said something to his men, and they lowered their wands. Instantly it was as if a stone wall had been taken down from in front of the world-dwellers. They were able to advance a few steps, and then, when at a command the wands were again pointed at them, they had to stop.

"It's those sticks!" cried Jack. "They contain some strange power. That's the queerest kind of a policeman's club I ever heard of. It would keep back any mob!"

Try as they did, they could not pass the invisible barrier, and they were forced to give it up. Seeing that the strangers realized that they could not pass, the Martian officer and his men lowered their sticks. He spoke to the travelers, and, though they could not understand what he said, it was evident from his gestures that he was advising them to return to the city.

"I think we'd better," said Mr. Henderson. "The red substance is too well guarded for us to get any of it. Evidently they don't want any of it taken away."

"I must get it!" insisted Mr. Roumann. "If not now, then later."

There was nothing for them to do save turn back, and the Martians tried to smile pleasantly at them, as if sorry for what they were obliged to do.

"We'll go back to the projectile," decided Mr. Henderson. "I am a little anxious to see that it is all right."

They found that it was, though quite a throng had gathered about to inspect it.

"Are we going to stay here, or go back to the house they let us have?" asked Mark.

"I think we will live in the city," decided Mr. Roumann. "We can learn more about the Martians there, begin to understand something of their language, and be in a better position to get some of that red stuff, than if we were out here. But we'll go inside and see about the crazy man, and also how the machinery is. I want to fix the motors so that if any one meddles with them no damage will be done."

It took some little time to adjust the machinery, and then the travelers took from their supplies some personal belongings, which they wished to have with them.

"Now to see to that crazy machinist," said Mr. Henderson, when they were ready to leave the projectile again. "I wish we could get rid of him. He's a nuisance."

They went to the storeroom, where he had been confined, but the man was not there.

"He's hiding again," declared Jack.

"No; he's got away!" exclaimed Mr. Roumann. "See, the ropes with which we bound him have been broken. When the Martians came out to feed him last night they could not have fastened them securely. Well, he's gone, and I don't know but what I'm glad of it."

But there came a time when they were all very sorry that the insane man had escaped, for he caused them much trouble.

As they left the projectile to go to the house provided for them in Martopolis, Mr. Roumann took with him several small iron boxes.

"What are those for?" asked Jack.

"To put that red stuff in," replied the scientist.

"I am going to make another try for some, but I'll take a different road this time."

For a week or more the travelers lived in their house in Martopolis. They were courteously treated by the Martians, and soon began to pick up the language, which was very simple when once the principles of it were understood.

Several times the travelers were taken before the Great Council, as it was called, and asked in regard to matters on the world they had left. In turn the adventurers learned much about Mars. Though it was much smaller than our earth, it was superior to it in many ways. One was the simplicity of life. The Martians never had any need of clothes, for they were born with fur and feathers, which were renewed by Nature from time to time. They had to contend with a large quantity of water, which covered most of the surface of their planet, but by ingenious means they got along nearly as well as if there was more land. In science they were far ahead of scientists of the earth, and they were fortunate in possessing the red substance, which they called Cardite, and which was their only source of light, heat and power. With it they accomplished much that the world-dwellers have to bring about by great labor.

By inquiry, after they had learned the language, the travelers found out that Cardite was regarded with much reverence, and there was a tradition that if any of it was taken away from Mars, the planet would disappear.

"No wonder they didn't want us to get any," said Mr. Roumann. "But I'm going to have some, for all that. It's all nonsense to think any harm can come from taking it. It will not injure their planet, and it will be a fortune to us. They must have a lot of it, for they told us that all the cities on Mars, and there are several of them, are lighted and heated by it."

"But how are you going to get it." asked Mark.

"By going a different route. I'm going to get a boat, and go by water. I've found out how to run one of their boats by means of the red substance, and some day we'll sail over the lake to the hills and get some Cardite."

They waited another week, and, as they found less and less attention was paid to them from day to day, they decided to make an attempt to get some of the treasure.

They started one morning in a large boat, which Silex Corundum, the ruler of Mars, had placed at their disposal, and in a short time were approaching the distant hills, at the foot of which was the great lake. The boat moved swiftly, the controlling mechanism consisting of three little knobs on the outside of the box containing the Cardite. One sent the craft forward, one reversed it, and the other stopped it.

