

The Satellite of Doom

By

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While A World Waited Breathlessly The Satellite Went On and On, Repeating Its Circles of Doom!

NO idea more startling in the history of our earth has been proposed than that put forward by Hermann Oberth, the German rocket expert. By sending a rocket aloft some four or five hundred miles above the earth and giving it a speed of about 5 miles a second, Herr Oberth states, the rocket will circle the earth until eternity without further expenditure of power!' A terrific idea, filled with the most stupendous possibilities for the people of the earth. It may revolutionize transportation, or warfare; it may even change the whole course our lives.

But although it is an idea filled with the most dramatic and adventurous suggestions Mr. Sharp does not want to deal with them fantastically. He has written instead a story of intense realism sticking close to life and truth, with characters that live and breathe. And so he has made this story as vivid and understandable as is humanly possible.

CHAPTER I.

JUST before they reached the front steps Professor Mullin stopped and touched Clifford on the arm.

"There is one man you must watch."

"Who?" Clifford asked, still occupied with the crisis ahead of him.

"Briggs. Rothberg calls him BB, but he isn't an air gun charge at all. He is buckshot with a full charge of smokeless powder behind him."

"Just what do you mean?" Clifford asked with interest awakened.

"Briggs is a keen chemist, maker of models for Rothberg's would-be inventors. He is Police Commissioner with a strong political influence and he is the husband of Rothberg's only daughter, ambitious and dangerous. Don't let him know how much money Rothberg is thinking of putting into your scheme."

"What does he look like?"

"Tall and unforgettable. Not much of a description, eh?"

"Well, I don't know about that. There aren't many men who are unforgettable as far as personal appearance is concerned."

"Briggs is. He'd impress the most phlegmatic; a deep growl, large protruding black eyes, overscored with crow feathers. He drops into these meetings sometimes. I hope he doesn't come in tonight, but if he does, ramble off on some unimportant detail. He might queer your whole plan."

"Would Rothberg allow him to interfere?"

"No. Rothberg doesn't take dictation from anybody. But Briggs is buckshot, remember that, and I believe he suspects what's up."

They mounted the steps and followed a footman to a long room, down the center of which ran a polished table.

Clifford's zero hour was at hand. He knew by reputation every man around that table. They were all outstanding men in their particular fields of science. Directly in front of him sat J. G. Reed who had more than once startled the world with ideas of matter and space; next was Played who experimented with rockets; Stortz the astronomer who had at last proved the rotation of Venus; Gertz the electrical wizard; Gurly, who had explained the apparent discrepancy in the ratio of gravitation between Mercury and the sun; Ralls, who had taken the new tidal theory of the formation of the earth and blown it to smithereens; Phillips who had set forth a complicated thesis which had grown out of Einstein's Relativity, and a half dozen others. At the head of the table was, of course, old Jacob Rothberg, who, with the magnet of his money and personality had assembled these filings from the fields of science.

Clifford caught the pale eyes of Professor Charles of Rothberg University appraising him. He felt a personal antipathy in that cold, passionless stare and it upset so he barely heard the opening of Rothberg's address. Even as he heard Rothberg calling upon him to explain his plan, he retained the uneasy sensation that the Professor was coolly dissecting him.

He shook off the uncomfortable feeling as he rose and the double row of white faces about the table turned toward him.

His big moment was at hand. He started speaking looking straight at Ralls, for Ralls flourished upon his reputation as an iconoclast, and would, of course, maintain his position as a breaker of idols and a destroyer of dreams. Ralls' lean features were ravenously alert as Clifford began.

"Gentlemen, my proposal is to launch a ship just beyond the atmosphere so that it will form a satellite of the earth. It would need no refueling and no additional power, except that required to send cargo to and from the ship."

BACK of Ralls a door opened and through it a man glided cautiously, stopped and closed the door behind him. Undoubtedly it was Briggs. The man's whole appearance *was* strange and unforgettable.

Clifford hesitated, and then decided to go ahead and pay Briggs no attention; but he did not have an opportunity. Professor Charles rose, placed the tips of his long white fingers spiderlike upon the manuscript below him and cleared his stringy looking throat. Clifford was taken aback at the double interruption and folded his arms and waited calmly for what the psychologist had to say.

"Mr. Peterson," Professor Charles whined in a high, fine voice, "How do you know, or we know, that it is possible to project a ship beyond the field of gravity of our earth?"

"Sure," Briggs growled in that deep bass of his, "That's the berries! All he wants is to spend some of the governor's money!"

Rothberg hitched about in his chair to face his son-in-law, but the hard stare in the penetrating old eyes brought only a stubborn resistance. Rothberg signaled unmistakably for Briggs to leave the room and fire flashed between the two as Briggs leaned casually against the marble wainscoating and extracted a cork-tipped cigarette and stuck it between his lips.

Rothberg half rose from his chair and roared, "BB you get out!"

Briggs drew himself erect, his cheeks flaming; then he sent a long cloud of defiant smoke in Rothberg's direction, shrugged his shoulders and growled in his bearlike bass:

"All right, governor."

Then he left the room.

Clifford turned his attention back to Professor Charles and continued.

"Of course it is impossible to fire any projectile totally beyond the earth's gravity. Newton has shown that each body in space is attracted to every other according to their masses and the inverse ratio of the square of their distances."

"So, so," the professor coughed slightly, then took his glasses from his nose and held them as a pointer in Clifford's direction as he continued.

"But one can not get around the fact that you would have to send your ship far enough from the earth to enter into cosmic space if it is to float continually without falling. How do you know that you can project anything that far? How do you know how far that is?"

Clifford tried to be patient, but it was quite evident that however eminent Professor Charles was in his own line, he knew very little of astronomy.

"Bodies do not float in space," Clifford began. "They are pulled toward each other. What keeps them from flying together in a huge mass is their velocity, which is much greater than that of a highpowered rifle bullet as it leaves the gun. They move with hurricanes of speed which would belittle cyclones. It is this that overcomes the pull of gravitation."

He reached into his pocket and extracted a small rubber ball which was attached to a rubber string.

"You will notice when this little ball is idle it hangs toward the earth."

He began to whirl the ball around and around and it went humming over his head.

"When enough speed is attained gravity is overcome and the ball rises into the air. To make the illustration plain, let the string be the pull of gravity and my thumb be the sun."

He whirled the ball faster. The rubber string stretched, as he went on.

"When the speed of the ball increases, the orbit increases. It stretched the pull of the rubber 'gravity.' When the speed decreases the orbit narrows. This illustrates simply the forces which hold every body in space to its proper place.

"Any body moving around the sun with a speed less than 18.6 miles per second must have an orbit smaller than that of the earth, and one having more than 18.6 miles per second would have a larger orbit than that of the earth, while one with a velocity of exceeding 26 miles per second would fly away from the sun for good.

"Now, suppose we fire a ship from the earth so that its speed is 18.6 miles per second. At that velocity it should pace the earth forever and apparently move across the earth's surface from east to west as the earth turns on its axis. That ship should make one trip about the earth every twenty-four hours."

A Gigantic Plan

HE paused and let the little rubber ball hang idly from its string as he glanced at the studious faces regarding him. Then his glance went back to Halls, who had leaned forward, elbows upon the table, chin

wrinkled into the palms of his big hands, fingers working upon his lean cheeks. He was smiling tolerantly and yet there was something belittling in the expression of his eyes. He impressed Clifford as a strong man who had braced himself to wrestle with an iron weight and just discovered it was cork.

"Your illustration is interesting, but your astronomy is faulty," Halls drawled with rather a bored air. "Everything upon this earth is moving around the sun at a velocity of 18.6 miles per second. A ship placed just outside the earth's atmosphere and given that velocity and no other would fall at once."

Clifford saw his mistake. Certainly the ship would fall, and the flaw in his theory rattled him for a moment, so that he was unable to correct his error. While he strove for poise, the bulky, rather awkward form of Stortz hitched about and the big-faced astronomer smiled encouragingly. Clifford felt a rescue at hand.

"Mister Halls," Stortz drawled in slow, rumbling accents. "Our young friend is not so very much in error. His mistake is starting with the wrong objects. It is not the gravity of the sun the ship must overcome, for that is already overcome through the inertia of the earth. Our problem is the law of small bodies moving around large bodies. Fortunately this simplifies, rather than complicates, the question. The ship need not be fired with a velocity of 18.6 miles per second to form a satellite of the earth, but with a speed of only 4.90 miles per second.