"We're almost there," said Mr. Roumann, after about an hour's sail. "There are no guards this way, just as I hoped. We shall soon be enormously wealthy."

Nearer and nearer came the boat to the hills. When they were within a half mile of them Jack, who was in the bow, uttered a cry.

"A whirlpool! A whirlpool!" he shouted. "We're heading right into it!"

Mr. Roumann, who was steering, tried to turn the boat to one side, but the craft would not answer the helm.

"Shut off the power and reverse!" exclaimed Mr. Henderson, when he saw that the boat was still rushing into the dangerous swirl of water.

Mark, who was near the metal box, did so. But even the power of Cardite was of no avail against the awful suction of the whirlpool. The boat began to go around in a great circle, ever coming nearer and nearer to the black, swirling center.

"No wonder they needed no guards on the water side," gloomily observed Mr. Roumann as he stood up and looked at the hills. "The whirlpool is the best protector they could have."

In deadly peril, the adventurers watched their boat coming nearer and nearer to the terrible center of the angry waters.

CHAPTER XXVII

GETTING THE CARDITE

"Isn't there any way of escape?" asked Jack in a low voice, as he crouched in the bow and peered into the whirlpool, on the edge of

which they were circling.

"I don't see any," replied Mr. Roumann. "I am very sorry I got you into this trouble. If I had not insisted on coming for the red substance we would not be in this danger."

"It's as much our fault as yours," declared the professor. "We were anxious to get some of the treasure also."

"And now none of us will have any use for it," observed Andy dryly. "When we slide down into that hole it will be all up with us."

They all shuddered as they saw the black hole, around which the waters raced in a circle.

"I wonder what's down there?" asked Mark.

"It isn't a good thing to think about," responded Jack. "I always was afraid of whirlpools."

The boat was now beginning to go around faster. The occupants were getting dizzy with the motion. They could hear a distant roar, and knew that it came from the water falling down some great depth, into which they seemed fated to be dashed.

"Did you turn on all the power of the boat?" asked Jack after a period of silence. "Seems to me we didn't come along very fast in this craft. The one we were in first went at a great rate. Maybe we don't understand how to make it go at top speed."

"I turned the knobs every way I could think of," replied Mr. Roumann. "But it would take terrific speed and power to free us from the suction of the whirlpool."

Jack moved back to the stern, where the box was, containing the red substance that furnished power to move the boat. He looked closely at it.

Meanwhile the boat was moving around in ever-narrowing circles, faster and faster. Jack noticed that twice in each revolution it went respectively lower and higher on the course, and always at the same places. That is to say, the whirlpool was on what might be termed a slant. At one time the boat would be at the lowest point, and at another at the highest point. At the low point the occupants of the craft were out of sight of everything, as when a ship is in the hollow of the sea. A little later they would be raised up on a crest of water so that they could look to the distant hills.

"If we could only get power enough to shoot the boat out at an angle when it gets to the high point, we could escape," thought Jack.

But how could he obtain this power? The mechanism seemed to be working at the greatest force, for, after an attempt had been made to stay the progress of the boat by reversing it, Mr. Roumann had again put on full speed ahead.

But was it full speed? That was what Jack wanted to know.

He examined every inch of the box. At first he saw nothing but the three knobs that had been used. Then, all at once, down underneath, he saw a small pin. It looked as if it could be moved. He took hold of it.

"I wonder what will happen if I pull it out or push it in?" he asked himself. Then he happened to remember that in an electric battery, to obtain more power, you must pull out a certain pin.

"Perhaps this works like an electric battery," he said. "I'll pull it out."

He did so, and a surprising thing happened. The boat shot forward at enormous speed, and as Jack happened to pull the pin out at a time when the craft was high up, it began to shoot across the water at an angle to the whirlpool. He had solved the problem of how to escape. As he afterward learned, the pin was just for the purpose for which he used it--to cause a sudden increase in speed.

The whirlpool did not give up without a struggle, but the boat was finally successful, and fought its way out to calm water.

"How did you do it?" asked Mark, and Jack told them.

"Well, we'd better start back for the city," proposed Mr. Roumann. "I guess we've had enough for one day. We'll try again, and take some other route."

"There's no need of that," declared Professor Henderson. "See, we are close to the hills now. We have crossed the whirlpool. Why not go on, and see if we can't find some Cardite? Going back now will be no easier than after we have made an examination. Let's explore the hills."