"While I don't want to lend my opinion, as yet, for or against this young man's proposal, I will state that Oberth, a German scientist, has given considerable study to the question of rocket ships, and he claims that he can develop a vehicle which will fly from Europe to America in thirty minutes, and he believes it possible to build a space ship which will travel at a velocity of about seven miles per second, almost double that required by the ship proposed.

"I might add that Professor R. H. Goddard, the American expert, has made a powder rocket which ejected gases of 8000 feet per second, and Opel claims to have invented a liquid three times as powerful as any powdered fuel, so our goal may not be so far off after all."

Ralls pursed his lips. Then he turned on Clifford.

"All right," he snapped, "Grant that your space ship can be shot with enough velocity to continuously circle the earth, how are you going to get your freight aboard? Even should you contrive to get the packages up there, don't you know that inertia would carry them on in orbits of their own without your ship?"

"My plan is to have a system of rockets at each city under the path of the satellite. These rockets would have compartments for storing mail and express and would be timed to be fired at the exact fraction of a second to make contact with the ship."

"What is the need of a ship?" Ralls interrupted. "The rockets would circle the earth of their own speed."

"With no ship," Clifford answered, "the packages could never be brought down at all. The purpose of the ship is to provide a buttress against which a timed discharge in the end of the rocket can be set off to kick loose the rocket at its destination. The ship, you understand, is not to be a container in the sense of an empty hull. It is to be a steel cylinder against which the rocket can be shot. These rockets will have clocks timed for the discharge of their gases and the rockets will be strongly magnetized, which will assist them in making contact with the ship and will hold them firmly in place until the reverse discharge takes place. The rockets are also to be equipped with folding helicopters, which will automatically extend and break the return fall as to prevent injury to the rockets or {unclear text in original}ress."

CHAPTER II.

Rothberg Speaks Out

HE paused again, for his words seemed falling on a cast iron personality. Ralls was shaking his woolly head, and Clifford's heart sank as he saw affirmation of Ralls' position in the faces of at least three of the scientists about the table. He hoped that Stortz would come again to his rescue, but the old astronomer, while still regarding him kindly, seemed lost in thought. His glance caught Rothberg, who had been sitting silently erect at the head of the table. His whole manner seemed: suddenly changed. His eyes were sparkling and alive and he jabbed at a button beside his chair.

A girl came through a small door at the right. Clifford first took her to be Rothberg's daughter, then he saw a stenographer's notebook and pencil, and he decided she was a secretary held overtime for this meeting.

She was neat, rather stylishly, yet quietly dressed, except for a dash of color at her neck and sleeves, and an orange sash caught about her slim waist. She took a small chair which Rothberg himself dragged toward her, and then opened her book, giving the men about the table no more than a quick glance.

At the time she did not impress Clifford as being more than an ordinary pretty stenographer. He was not at all interested in her, but in what Rothberg was about to dictate.

"Crystal," Rothberg began quickly with a curtness in his tone left over from his conflict with Briggs. "Please take down these notes and ask Robinson to look over them with view of formulating a contract."

"Mr. Rothberg," Professor Charles was on his feet.

Rothberg glanced up and scowled.

"What is it, Professor?"

Again Professor Charles had his glasses between thumb and forefinger, pointed them this time at Rothberg.

"Have you taken into consideration the likelihood of a condition of neurosis in the applicant?"

Rothberg rose from his chair, and stepped to one side of it. Professor Charles sat down leaving his sentence incomplete, but still pointed his glasses as though holding them ready for instant use. Rothberg smiled tolerantly and Clifford knew the objection had fallen as lightly as dust.

"You sound too much like Freud," Rothberg drawled. "We are not dealing with psycho-analysis, but mechanical and cosmic laws."

He turned and faced the whole attentive board. His eyes lost their twinkle and his lips forgot to smile. Instead there seemed to be a fire of inspiration growing slowly; idealism lifting the materialist above himself.

"Gentlemen," he began very quietly, "This is one proposal I am going to take on without waiting for you to fit every angle and line into place and pronounce Q. E. D."

From that point on to the close of his speech his eyes burned more and more rightly and his voice became more earnest.

"Most men," he concluded, "desire to create something which can be left to oncoming generations with the mark of their individuality upon it. One may conclude this is all vanity, but I believe every great work which preserves the marks of genius sets a standard for future generations which defies them to excel.

"Sitting there listening to talk of cosmic law it has occurred to me that this young man's dream may be used to leave an imperishable remembrance of us who live today. Once upon a time, a Pharaoh, hoping for immortality, raised the Great Pyramid of Gizeh; but lasting as that is, it shall in time perish, so too shall all the light fabric of our own civilization. But the ships we launch into space shall never decay. They will speed on and on a lasting inspiration to generations yet unborn!"

CLIFFORD caught the fire of Rothberg's idealism and mixed it with the flame of his own dream, but a damper was thrown upon it immediately for Briggs thrust his thin, inquisitive face through the door, gave one keen, searching look about and retreated; but before his face disappeared Clifford saw a glaring threat turned upon the girl who looked up just in time to catch it. She shrank from those black eyes and Clifford watched her rather than Briggs. It seemed that she was fighting to show no fear; but her tightly drawn underlip betrayed her.

When Clifford looked again toward the door, Briggs had gone. He wondered what the man meant and Rothberg added importance to the incident by getting upset over it. Before that he had seemed aloof, as though he was in a world unaffected by men and their petty ideas; but now he searched every face as though worried whether they had penetrated a secret of the family closet. When his eyes rested on Clifford they resumed some of the old fire and zeal he had shown while making his short speech. He turned quickly and spoke in a low tone to the girl. She gathered up her notebook and some papers and left the room.

Professor Mullin caught Clifford's hand when they were again outside the hall.

"I knew you'd win, my boy! I knew it! But I must admit I never suspected old Rothberg had such a touch

of sentiment in his makeup."

"Here's the car," he added as Rothberg's limousine drew to the curb.

Clifford pulled himself from his reveries and tried to keep up his part of the conversation. He was very grateful for Professor Mullin's help. Had it not been for him very likely he would still be working back of a glass covered desk at thirty-five dollars per week, dreaming of space ships that should never be launched. Yet he had not a word to say. His thoughts seemed bound to that hall with its long polished table and a smart looking girl trying to appear composed under the threat of a tall black-eyed man one never forgot.

And that night he went to bed not entirely happy. He was worried for fear that Briggs would do something to upset his plans. Three days later, however, he felt more secure about the venture, for he met Rothberg and his attorneys down town and the contracts were actually signed and the work put under way.

Only once in the three months that followed did he see the girl, and that was a chance meeting in the hall of Rothberg's home. She smiled and bowed her head slightly, her gray eyes friendly, and then she was gone.

The end of those three months found the ship almost complete and the time drew near for her tryout. The morning he got this news, Clifford went down to lunch so absorbed in a letter from Rothberg which gave him the details, that he hardly heard the blatant cries of newsboys in the streets. Nor did he make out the meaning of them until a small fellow with big blue eyes thrust a paper under his nose and shouted,

"Extra mister! Extra! Big banker disappears!"

Clifford took one and idly glanced down at the picture. Rothberg! Hardly understanding what the picture was about he glanced at the headlines.

Some of the import of those words seeped into his shocked brain as he stared down unable to read on. Then a dull hurt possessed him. He thought of how well he had grown to like the millionaire in the short time he had been associated with him. Then it came to him that this meant the upsetting of everything connected with launching the ship. Briggs flashed into his mind. If the space ship being almost ready to launch had anything to do with the time of Rothberg's disappearance, Briggs might be back of it.

The boy nudged him. "Five cents, mister."

Clifford pulled a coin from his pocket and dropped it into the stubby palm. The boy ran on shouting, "Extra! Extra! Big banker disappears!"

For a long time Clifford stood there stunned. His house of cards had tumbled about him. His dream was only a dream after all, his plan only a scheme. The new light in his life was not a beacon at the port of success, but just a flare of illusion somewhere across the strange darkness of failure.