The boat had shot out on the farther side of the whirlpool, and there was nothing now between it and the shore. After a consultation it was decided to land.

"We can be more careful coming back," said Jack.

Half an hour later they had landed and started up the hills toward the summit. The place seemed to be deserted, but there were evidences that some sort of mining had been going on there, for great holes and shafts were dug in the ground, and there were remains of machinery.

"They must have dug up all the Cardite in this locality," said Professor Henderson, "and they've gone to a new place."

"Which we wish to find," added Mr. Roumann, "and that without being discovered. From the way in which the Martians guard this, it will go hard with us if they see us taking any."

They toiled up to the top of some of the lowest hills. There did not seem to be any of the treasure there, and they went farther. They were getting tired and hungry, and they sat down to rest and

eat some food which they had brought with them.

"Let's try that hill," proposed Mark, pointing to a high one about a mile away. "It looks red from here."

There was a rosy hue about the little mountain, and after a brief rest they headed for the spot.

"There's nothing here!" exclaimed Jack in disgust, as he and Mark, in a final spurt, reached the base of it. "Nothing but ordinary dirt."

Mark looked down. He dug his heel into the sod. Then he uttered a cry of triumph.

"Here it is! Here it is!" he cried. "It's under the grass! We've got to dig it up!"

He knelt down, and began to tear away the sod with his hands. Jack did the same, and when they had lifted aside the tangle of roots and grass, they saw beneath it a dull gleaming red substance, like clay,

"That's it! That's it!" shouted Mr. Roumann. "We've found it!"

He stooped over, and with his knife began digging some up.

"It's neither warm, nor does it give any light," said Mr. Henderson in disappointed tones.

"No; it requires special electrical treatment," replied Mr. Roumann. "I know how to do it, though. Now we shall all be millionaires! There is enough here to make us wealthy for life!"

He began filling his iron boxes, the rest helping him. They were engaged in getting out the Cardite, all working with feverish haste, when Jack, looking up, saw a Martian officer regarding the actions of the world-dwellers with his great, bulging eyes.

CHAPTER XXVIII

THE ATTACK

"They've discovered us!" exclaimed Jack, as he stood up and watched the Martian.

"What?" cried Mr. Roumann. "Oh, it's only one of them," he added, "and he hasn't any of those electrical sticks. Go ahead and take some more of the Cardite."

But the Martian advanced on the travelers, and, by his voice and gestures, seemed to be warning them to stop taking the red material.

"Maybe he's a guard," suggested Mark.

"Very likely," assented Professor Henderson.

"I'll see if I can't scare him with my gun," remarked Andy.
"I've put in more powder, and a heavier bullet."

He fired in the air, over the Martian's head, but to the surprise of the adventurers the weapon only gave a faint sound, like that of a pop gun, while the bullet rolled from the barrel and dropped at Andy's feet.

"Why, that's worse than ever!" he exclaimed. "I guess the red stuff must have taken all the power out of your gun, Andy," said Mark.

The Martian stood still for a moment. Then he spoke again, more earnestly than before, and waved the strangers away from the red hill.

"We're not going," said Mr. Roumann, and he added a few of the Martian words he had learned, endeavoring to state that they were going to take only a little of the Cardite.

The officer, with a last warning shake of his big head, suddenly turned and ran away.

"I guess he's gone for reinforcements," said Jack.

"No matter," spoke Mr. Roumann. "We'll soon have all we can carry, and then we'll hurry back to the projectile. When we get there we can defy them."

They continued to fill the boxes with the Cardite, and soon had a good supply. Then, taking a look to see if the Martian had summoned any guards, but finding that none was in sight, the adventurers made their way back to their boat, and set it in motion.

"How are we going to escape the whirlpool?" asked Mark.

"I think if we skirt down the shores of the lake for some distance, and then strike across to the city, we'll avoid it," replied Professor Henderson. "The pool is not very large, and seems to be only, directly in front of the red hill."

This they found to be the case, and they were soon safely beyond the swirling waters, and on their way back to Martopolis.

"We had better not land at a public dock," suggested Professor Henderson.

"Why not?" asked the German.

"Because the Martians may see that we have some of the Cardite, and take it from us."

"What would you suggest?"

"Why, there is a landing place farther down, and we might go there and make our way from it to the projectile unobserved."

This was voted a good plan, and was successfully carried out. Though quite a few Martians saw the adventurers land, they evinced no curiosity in what they carried, and that evening the little party was back in the Annihilator, where they determined to stay all night.

Mr. Roumann tested some of the red matter, and found, when he applied the proper electrical treatment, that it gave off light, heat or power, according to the adjustments.

"This is the most wonderful material in the world!" he exclaimed. "Yes, or in the whole universe. It is better than perpetual motion, for it is not only that, but perpetual light and heat. I believe I can use it in the Etherium. motor in place of the force I ordinarily employ."

He made some experiments, and found that this could be done.

"I wonder what's become of the crazy machinist?" asked Jack.

"Oh, maybe he's made friends with the Martians," said Mark, "and has told them he's a king, or something like that, and they're treating him with royal honors."

"More likely he's plotting mischief," declared old Andy. "I wish my gun was in working order. Somehow I don't like the way that fellow acted on the red hill."

"Why, you're not afraid, are you?" asked Professor Henderson.

"No, not exactly, but I was just thinking how we could defend ourselves in case they attacked us. My gun is no good."

"You forget that we have electrical cannons," said Jack.

"That's so," added Mr. Henderson. "And it might not be a bad plan to get, them in working order."

"Nonsense!" exclaimed the German scientist. "The Martians will never bother us. They are thinking too much about the stars, the sun, moons and other planets--they are too intent on studying to bother us. That is all they do--study. That's what makes their ears, eyes, nose and mouth so big. They use them to listen to scientific sounds, to look at scientific objects, smell scientific odors, and talk of scientific things. They'll never bother us."

"Maybe not, but perhaps the crazy machinist will," suggested Mark.

"I'll make some inquiries to-morrow, and see if the Martians know anything of him," promised Mr. Henderson.

But if the Martians knew anything of the insane man, they would not tell. When the adventurers made cautious inquiries on the morrow, they were only met with vacant stares from the big eyes.

The boys and their friends made several excursions about Martopolis in the next week, and even traveled in the big sleds to distant cities, which they found much the same as the one they were in.

They saw no signs of the crazy machinist, and began to believe that he had disappeared for good. They were making progress in the Martian language, and could converse with the people. No longer did the Martians cause the travelers to move about by the thought force, and our friends were allowed to go here and there as they pleased. They found traveling exceedingly easy, as their bodies were so light.

They had again taken up their residence in the house in the city, paying occasional visits to the projectile, which remained on the soft sand where it had landed, but tilted upward, ready for a flight.

One afternoon Jack and Mark, who had been out taking a walk, came back rather hurriedly. They found Professor Henderson and Mr. Roumann doing some scientific work, while Washington and Andy were discussing the many strange things on Mars.

"Professor," said Jack, "I think something is up."

"What do you mean?"

"Well, there's something unusual going on. The Martians are acting very queerly. There's a big meeting in the glass palace, and when we tried to go in we were stopped. Crowds in the street kept following us, and they haven't done that since we first landed."

"Yes," added Mark, "and I think I saw that same man who watched us taking the Cardite with a lot of other officers, following us, too. And, besides, no persons here seem as friendly as they used to. Did they, Jack?"

"No, indeed. I think they have discovered that we have taken some of the red stuff, and they don't like it."

Professor Henderson and Mr. Roumann looked grave. If this was the case, it might mean serious trouble for them all.

"But they're a long while finding out that we took the stuff," said Andy, who listened intently to what the boys said.

"Maybe they knew it all the while," suggested Jack; "but they are so interested in scientific matters that they didn't want to take any action on it until now."

"Well," remarked Mr. Roumann, "whatever it is, I think we will be safer in the projectile. Come, we will all go out there and spend the night. We can defend ourselves in case anything happens, though I don't believe it will."

They started at once, and there was a feeling of security when they had clamped fast the great steel doors in the side of the

Annihilator.

Contrary to their fears, the night passed without incident. They were all at breakfast the next morning, when Mark, happening to look through a heavy plate-glass window in the living-room, called out:

"Look what's coming!"

They saw a vast throng of Martians advancing toward the projectile.

"See who's leading them!" called Jack. "The crazy machinist!"

CHAPTER XXIX

THE REPULSE

"Do you suppose they're going to attack us?" asked Mr. Roumann.

"It looks very much like it," answered Professor Henderson. "But we will wait and see. Are the electric cannons in shape?"