Not for a second did he have any faith in Briggs' going ahead with the work. Briggs wasn't the kind to spend a great sum of money helping other men attain their dreams, and his hand seemed all too plain in this. Clifford knew Rothberg had made provision for carrying on this work in case of his death, but since he had only disappeared the delay in the work would probably be dragged out indefinitely. That would be like Briggs.

A Strange Call

FOR a long time he stood letting his thoughts wander on and on. Men and women flowed past in an endless procession propelled back and forth through the heart of the city. Cars honked beyond the curb, traffic congested and moved again as the bell rang and the lights changed. No one paid him the least attention, he, who had been so sure a few minutes before that this strange, restless, congested mass of human beings should know him and acclaim him.

Now he was one of them again an unknown in a mass of unknowns; just a corpuscle in the veins of the city. He felt he would never reach the heights of his aspiration, never see his rockets flaring against the heavens. He must plod, lift and place, lift and place again, eight hours a day, six days each week fifty-two weeks each year until some day another mannikin would be put in his place to carry on the unending drudgery of life.

The paper dropped from his fingers. A puff of wind caught, twisted it, and whisked it aloft, high above the heads of the industrious mass, then let it fall into the streets where it scudded along under the shuffling feet of the unseeing horde. It lay there, restless with each new gust shaken but unable to rise again.

Staring at that paper with its warrant against his dreams, he remembered Freud and the psychology of grandeur and dreams. Like a good many other men of imagination, he had believed in his luck, in his allotment to play a major part in the scheme of things; felt, somehow, that he was a man born to walk among the mighty.

He shrugged his shoulders in an attempt to be resigned.

"Rothberg disappears!" Up and down the street newsboys cried his doom; cried it lustily with a trill of elation for the pennies they were getting. "Big banker disappears!"

Pennies, pennies for lollipops or tops, or, what did it matter, the big news they had not at all.

He turned back and unlocked the door, crossed his room and caught his image in the mirror. He was astonished at the apparent change in himself. The evidence of defeat in his features whipped him to a new determination. He would fight on! He drew his shoulders erect and grinned. The wrinkles caused by the laugh looked odd against his ashy face. He sat down upon his bed.

Thoughts chased each other around in endless procession. The hands of the tiny clock upon the table crawled around the dial. The telephone bell against the wall tinkled. Now that he noticed it, he believed it had been ringing a long time. He lifted the receiver and answered in a voice that was thin and hollow.

"Mr. Peterson?" a girl asked.

"Yes. Who are you?"

"You don't know me by name. I took the notes for the conference the night your plan was adopted."

"Yes, yes. Certainly I remember you."

"Please come out here just as soon as you can. Everything depends on it."

"All right. I'm coming," Clifford answered, wondering at the calmness of his voice. "Are you at the Rothberg place?"

There was no answer.

He fumbled in the directory for Rothberg's phone and found it was not listed. For the life of him he could not remember the number. He asked information but she refused to give it to him.

Uneasiness grew the more he was balked, but there was nothing he could do only hurry as fast as possible to the Rothberg place.

He caught the elevator, rushed into the street to hail a taxi.

Crowds were swarming about the walls which enclosed the estate when the taxi drew up at the curb. Beyond the walls all seemed quiet enough, and there was little to indicate possible tragedy, except two stolid men in uniform at each side of the front steps, and a few brisk men entering and departing.

Just as he left the cab, Briggs came down the walk.

"Just the man I wanted to see," his big booming voice stopping any attempt to evade him.

BRIGGS was the last man Clifford wanted to see but he followed him into the house. In the board room Briggs closed the door and turned on him.

"Of course you've heard."

"Yes," Clifford admitted, watching him intently.

"The old man must have known he was in danger," Briggs went on. "Yesterday he asked me to carry on this work should anything happen to him. Told me he wanted the ship to be a monument to him."

"Yes," Clifford assented absently, thinking of this new puzzle. Why was Briggs telling him this? Was he really going ahead and launch the ship? If so, that indicated he must have nothing at all to do with Rothberg's disappearance. Then who did?

As he stood thoughtfully wondering about the new phase of the situation, Briggs turned on him aggressively.

"Peterson, you've no business out here. I want you to let this affair alone." "All right," Clifford agreed coolly, "I will when I find what became of Mr. Rothberg."

"Better not meddle," Briggs growled, "After all your ship is all that interests you."

"I don't like your tone, Briggs," Clifford said.

"You'll like it a sight less if you meddle here."

"I'm not meddling," Clifford answered becoming more irritated. "I had a reason to come here."

"Yeah, I know. She phoned you. I'm onto her game too. Now, you get this straight. If you love your life you stay out of this."

"Is that a threat?"

"That or a promise, take it as you choose."

Briggs hunched his shoulders and doubled his fists. Clifford didn't want to have a knock-down fight in the man's own home, so he turned his back and strode from the room. He smiled a little, his sense of humor

saving the situation. Surely Briggs ought to know he was no match for him that way.

"Get out then," Briggs called angrily, "and keep away from Crystal. When I want you I'll get you, remember that."

Clifford went into the hall wondering at Briggs' jealousy over the girl. She did not appear to be the type who would put herself into Briggs' power nor one who would carry on an affair with him.

In the hall he found her waiting for him and a big load of worry left his mind.

The tragedy in the house seemed to make her more reserved. There was a touch of somberness in her dark coat suit and Clifford missed the flashes of color she had worn at her neck and waist. He wondered if this overtone of black was her usual business habit or if it hinted that she believed Rothberg dead.

She did not smile, though there was an evident relief in her face when she saw him. "I'm so glad you came," she said.

"I hurried," he answered taking her hand, "You hung up so abruptly I was really worried."

"Let's talk in my little office," she interrupted quickly.

"Wherever you wish," he agreed.

He followed down the hall and found himself in a small room fitted with stenographer's desk, a filing cabinet, and two chairs. She seated herself at the desk and he sank into the other chair, which was evidently the one Rothberg used while dictating.

"I'm not the regular secretary," she said briefly, "but I do most of his personal letters. He can trust me better than anyone else.

CHAPTER III.

A Dangerous Situation

CLIFFORD noticed that she did not call Rothberg's name. Evidently it would have been a task for her to mention it just then. Certainly he and she were very close to each other. Well, Rothberg had excellent taste and he did not blame him for hiring her. He did wonder though, just how much she cared for the millionaire and how much for his money. Then he put that thought from his mind. He felt it was unjust to her. Whatever her connection with the banker, he felt it must be sincere and unaffected by his wealth.

"About the phone," she reminded him, "That was queer. Your voice was cut off like something or someone had cut the wire. I tried to get central again and she would not answer. Then I went upstairs and that phone was dead too."

"Aren't there other phones about the place?"

"Yes, one in BB's laboratory and one in the servants' quarters."

"Did you try either of them?"

"No—" she hesitated, "Truth is, I didn't want the servants to know. I started down to BB's laboratory and something seemed to hold me back. I don't like to acknowledge it, really it's silly, but something seemed to warn me to stay out of there. I don't know why I felt like that. Maybe it was because BB acts so queer of late."

Clifford got out of his chair. "I'll go down and find what's wrong."

"No," she cried, "You must not."

"Why?" he asked hesitating.

"BB. He'll do anything now. He even puts his own guards at my door."

"Mr. Rothberg will rip him inside out when he comes back."

"Oh I do wish he'd come back. I am terribly worried about him."

"No one would dare harm him," Clifford assured her, though he was not quite so sure himself. "He is probably kidnapped to delay launching the ship."

"Maybe that is all, but BB acts so strange. He dares things he never dared before. He threatens me in a way which makes me really afraid."

"You think—Briggs killed him?"

She winced, paled slightly and then said, "BB resented the outlay from that first night. Last night when they were together in here he told BB he would spend his entire fortune or make a go of the satellites. BB agreed with him, but too readily. I know now I should have done something."

She stopped talking and her head bent forward to hide her face. It was plain she was losing her magnificent control, but after a moment she went on: "That was the last time anyone saw him. They went down into the laboratory to look over the ship. This morning the butler told the police that he had seen him go into the street about nine o'clock last night, but I believe he is lying."

"Have you told anyone what you suspect?"

"There was no one I could trust."

"If the butler is lying, Mr. Rothberg must still be down in the laboratory!"

"Yes, somewhere down there."

"Then why was he not found?" he exclaimed.

"You don't know BB," she said with a pronounced agitation. "He has drugs and chemicals which will do unbelievable things!"