"Yes, they are all ready to work. All that is necessary is to open the ports and fire them. They will not kill, but they will disable the Martians for a time, in case we have to use them."

"I hope we'll not have to," said Jack. "They have been very good to us, and I shouldn't want to harm them."

"There's a big crowd of them," added Mark. "I wonder how that crazy man came to be with them?"

"He must be leading them against us out of revenge," was Mr. Henderson's opinion. "He may have induced them to try to kill us, and they may be very willing to do so, because we have taken some of the Cardite."

"I hope not," murmured Mr. Roumann.

The throng approached nearer. In front was the insane machinist, who was leaping about, running to and fro, and shouting at the top of his voice. His words came faintly to those in the projectile.

"They seem to have a new leader," remarked Jack. "I understood that the ruler, Silex Corundum, always went at the head of the troops when there was to be a battle, but there's a different person now."

A little in the rear of the crazy machinist was a Martian enveloped in a scarlet cloak, which hung from his shoulders to the ground. And fastened on his head to the golden circlet, which seemed to be a common badge of office for all leading

Martians, was a small metal box.

"I believe that box has Cardite in it," said Jack. "Maybe he's the keeper of all the Cardite on this planet, and he and his soldiers have come to get it back."

"They don't look like soldiers," commented Mark.

"No; but they all have some sort of weapons," said Jack. "They look like sticks with small boxes of Cardite on the end of them. They must be a new kind of gun."

"And probably very effective, too," commented the professor. "But they are evidently going to hold a parley with us. The machinist and the Martian in the scarlet cloak are advancing alone."

The main body of Martians had come to a halt a short distance away from the projectile, while the two strange figures, so greatly contrasted--that of the insane man and the little officer--advanced together.

"Open the window to hear what they say," suggested Mr. Henderson, and the German scientist did so.

"Hello, you in there!" called the machinist.

"Well, what do you want?" asked Mr. Henderson.

"We want you to come out and be killed. I'm going to pay you back for all the trouble you caused me. I couldn't wreck your airship that you stole from me, but I'll have my revenge now. These little fellows will do whatever I say, and I want you to come out and be killed."

"Suppose we refuse?"

"Then we'll make you! Oh, they've got the power to, all right. I'm going to be their king next week, and they'll do anything I say. Come on out!"

"I'm afraid we shall have to decline," answered the professor.

The machinist began a rambling talk, and the scarlet-cloaked figure stepped forward. He spoke slowly, using simple words in the Martian tongue, such as he knew the travelers could understand.

"My name is Zun Flor," he began. "I am the keeper of the Cardite, and I am told by one of my assistants that you have taken some."

"Well?" asked Mr. Roumann.

"You must return it at once. It is against our laws for strangers to have any of the Cardite."

"But we came here to get it. We only took a little, and you have so much."

"That makes no difference. You must return it at once, and then you must go away. We do not want you here."

"Suppose we refuse?"

"Then you will perish! Be warned in time. Give up the Cardite, and take your departure."

"What will happen if we do not?"

"You and your machine shall vanish from this planet and never more be seen. We cannot have any of our precious Cardite taken away to another world."

"We have only taken a little," repeated Mr. Roumann. "We desire it for scientific purposes, and as you are so fond of science, you ought to let us keep it."

"Give it back!" exclaimed Zun Flor, and he seemed to be very angry. His big, bulging eyes flashed. "Return it to me, and all will be forgiven."

"We will not!" declared Mr. Roumann firmly.

"Then we shall attack you!"

"And we shall defend ourselves. Now, let me warn you. We have powerful forces within this projectile. We will use them against you and your men."

"You cannot harm us," insisted the Martian in the red cloak. "Your machines of war will be powerless against those we have. Be warned in time. You must choose between the Cardite and death!"

"We will keep the Cardite, and we will also keep our lives!" retorted the German.

He slammed the glass window shut with a bang, and locked it. Then he closed an inner shutter of steel over it.

"We, can't see what's going on, and what they do," objected Jack.

"Yes, we can," said Mr. Roumann.

He pressed a lever, and a shutter made of strong steel slats, that was on the plate-glass window of the projectile, opened. This gave a view all about the Annihilator.

This done, the ports covering the muzzles of the electric cannons were let down, and four guns, two on either side, were aimed at the throng of Martians.