"I don't like to leave you alone," he said with evident concern as he got out of his chair, "but Mr. Rothberg may need help. I'll be right back."

"Don't go down there alone," she warned and lowered her voice as though she suspected someone was listening. "Not the laboratory! You'd be at his mercy."

HER concern thrilled him. He let his eyes linger on her, watched her black pupils grow wider and wider. Puzzled at the way he affected her, and then with some chagrin he saw that her eyes were not upon him but that she was looking over his shoulder at something behind him; that her eyes were not widening with love but with terror.

He whirled about quickly and found Briggs peering through the partly opened door. Clifford gave him one disdainful glance and deliberately turned his back. The girl pulled at the hem of her short skirt and toyed carelessly with a paper cutter.

Clifford was sorry for her. Briggs was using his position in the home to act a beast.

"I hear the ship is ready to launch." Clifford said the first thing that came into his mind, anything to divert Briggs from the girl.

"Tomorrow," Briggs declared and his tone was defiant as though he expected Clifford to object.

"Don't we wait for Rothberg?" Clifford demanded.

Briggs stepped forward until he towered over Clifford who leaned upon the desk.

"Tomorrow, I said," he snarled: "Not a day later!"

"Then it is ready?" Clifford asked, his nerves tightening, "May I see it, Briggs?"

Briggs regarded him with an uncertain suspicion, then seemed to arrive at a decision and turned toward the door.

"Come on," he growled.

Clifford followed but felt the girl's hand upon his sleeve.

Briggs whirled and there was a dangerous fire in his eyes.

"Get on," Clifford commanded. Briggs shot a threat over his shoulder and then went striding down the hall.

In all the months that Clifford had worked with Rothberg and Briggs correcting flaws and inventing schemes for improving the ship, he had been refused a glimpse of the work. Briggs had insisted on keeping him out of the laboratory and his whole knowledge of the ship's progress was obtained from blue prints and small models. So when Briggs opened the door of the shop and went down a short flight of stairs, Clifford peered eagerly over the maze of pipes, machinery and belts, to rest upon the ship which was near the rear of the building.

She was indeed an engaging vessel. Night was just falling and the soft radiance of her luminous paint glowed against the shadowed walls. Clifford knew then why Rothberg had planned to send her out at night. She would make a spectacular departure!

"All loaded and ready for contact," Briggs rumbled as he pressed a button.

The wall beyond seemed to resolve itself into great doors which slid open to provide a hole large enough for the exit of the two-hundred foot torpedo-shaped ship. New track gleamed below the ship and ran out into the trial yard.

"We'll make the experiment here. The first the world shall know of it will be the flash of light as it shoots across the heavens to circle the earth!"

"I hope it does, Briggs. It would ruin me should it fall."

"You said it couldn't," Briggs exclaimed hoarsely and stared at him in astonishment.

"That's my theory, Briggs. Only the experiment will tell for sure."

"It mustn't," Briggs raved, his whole attitude showing unparalleled concern. "I won't fire it if it's likely to fail. I'll have her dragged to the river and sunk first."

Trapped!

"I didn't mean to intimate that we would fail, Briggs. Of course we won't give up even if this one doesn't take off. In that case we would have to tear her up and find what was wrong, then try again."

"No," Briggs declared, staring at the floor. "I'll have her drowned. We'd be the laughing stock of the whole world."

He jabbed at the switch and the doors closed. He turned and gave Clifford a quick, searching look, crafty with some hidden anxiety.

"Peterson," he finally said, "You've a future ahead of you. You have already devised some things which should make you famous when they are widely known."

He lowered his voice and gave a cautious glance around the dimly lighted room.

Clifford was annoyed. Why was the man whispering. There seemed to be no one down there to hear him even had he shouted.

"I made a discovery or two, myself," Briggs went on, "Something deep. Something which has to do with the basic laws of life!"

"No?"

"Sure."

Clifford was instantly alert. Here seem to be a chance to get Briggs to talk. He was anxious to find out how sane the blazing-eyed chemist was.

"What have you discovered?" he asked.

"Shhh! Not so loud. It's a secret. I haven't even told the governor. Not a soul But I'll tell *you*."

Clifford stiffened expectantly and after a moment Briggs went on.

"Of course you'll admit that life is no more than chemical action."

"No, I don't," Clifford objected mainly to draw him out.

"You don't know that?" Briggs questioned fretfully.

"Oh, I'll admit the physical part of life is chemical," Clifford said soothingly watching Briggs closely. "But there is more to life than the oxidation which takes place in the body. What about intelligence? Spirit, if

you please? We chemists can make a particle of matter wiggle, whistle, sing and even talk, but we have never made it feel or think!"

"Of course," Briggs drawled absently, "But it is the chemical part of life I am experimenting with."

The glitter in his black eyes was now more metallic. "I have discovered how to produce flesh, live flesh, Peterson!"

Clifford clenched his hands and stared at the cement floor. He could not trust himself to look at Briggs a moment longer. He felt sure then that he was on the trail of Rothberg, dead or alive.

Briggs droned on, "In my vault I have something that will interest you; made of minerals and treated with chemicals; flesh! Human flesh, and it bleeds!"

Clifford had no doubt by that time that Briggs was entirely mad, and that he had either killed Rothberg outright or was using him for some horrible experiment. He did not know whether to answer or remain silent. One bit too much interest might scare Briggs and one bit less might stop the wild ramblings. Briggs hesitated and Clifford said, "You're a wizard if you can do that."

He wondered if Briggs noticed the strain in his voice.

"I've done it!" Briggs flared.

"Science asks proof."

"You want to see it," the crafty anxiety was growing in the black eyes. "Come on, I'll give you a look."

Briggs strode off down a lane between the machinery and Clifford followed him closely, hoping that he would find Rothberg alive.

They reached a large vault of masonry and steel. Briggs swung open the door and stepped inside, Clifford close at his heels. Briggs turned on an electric light.

"There!" he cackled, pointing to a glass case at the far end of the ten-foot vault.

Clifford gasped.

In the long glass case was something which might have been a man. It was nude, terribly bloodsoaked and lacerated.

ROTHBERG? With two quick strides he reached the case and peered in. The body proved to be nothing more than a mannikin of flesh-colored rubber, daubed here and there with red paint. He whirled around sensing a trap. Briggs was gone and the big steel door of the vault was closing! Briggs had been too keen for him!

He stepped back and regarded the gray steel bolts of the door as they glistened under the light. He knew the strength of that chrome steel. The inch thick tusks were shot solidly into the frame and there was no way on earth he could drive them back.

He was chagrined at how easily he had been duped, even with the warning the girl had given him. Truth was, he had not believed Briggs was quite so diabolical and vicious as she seemed to think. Now it proved she had been quite right and he was too late in realizing it.

Hardly hoping for any means of escape, he searched around the small room. There was a lot of chemical apparatus on the table, and the walls *were* lined with steel shelves fitted with filing boxes,

Clifford pulled down one of the files. It was heavy. He opened it. Inside were typewritten manuscripts and blue prints; scientific stuff, the records of experiments which Rothberg had financed.

No doubt the records of his own scheme were here and he went carefully through the file hoping to find them and get them away from Briggs, should he by any chance leave the vault alive.

The first file finished he took down another, and as he searched he stacked the boxes carefully upon the floor. Back of the eighth box was a small round hole in the masonry of the wall. He was completely surprised at finding it.

Mice? Certainly not.

He stepped upon one of the steel boxes to peer closer, and saw that the hole was the end of a galvanized pipe, cut flush with the surface of the wall.

That was queer. Why should a pipe be run into this vault and hidden behind the filing boxes?

Wondering about it he rummaged through the papers in the ninth box and started on the tenth.

He smelled gas. Instantly he knew his peril. This was Briggs' way of getting rid of him! It was also probably the way Rothberg had been dispatched.

The gas fumes hissed through the pipe. It would not take long to finish him at that rate. He took out his handkerchief to plug the hole. But that would never do. He knew Briggs well enough to know that plugging the hole would not beat him. Briggs would take no chances with any escape as simple as that. In whatever room he had his gas lever would be a meter that would gauge the amount of gas entering the vault. Should he plug the hole Briggs would be warned and leave him to starve or would devise some other way to finish him.

Clifford knew if he were to get out alive he would have to do better than just plug the pipe. He would have to let gas flow into the vault. Let Briggs believe he was suffocated; and then surprise him as he opened the door to drag out his body. But how? Already he was dizzy with the fumes. There was a way and he thought of it!

A desperate method which gave small hope, but he was in a desperate situation.

He struck a match and threw it at the hole. The gas burst into flame, leaping far into the vault and singeing his hair. Then it shrank to the pipe and burned in a long tongue of roaring fire. On and on it burned. The acrid fumes became less pungent, but the air of the vault grew hot and stifling.

He stood helplessly and stared at the hissing blaze, and tried to devise some way to prevent its eating up the air he needed for his gasping lungs.

CHAPTER IV.

Into the Sky!

THE vault became hotter and hotter. He suffocated, his throat seemed parched with fire. He decided it would be better to die by cool gas than by blazing fire. He groped about the vault searching dizzily for something with which to smother the flame, and as he searched he remembered his coming hour of triumph but one day ahead. God, how he wanted to live long enough to launch the ship; to watch it race out into the orbit of its service to the earth. He wanted to protect that strange girl upstairs—he wanted—he wanted—what? Air—just air.

He reeled sank to the floor. The flame above burned on, riding high about the mouth of the pipe, higher and higher as though it were breaking loose from its anchor and trying to float away. Up and down it crept as it fed on stagnant air currents from the floor. And Clifford knew what made it ride away from the pipe. The oxygen in the air was growing thin.

Black night and red flame played hide and seek across his brain. He felt that he was slipping down, down, down, into a deep dark place, lighted now and then with red flares of light. Sprawled upon the floor he breathed in a quick pant like a huge lizard spread upon a jungle floor.

Clifford was not entirely out when there came a noise as of someone working at the door. The steel tusks moved back from their sockets and the door moved. It opened wider and a flood of fresh sweet air poured in. He breathed greedily and tried to get hold of himself. He felt sure Briggs would be armed and try to finish him. He rose groggily to his knees and doubled his lean fists, waiting like a cornered beast.

A swift figure darted through the half open door, seized his shoulders and tugged at him. He waved his fists groggily in an effort to strike. He heard a faint cry of pain and the blackness seemed to lift again.

The girl was there. Somehow she had found him. He marvelled at her courage, knowing how very much afraid she was to be down there. He marvelled still more at her concern for him.

The fresh air braced him like aromatic spirits. He got to his feet and lean against the wall. She stepped nearer, gray eyes burning with anxiety. He smiled weakly.

"Don't worry, I'm all right," he assured I her.

"I knew he'd try to kill you. That's why I begged you not to come down here."

"Yes I am dumb, but you rescued me," he said with a bit of chagrin.

"Not so dumb," she denied.

He glanced up to see her eyes regarding the flaming jet. The fire trembled in the mirror of her eyes.

"You outwitted him that time, but let's yet out of here," she added nervously. "He'll want nothing better than to lock us both in."

"Shall I help you," she asked leaning over him.

"No, I'll make it. Go ahead."

She left the vault and he followed, reeling a trifle. Outside she slipped around a black panel which held electrical switches, and then across toward the space ship, which glowed with a weird radiance against the dark, lifeless room. Here and there a night bulb cast grotesque shadows of the queer machines upon the concrete floor and distorted them against the pale gray walls.

"He'll be wild," she whispered.

"He'll never launch the ship now," he said dejectedly.

"Launch it yourself," she declared. "It's all ready."

"Mr. Rothberg?" he questioned.

Her enthusiasm died. She stood silent. For a moment and then in a sad, soft tone; "I'm sure he'd want you to. I am sure of it."

"You're right," he agreed, "Why wait when the test can be made now. Do you know the switches which work the hoist?"

"Yes," she said and pressed the button which opened the big doors.

THEY slid back and unfolded a section of clear, moonless sky, alight with the thousand candles of night. She stepped to a row of levers against the wall.

"Contact!" she called like a valiant little soldier.

The hoist growled. The ship slid outward and up along the inclined track, until it was high up in the yard outside the laboratory. She pressed another switch and the cable fell away, another and there was a burst of flashing, spluttering, roaring flame, which howled like a mighty cyclone of chemical disintegration.

The ship heaved upward with constantly accelerating velocity. It went streaking across the sky with a long tail of fire left for an instant in its wake. On and on the monster sped. Faster! Faster! It grew smaller and smaller into the vastness of the heavens.

Cries came from the streets. Shouts! Yells! Questions tossed back and forth, man to man. The space ship was setting the city on its ears.

It gained the heavens, glowing like a big star. It sped across the zenith against a galaxy of ancient stars, moving down toward the rim of the far horizon.

Clifford and the girl stood dumb, humbled with the power man had brought at last into his control. Dumb with the greatness of having created something far more lasting than themselves.

Behind them came the sound of running feet.

Clifford turned to see Briggs, who began to shout wildly.

Believing the man was entirely mad he reached about for some weapon. But Briggs paid little attention to him. "Good God!" he was at last understandable. "What have you done? The governor's in there!"

The girl screamed "No! No! No!" She swayed and sank upon the floor, and huddled there as though strength had gone entirely out of her.

Clifford leaned over and laid his arm across her shoulders and felt the quiver of her body as she shook with grief.

"I'm sorry, so sorry," was all he could think to say.

Briggs hurdled back through the laboratory crying:

"We've got to stop it! We've got to stop it! The governor's in there!"

Clifford knew how useless was that cry. That ship was like death. One could launch it but there was no known way to bring it down. It was in the control of the cosmos!

"What have I done? Oh! what have I done?" the girl sobbed brokenly.

"We didn't know," Clifford said. "We had no way of knowing. You and I are not to blame. It was Briggs, the scoundrel!" His words seemed to shake her with new despair.

"Oh, you don't understand! You don't know! I am BB's wife!"

Clifford straightened with the shock. She—BB's wife? Rothberg's daughter? Why had he not guessed it?"

CHAPTER V

Brigg's Story

CLIFFORD had no doubt BB spoke the truth. Rothberg must certainly be in the steel satellite. Of course they must make a desperate effort to get him out—no expense or peril would be spared. But unless Briggs had provided some means for him to live up there, only the frozen body would be their reward, if they succeeded at all. Hundreds of miles above the earth the ship was as unattainable as though it were at the moon or Mars.

The rockets, of course had been constructed to make contact with the hull, and these rockets were the first things that came into Clifford's mind as he bent over the stricken girl. And still they seemed to offer little hope. They were to be discharged by gases with gradual acceleration, as the ship had been, but constructed of only plate steel they provided little protection against the absolute cold of space (accepting as fact the prevailing opinion that the temperature of space was minus 273 degrees Centigrade, or thereabouts). Even if one could survive in a specially constructed rocket the steel walls of the ship and the hull of the rocket would form a barrier no one knew how to pass.

As Clifford pondered these problems, the girl pulled herself together and got to her feet. She said something, but Clifford could not make it out, for beyond the open doors the street and city was a roar. The whole town seemed turned upside down. The strident honking of auto horns underscored the wild shouting of men and boys. The wail of distant sirens and the low bellow of factory whistles added to make such a bedlam as only a startled city can make.

Clifford pressed the switch and the big doors slid together and muffled the clamor outside. The girl touched his arm and he looked around to see Briggs running back from the dim recesses of the laboratory. As he came nearer, Clifford thought he detected a poorly concealed elation in his bearing as he barked at them.

"I told you not to meddle. There is not a chance in the world of rescuing him alive!"

Crystal ran down the aisle between the grotesque machinery and caught Briggs by the arm.

"BB! What do you mean? Is he still alive?"

"How do I know?" I never sent him off!" he evaded brutally.

"Listen to me!" she cried pulling at him with nervous little jerks. "What was he doing inside the ship?"

Briggs did not seem in the least upset. His smutty eyes rested upon her slight figure with a contemptuous composure that seemed to torment her.

"It won't do any harm to tell you, now," he finally answered. "The governor and I were working on the idea of carrying passengers at some time in the future. I discovered a method of rinsing the carbon from respired air, so that it might be breathed again; a simple little process that will make oxygen tanks unnecessary."

"BB!" she cried, tugging at him again, "Can you stand there and talk of experiments at a time like this?"