"They are going to fire, or something!" exclaimed Jack, as he looked outside. "They are pointing those sticks at us!"

Instantly every one in the projectile felt as if a thousand pins and needles were sticking into him.

"They're discharging an electric current, or something like it, at us!" cried Professor Henderson.

A moment later every one felt himself drawn against one side or the other of the projectile, just as a magnet draws steel filings to itself through a piece of cardboard.

"They're trying to pull us through the steel sides!" cried Mark. "I can't move."

Neither could any one else. They were stuck there like flies on the wall.

"Maybe they are going to keep us here forever!" cried old Andy, while Washington was too frightened to use any big words.

Mr. Roumann was near some levers. He managed to pull one, and instantly those in the projectile felt themselves free.

"How did you do that?" asked Mr. Henderson.

"I neutralized the electric current," explained the German. "I anticipated that in our flight through space we might meet with electric storms. I provided so that in such a case I could throw a counter current of electricity all about the projectile. That is what happened just now, though not exactly as I expected it. I have rendered their weapons useless--at least, for the time being."

"And we can now try ours on them!" cried Jack.

"Exactly! Get ready to fire the electric cannons!" called Mr. Roumann.

The Martians seemed to understand that something had gone wrong. They were running about, consulting among themselves, and pointing to the projectile. The figure in red and the machinist were talking earnestly together.

"He's probably telling them something about the machinery," said Jack.

"Man the guns!" cried Mr. Henderson.

He and the German were at the cannon on one side, and Jack and Mark on the other.

"Fire!" shouted Mr. Roumann, pulling the lever that worked the weapon. The others did likewise. There was a flash of sparks

from the muzzles of the guns, and a powerful and disabling, though not deadly, current of electricity shot toward the Martians.

Score after score of the queer creatures went down, among the first to fall being the machinist and Zun Flor.

"Once more!" cried Mr. Roumann, and another volley was sent out,

stunning hundreds.

Then came a third one, but this was enough. The remaining Martians, leaving their helpless comrades on the ground, turned and fled.

"We've driven them away!" cried Jack.

"For a time, at least," answered Professor Henderson gravely. "But I think they will come back."

CHAPTER XXX

THE ESCAPE--CONCLUSION

Nor was the professor mistaken. In less than an hour the Martians returned, in larger numbers than before, and, while the first throng had seemed to consist of only soldiers or police, the next attack was made by thousands of men, women and children. They all seemed anxious to destroy the strangers.

Those who had been disabled by the electric guns revived, and were able to crawl away, but they were too weak to resume the attack.

"Well, we'll have to shoot at them again," observed Jack, as he and the others noted that the attack was to be resumed.

"Let 'em have it!" cried Mr. Roumann.

Once more the electric cannons were fired, and thousands fell at each discharge of the powerful current.

But, in their turn, the Martians brought into use new weapons. First they hurled great rocks and chunks of lead at the projectile, but, as the missiles weighed only a third as much as they would have done on the earth, they only dented the heavy steel sides.

Finding that this would not answer, the little people created clouds of noxious gases, that swirled around the projectile like a fog. But this was harmless, as the adventurers could shut themselves in tightly, and breathe air of their own making. The gases had no more effect on them than did the ether through which they had traveled through space.

Meanwhile, the electric cannons were constantly being fired, and the ranks of the attackers were constantly being thinned. But, ever as the Martians fell, new ones arrived to take their places. They seemed determined to drive the newcomers off the planet or destroy them.

There was a lull in the fighting. The Martians seemed to be waiting for something. At last a large crowd was observed coming

from the direction of the city. They carried great bundles of wood and torches.

"They're going to try to burn us out!" cried Jack.

"Good land a' massy!" yelled Washington. "Let me go! I ain't ready t' burn yet! No, indeedy!"

With shouts the Martians piled fuel all about the projectile. Then they set fire to it, and tongues of flame leaped up.

"Don't be alarmed," said Mr. Roumann. "We have passed safely through greater heat than they can produce. The gas in the projectile will absorb all the heat."

And this was exactly what happened. The flames had no effect on the Annihilator, whereas the electric cannons continued to mow down the Martians.

The day was now well advanced, and the defenders were getting tired and hungry, as well as apprehensive, for there seemed to be no limit to the fury of the little people, and their scientific knowledge was such that it was probably only a matter of time before they would find a way to destroy the projectile.