"Well, why not?" he resumed and then as though she had not interrupted at all, "The contraption seemed a success, and to prove it, I volunteered to let myself be sealed inside. The old sport refused and insisted on trying it out himself, and since he was boss, I had to let him have his way. He was doing splendidly the last peep I got at him through the plate glass port hole."

"BB!" she cried again, "we're wasting time. Let us all forget everything but him and his peril and get together to find some way to get him back."

"How?" he asked with exasperating doubt in his tone. "All hell can't bring down that ship now!"

"How?" she repeated mechanically and looked at Clifford.

"The mail rockets," he answered, not because he knew a way, but because he wanted to give her hope.

BRIGGS laughed ironically. Crystal whirled on him and Clifford thought she was going to attack him with her small strength. Instead she caught his arm again, then let it go. She shrank away covering her face in the bend of her white elbow.

"You planned it," she whimpered, "You didn't care what became of him just so you got him out of your way. Oh, BB how could you?"

Briggs remained stiffly composed.

"Cut out that sob stuff," he snapped, "I told you not to meddle, and this is what you get?"

She straightened and her arm came down from her face and held stiffly at her side. Clifford saw that her hand was clenched tightly. She faced Briggs as though a wall was at her back and she was determined to be brave.

"BB," she said slowly, "We would have loved you and given you all that you desired if you had let us. Daddy knew what he was about. He made his fortune by seeing opportunities before any one else saw them, and yet, you were so afraid he'd lose what he had, you—killed him!"

Briggs eyes opened slightly and then contracted. He shifted them from the dauntless little figure and glared at Clifford. Then he looked back again and growled.

"If you ever want to see him again, get busy and quit trying to put the blame onto me."

"Yes, BB," she agreed, "Give me something to do!"

"Get Marks on the phone. Ask him to come down here. Phone Shaffer to roust out a crew for the shops. I'll build a special rocket and go up after him myself. Cut him out with a fusing rod and oxygen flame. Now get hold of yourself and help undo what you have done."

He turned on Clifford again. "You get out of here!"

Clifford stood his ground and stared at him, with a hard glaze upon his eyes.

"Are you going or shall I have you thrown in the hoosegow?"

Clifford boiled. How he wanted to paste Briggs one on his curling lips. But he knew that would not do. If Briggs had him arrested on any pretext whatever he would be unable to form any plan of rescue, so he walked away slowly, despising himself for being in a position that Briggs could bluff him.

Before he left the laboratory he heard the girl call for Marks. Briggs flooded the place with light as he reached the stairs and the buzz of machinery began vibrating over the room.

He left the dark house wondering why Briggs had gone to work so quickly to try effect a rescue. Did he have some sinister plan of his own in wanting to be the first to reach the ship?

Out into the street he found it swarming with people who rushed here and there and tossed every kind of a rumor about. He lighted a cigarette and leaned heavily against the gate. With his mind busy with the stupendous problem confronting him he tried to devise some means of rescue as an hour passed and then another.

A dim star rose above the horizon and mounted swiftly toward the zenith, moving against a galaxy of ancient stars. The ship! The newest satellite of the universe! While he had been standing there he knew it had crossed the Atlantic, met the sun and the broad light of day over the cities and villages of Europe and Asia, crossed the day and night areas of the Pacific, the Western Coast of the United States, the Rockies, the Middle Western States, and was now racing toward the Atlantic coast again!

Speed! Could man never find its limit? Forever and forever that ship would be on time, even when the earth had grown ancient and old and tottered in its orbit like a drunken top, it would race on and on. Earth folks hailed it now with the same joy they hailed every new discovery, but in a day or two the miracle would become commonplace, and men would think it undignified to pull back their heads to regard its meteorlike flight.

He knew he was fortunate. It was given to few men to both dream and accomplish. Yet the glory of his triumph was gone by the thought of Rothberg sealed inside the ship. As far as rescue was concerned he might just as well have been stranded on the moon.

Desperate Plans

CLIFFORD did not trust Briggs for an instant. If Rothberg went into that ship voluntarily why had he not first submitted the plan to his board of scientists? Or at least taken his daughter into his confidence before submitting himself wholly to Briggs' power.

With the vague idea of asking the girl to hinder rather than help Briggs with the rocket, he turned back to

the house and found the front door partly open, as he had left it. It seemed that servants, and everyone else, were too upset to carry on the regular routine of life. He threaded his way through the dimly lighted hall and on back to the laboratory.

Briggs and Crystal were at a desk under an electric light. Before them were papers and blueprints. Briggs saw him and scowled. The girl did not look up until he stood beside them, then she said bravely. "BB's great. He has planned a vacuum tube rocket which shall be warmed chemically and supplied with oxygen from tanks!"

"How is he going to do any good sealed inside the tube?" Clifford asked.

"Meddling again," Briggs growled.

"Not meddling. I have a sincere interest in rescuing Rothberg, you know that."

"Oh, yes, I know that. You've been spending a lot of his jack of late."

"BB!" Crystal exclaimed, "I thought we were all to work together!"

Briggs put down some figures in a small cramped hand. Clifford watched him.

"What *are* you going to do when you get there?" Crystal asked Briggs.

"The devil!" he exploded, "One thing at a time. You two won't give me a chance to think." He let his pencil drop to the table. "If it will make you any easier, I'll tell you that the warm rocket is to be only a refuge. I go out for a few minutes and work swiftly and return when the cold becomes unbearable."

"You know you can't do that!" Clifford objected. "You know that scientists believe that space has a temperature of minus two hundred and seventy-three degrees Centigrade."

"Applesauce," Briggs growled. "Scientists now believe, at least some of them do, that space is not much colder than the arctic zone in wintertime, possibly not more than fifty degrees minus. I think they are right too!"

"Maybe," Clifford agreed, "but what will happen should you be wrong?"

He glanced at the girl for approval, but she frowned. Evidently she thought he was trying to discourage Briggs. Clifford did want to discourage him for he did not trust him at all, so he asked in spite of her distress: "Do you have any idea how cold minus two hundred and seventy-three degrees is, Mrs. Briggs?"

"No," she said with despair in her eyes.

"Perhaps I can give you an idea. I saw a rubber ball dropped into a basin of liquid air once. You know liquid air is much warmer than absolute zero. When I recovered the rubber and dropped it, it shattered like rotten glass!"

"Then there is no hope?" she asked, her eyes begging for encouragement.

"There has to be," he said emphatically, "but to have hope one must be fortified against such temperatures, if one intends leave the rocket."

"I'll manage that," Briggs growled.

"How?" Clifford insisted.

Briggs pushed back his sketches and glared.

"Didn't I tell you to keep out of this. Now, get this straight, we don't need your help!"

Clifford looked straight at Crystal expecting her to deny that Briggs was authorized to speak for her father, but she sat very silent and stared at the paper as though she wished he would go. Feeling uncomfortable he turned and left the laboratory, wondering whether she really wanted him to go or not. He was still determined to go ahead with plans of his own, regardless of whether they were appreciated or not.

HE took a taxi and sped to the University and called Professor Mullin from his class hall.

"Professor," he began before Mullin was within ten feet of him, "Did you know Rothberg is in that ship?"

"What? Not the satellite?"

"Yes and probably suffocating by now. I'll tell you how he got there later, but right now I want your help to get him out!"

"My! My!" the Professor ejaculated, "A very desperate situation."

He drew his head back and looked skyward as though looking for proof of that which he had heard.

"We haven't a minute to lose," Clifford continued.

"But we can't do anything at all," Mullin exclaimed with widening eyes. "It will require years, maybe centuries of experiment to solve such a problem! Are you sure he is in the ship?"

"Not sure, professor, but I intend to go up and look it over."

"Go up? How?"

"The mail rockets!"

"But—"

"Yes, and that is why I need your help and that of the Board. We must construct a rocket at once, one with special features so that one may live to make the trip up and back."

"But, my boy, no one could take him out of the satellite. Open the port hole and the pressure of air inside would hurl him out to be frozen and lost in space! That chamber was sealed at sea level and contains a pressure of fifteen pounds to the square inch! More than a ton to the square foot! You'd never find his body afterwards, even with a telescope!"

"I know," Clifford answered calmly, "That is just what I have been worrying about. One can't go about rescue that way, and still Briggs is at work trying to do that very thing! I really believe he is trying to finish Rothberg to save his own hide."

"What are you talking about?" Professor Mullin asked puzzled. "Be plain and don't get excited. Let's go over there and sit down and you can tell me all you know."

"Very well," Clifford agreed. He knew there was no time to be lost if Rothberg was to be rescued alive, but he knew too that he must explain fully if he expected Mullin's help.

He followed the tall figure of the professor across to a stone bench and stood while Mullin seated himself. Then with one foot on the bench and his fingers working impatiently, he told him all that had happened the night before.

"So Briggs tried to gas you, eh? Well, well well. I'm really not surprised. A short-sighted man and a dangerous one. He loves money, but he shuts it up too tight to let it grow. I suspected he was anxious for Rothberg to die, but I never thought he'd murder him."

Mullin rose abruptly. "We must get busy. Briggs is already hours ahead of us. Wait here a minute. I'll run back to the office and phone Marks and call the board together."

Clifford watched the tall, dignified man do his first sprint in years. He waited, his mind racing through calculations, devising and rejecting plans for the new rocket. When Professor Mullin came back, the talk with Marks and the other members of the board seemed to have influenced him a good deal.

"Marks has absolute faith in Briggs and his rocket," he said soberly, "And the Board has not only expressed faith in him but an admiration for his willingness to risk his life going up."

"I'd advise you to go over the thing with Crystal. She knows a good deal about Briggs and is rather keen on what her father might wish to be done?"

A little exasperated with Professor Mullin he left and went again to the Rothberg place, but she was not at home, at least to him. There were two strange guards at the gate who followed him to the street gate when he was refused admittance.

CHAPTER VI

An Urgent Message

BALKED, but still determined, he went back to town feeling that everyone was playing into Briggs' hands, even the girl. He really admired her loyalty to her husband, yet he knew that she was surely afraid of him and could hardly have confidence in him. That must she have plainly shown after the rescue from the vault. Then why was she putting her father's life into the man's keeping? Surely she must know that Briggs would never bring Rothberg back alive to incriminate him.

Puzzled by her actions and the problem of rescue, his brain went around and around in a perpetual circle of defeat. Yet he was by no means ready to give up. He tried to get help from the government, the state, the county, and finally from wealthy citizens.

The world's imagination was aroused as it never had been before. Floyd Collins, penned beneath tons of rock and sand in a Kentucky cave had at one time set its sympathies afire, but Rothberg confined on an inaccessible vessel in plain sight of all, stirred sentiment as never before. There came flooding to the press little sketches of his benefactions and other eulogies from the men he had helped.

For the time, the space ship crowded all other items of news to the back pages. Scientists gave their opinion as to the possibility or impossibility of rescue. Thousands of letters and telegrams poured into the city to Briggs, to the Foundation, and to Clifford. Money was offered by popular subscription and private donation. Some of it finally came under Clifford's control, but by that time Briggs was three days ahead

of him and Clifford knew that without some miracle he could never beat him.

Nevertheless he started furiously to work, hoping the miracle would happen. He secured the services of a munition works and laid out plans in accordance with the study he had given them. He also called to his aid every specialist in the field of rocket construction. His rocket promised to be something exceptionally good. And yet, with all its merit, he learned that Briggs was better equipped and making an equally good or superior rocket and would have it completed sometime the next day, whereas only the skeleton of his own was begun.

He met Marks downtown that afternoon. Marks barely spoke and passed on. Clifford whistled softly and went his way, but it was quite clear he didn't stand so well at the Rothberg place. "Well, he thought, "it is just as well that I don't. I've no business out there anyway."

He caught a bus and rode out to the munition factory intending to spend the night with his workers.

"How's it coming?" he asked the foreman as he entered.

"Pretty fast, Mr. Peterson. We're making real headway. Every man possible is at work and they are putting soul and muscle into every minute of it."

"Drive them, foreman," Clifford commanded, "Rothberg is suffering I am sure. He may be dying and every second counts."

He did not tell the foreman he was running a race with Briggs; but walked down the rows of screaming lathes and whirling wheels.

"By the way," he heard above the roar and din.

He turned. The foreman had followed him.

"What is it?" he shouted.

"Mrs. Briggs called for you on the private phone."

"Mrs. Briggs?" Clifford exclaimed.

"Yes. She seemed pretty much upset when I told her you were not here."

Clifford stepped to a phone booth out of the clamor and called her? She answered his ring at once as though she had been waiting for him to call.

"Mr. Peterson," her voice came in a whisper, "Come out her quickly."

"What's wrong," he asked, sensing that she was quite alarmed.

"Don't ask. I can't tell you," she replied still in a whisper, "I believe someone is listening."

"Coming right out," Clifford assured her.

"Don't come to the house," she cautioned, "Meet me by the fountain in the sunken garden."

He hung up the receiver and opened the door of the booth, ran down the aisle and out the factory door.

Ten minutes later he crawled from the taxi and paid off the driver a block from the Rothberg place. Then he waited until the cab drove away before he hurried up the street and vaulted the low garden wall where

the shadows of the maples were deepest. Crystal appeared from a clump of foliage as he reached the fountain. She hardly seemed the same woman he had left working with Briggs over the sketches of the rocket, that night in the laboratory.

"BB's mad," she whispered, "See—he's here in the garden now, waiting for the ship!"

CLIFFORD glanced through the foliage and saw Briggs' tall figure moving restlessly under the dim reflection of a light from the street. He paced up and down the flagstone walk with his face turned toward the western horizon.

"Nothing strange about that," Clifford said depreciatingly. "He's not the only man in the world watching for that ship tonight. Maybe I'm mad also," he tried to laugh reassuringly.

"Listen," she insisted and caught his hand.

Briggs' hoarse voice came rumbling to them. He was quoting a verse, but not as one soothed by the cadence and rhythm of it but rather as a man repeating a fearful curse:

"The moving finger writes; and having writ

Moves on, nor all your Piety nor Wit,

Shall lure it back to cancel half a line,

Nor all your tears wash out a word of it."

The starlike ship rose out of the west. Briggs shrank from it as from a blow. He turned his back upon it but looked over his shoulder as though he could not take his eyes away from it.

"God," he rumbled on in that hoarse deep bass, "God, I've got to!"

The luminous patch grew larger and larger against the sky.

"What do you make of it?" she asked, "He's been going on like that for two nights now. I can't stand it any longer!"

"Insane," Clifford announced slowly. It was the most charitable thing to say and the easiest way out for her when the truth became known.

"I know it," she whispered, "That is why I must carry on."

Briggs came up the path. She shrank into the shadows, but Clifford stood his ground.

She plucked at his sleeve.

"Hide please, for my sake," she whispered tensely.

He stood undecided.

"Hide—please," she begged, "It won't do for him to see you here with me."

Clifford shrugged his shoulders in acquiescence and disappeared into the leaves.

Briggs came down the path and she stepped out to meet him. He stopped and looked down at her, his

shadow outlined against a street lamp. The glow of the light put a halo into her yellow hair and etched the cameolike outline of her profile with its radiance.

For a minute Clifford feared for what Briggs might do, for it was plain he was all wrought up and unbalanced. He could see Crystal's eyes widening as Briggs stared into them and despite her plea he was about to step out to let Briggs know she was not alone, when Briggs dropped his gaze to the fountain and said hoarsely:

"God, I love you. That was why I—no, I'll forget that now."

"What do you mean, BB?" she asked excitedly.

He stood beside her as though debating something within himself, then he turned abruptly and said: "No, I don't want to talk to you about it. I want you to think well of me, Crystal."

He smoked fretfully and seemed unusually restless as though something weighty was on his mind. After a moment of that kind of tense silence he began to pace back and forth across the cement flanking of the fountain. Then he faced her, turned about again and walked away.

Clifford came from his hiding feeling somewhat ashamed.

"Clifford," she said impulsively, "I feel despicable to say a thing like this about my husband, but I have a duty to my father also. That is why I called and asked you to come here. I don't believe BB intends to make the flight at all. I believe he is afraid."

"What did you want with me?" he asked though he knew very well what was coming. "I don't want him to go. I never did from the very first, but I pretended to trust him so that he would complete the rocket. BB's gruesome, insanely cruel, sometimes, but there is no questioning his ability as an inventor. We needed him to perfect the rocket, thinking his own life would pay for any mistake he made."