During a lull in the fighting, when the fire that had been kindled died away, Washington White came around with some food he had prepared.

They felt better after the meal, but immediately there came a new apprehension, for they saw that the Martians were digging a great hole to one side of the projectile.

"What can they be doing that for?" asked Andy. "Maybe they're going to roll us into it," said Mark.

"No," spoke Mr. Roumann, after watching the crowd at work, "I'm inclined to think they're laying a mine, and are going to blow us up."

"Blow us up?"

"Yes. They evidently have some explosive over there, to judge by the manner in which they guard it."

"Can we stand being blown up?" asked Jack.

"I hardly think so. The projectile itself might not be harmed, as it is very strong, but the machinery and motors would probably be damaged."

"Then what can we do?"

"The only thing left for us to do is to escape."

"Escape? You mean leave the projectile?" asked Mr. Henderson.

"No, I mean escape in the Annihilator. There is no reason why we should stay here any longer. We have what we came to seek, and

though I should like to make some further scientific observations, we will have to forego them. We will start the atmospheric motor, and leave Mars."

"That's the stuff!" cried Jack. "Back to earth for ours! It's nice up here, when you don't do something they don't like, but the earth is good enough for me!"

"That's what I say," added Mark.

The Martians were hurrying their preparations to blow up the projectile. Perhaps they guessed that they must act promptly, or they may have had an intimation that something was going to happen, when the ports of the electric cannons were closed.

The shutter of the observation tower was sealed, all openings were well fastened, and, just as the mine was completed and the explosive was about to be put in, Mr. Roumann started the atmospheric motor, and the projectile left Mars with a rush.

Of course, the travelers could not see the blank looks of astonishment on the great faces of the Martians, but they could imagine them, as they shot away from the queer little planet at the rate of sixty miles a second.

"Well," remarked Mr. Roumann as he went to the pilot house, after seeing that the motor was working well, "we got to the place we set out for, and we secured some Cardite, which is what I wanted. I am now able to repay you for building this projectile, Professor Henderson, you need never worry about money again."

"I'm glad of it, as I shall devote the remainder of my life to science, and I may write a book about Mars."

"Well, ob all de transmigatoriousness dat I eber seed," exclaimed Washington, "de continual exteriorosity ob de inhabitants ob dat planetary sphere am de mostest indisputatious!" Though what he meant by that no one knew. But it seemed to give the colored man great satisfaction.

In due time they passed beyond the limits of the atmosphere of Mars, and again were sailing through space, the Etherium motor doing good work. Mr. Roumann tried some Cardite in it, and their speed was increased by half, so they reached the atmosphere of the earth in much shorter time than they calculated.

They met with no mishaps, though they narrowly escaped collision with a great meteorite that was rushing through space, white hot.

"Well, in a few days we will be at home," remarked Mr. Roumann one night, as he set the atmospheric motor in operation. "And I must say I have greatly enjoyed the trip."

"So have I," admitted Jack, and Mark agreed with him.

"Maybe mah Shanghai rooster won't be glad t' git on terra cotta again," spoke Washington. "I'se glad I didn't let him out on Mars. Dem funny fellers might 'a' eat him up."

The rooster crowed as if glad to be nearing the earth.

Three days later they came in sight of their own planet, but as night came on, and they did not want to land in the dark, the projectile was kept up above until daylight, and a day later a landing was made near the machine shed where the Annihilator had been built.

"Well, here we are, safe home again," said Mark.

"All but the crazy machinist," added Jack. "I hope he likes it up there among the Martians."

"I wonder if we'll ever take another trip like this?" asked Andy.

"Perhaps, some day," replied Mr. Roumann.

"I have some other ideas regarding distant planets that I would like to prove. But we'll take a rest, and see what use we can make of the Cardite. I would also like to learn if my enemy, Forker, sent that crazy machinist to bother me," but he never found out.

As the German had predicted, the red material brought back was enormously valuable, and the projectile was more than paid for by a small part of it. The boys resumed their studies at school, and Professor Henderson devoted much of his time to writing a book describing some of the peculiar conditions on Mars, while Mr. Roumann invented a new motor to run with Cardite, he having revealed the secret of the Etherium one to Professor Henderson.

As for Washington White, he is learning new big words, while Andy says he is glad to be back on a world where a bullet is a bullet and a gun a gun.

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