She laid her hand on his shoulder, "I know it's a good deal like asking your life, but will you go up?"

"Yes," he answered his heart leaping, and added softly, "For him and you."

The Struggle for the Rocket

SHE took her hand from him and drew back as though she was suddenly afraid, and said hurriedly:

"Come at daybreak. I'll let you in at the back gate. You will be off before he knows it. I will hinder him in some way."

She left him and ran swiftly up the path.

Clifford remained rigidly where she had left him until he saw the light of the porch flash upon her white dress as she opened the front door and entered the house. The door closed quietly behind her. He waited wondering just what to do. He was worried for what might happen with her alone in that house with Briggs, and still he felt he ought to get away from the garden and come back as she had asked. Undecided he waited on, listening for a cry, fearing she might be in peril, hoping that Briggs would come out so that he could feel easier about her.

A distant motor truck growled as it labored up Blackstone hill, a flash of headlights swept this way and

that as a belated auto sped along the drive; the low blast of a tugboat moaned as it moved up harbor; fretful broken noises of the city's sleep.

Then there was a sleep stir throughout the city, blatant honking of autos on the still night, greeting again the rising of the earth's newest satellite.

The city quieted again and Clifford sank upon a stone bench. The night was warm, the air calm. He had not slept for three nights and yet he was not at all drowsy. Briggs was on his mind. He knew the man had daring and nerve, then how could Crystal be right about him being afraid? It was a fearful thing to leave the earth which confined all men, and risk the unknown of the cosmos.

He half expected to see Briggs come slinking from the house to watch the ship again as it mounted the sky; to hear him repeat again the lines he had turned into a curse; to see him turn his back and look over his shoulder as though the ship was a magnet his eyes could not shake off.

And when Briggs did not come, he felt even more uneasy about the girl. It was certain she was afraid and only a sense of loyalty to an unfortunate husband kept her within him. Twice Clifford started to the house, twice he returned, and finally the time came for him to meet her. He circled a private hedge and reached the rear gate. She was there waiting and put a finger to her lips as a signal for silence.

Unexpectedly the gate to the rocket yard opened and Briggs stood as glowering as a thunder cloud.

"What are you doing her at this hour?" he growled.

Clifford pushed his bulk through the gate into the rocket yard. "I'm going to use your rocket, Briggs."

"You are going to get out of here or be carried out feet first!" Briggs roared. Clifford glanced around the yard. The rocket angled its long gray nose toward the sky, which was just becoming flushed with the pink of dawn. It was indeed a beautiful machine, stream-lined and fully equipped. There were searchlights, mirrors for observation, crawlers to take her about over the hull of the satellite, oxygen tanks, and every other contrivance imaginable to assure safety and comfort. Of course, first glance did not reveal all that, much of it he discovered a few minutes later. But a glance did reveal that Briggs had made a perfect passenger rocket.

The door of the rocket chamber was ajar, whether Briggs had just left it, or it was open accidentally, he did not know. The switch which would fire the rocket at the next passage of the ship was also open.

Clifford glanced at his watch. Only three minutes to wait!

He shot a right uppercut into Briggs' jaw and behind that swing he put the hard hitting vim of his hundred and seventy-five pounds. It took Briggs by complete surprise and sent him grabbing at the gravel.

Clifford hurdled across the yard and closed the contact switch, then climbed into the rocket chamber and whirled down the levers which closed the door.

He glanced again at his watch as Briggs got to his feet. A full minute before contact. Briggs shook back his disordered hair and looked groggily around. He apparently noticed the closed rocket switch and ran for it, but Crystal threw herself upon him and circled his waist with her arms.

CLIFFORD knew that contact was at hand and tightened down the levers. It was a fifty-fifty chance whether Briggs would make the switch before the ship passed and the rocket was automatically fired.

Briggs came on dragging the girl, but badly hampered. Briggs turned on her and struck her in the face. Time was up. Clifford's blood boiled but he couldn't leave then, not even to help the girl. Contact was at hand. He got one more glimpse of Briggs. A short, bullnose pistol was in his hand and though Clifford heard no report inside that tight tube, he did see a whiff of thin blue smoke and noticed the revolver was not aimed at him nor the girl, but at the chronometer which closed the contact, and that was all he saw for he was catapulted upward toward the sky.

"Too late, you fool," Clifford thought as he felt the rocket rising with increasing speed, vaulting him up, up, up, out of the garden, out of the world, leaving the earth shrinking like a dwindling landscape far, far below.

Launched into strange and unknown dangers, he had no thought of them, but was wondering about the two he had left so far below in the rocket yard.

Five minutes passed. He waited anxiously for the banging contact with the steel hull of the satellite. Ten minutes passed and nothing at all, not the slightest noise.

Impossible! What had happened? Had he actually touched the vessel and there been no noise due to vacuum of space? He knew there could be no noise outside the tube for there was no air to carry sound, but inside the air should have carried it to him.

Another minute went by. He looked out the port hole again and again. He could see nothing. Had Briggs overheard his talk with the girl and changed the chronometer to send him out before the ship passed? Was he lost in the infinite stretches of space?

The observing mirrors were folded back into the niches of the rocket hull to protect them from the burning air on the trip up. He knew that he was then far above the friction of air and he decided to use them to try get a glimpse of the earth. He worked them out and found there was no friction against them at all. He did not even seem to be moving. He felt as though he were suspended in space without motion or direction. He felt as fixed as though he were anchored to the solid earth, and yet he knew he could have hardly lost the furious velocity he had gained.

His mirrors caught the earth, far below. He must have already have travelled around it for a long ways, for the landscape seemed whirling backward dizzily as though he looked down from the window of a speeding plane. Twirling his mirrors about for new angles, he realized that he was caught in an orbit all his own and was one of the two earth beings out in space beyond human help. The great gulf of space spread about him and the tawny world below seemed exotic and bare, swept now and then by a curtain of cloud bank and again caught in the shining splendor of the blazing sun.

With a feeling of resignation he turned his mirrors hopelessly. He caught something else in the glass! The space ship! Briggs could not have changed the chronometer after all! Why the sixteenth of a second would account for that quarter of a mile miss. It must have been that shot Briggs gave the chronometer which had done the trick. The bullet must have closed the contact just the fraction before the ship was due, for he was ahead of the ship!

He gazed pop-eyed at the long gray thing, seemingly at rest with its head pointed toward him. It was only a quarter of a mile away, and yet it might as well have been a thousand miles.

He wondered if he could devise some way to slow up so that the ship might overtake him, but he knew that in space nothing would offer the least brake to his speed. The mirror caught the blazing sun against a black sky totally devoid of stars. A mystic, unreal sun, a weird uncanny sky, and he was alone with only a thermos bottle of coffee!

CHAPTER VII

Still Alive!

WHAT could he do? Absolutely nothing. His problem as great as that of rescuing Rothberg. He thought of releasing part of the gases in the head of the rocket and taking the risk of them projecting him back to earth, but that would be too cowardly. How could he face Crystal after his failure?

Then he found a new puzzle. Why was the sun in the glass? Was he falling? Something certainly had happened to alter his course.

He looked for the satellite, but it was nowhere to be seen. That was queer! He had not changed the levers which moved the mirrors. He worked the mirror about and again caught a view of the ship. He drew his free hand across his forehead. Was he going daft? Was there some fluid in those upper regions to which steel was permeable and which had affected his brain so that he was seeing things? The magnets in the nose of the rocket were full on, and yet the heavy steel base was pointing toward the satellite. Not only that but the ship was between him and the earth! No—it was coming up, moving around him in a circle, and the butt of the rocket followed it like a compass needle!

The ship rose and eclipsed the sun. Then it occurred to him that the truth was the satellite was still and the rocket was circling it, for he remembered that there would be an attraction between two bodies moving freely in space, and that the smaller body would form a satellite of the larger. And yet, those strong magnets in the head of the rocket did not seem to take hold of the ship at the distance of a quarter of a mile, although they were the most powerful magnets that had ever been made.

Around and around the ship he went like the little rubber ball he had swung around his head that night at the board meeting—like one of the carriage of an invisible ferris wheel with its hub at the ship. He felt as though he were floating in oceans of air. What little gravity he felt was directed toward the steel mass at the base of his tube and not toward the earth at all!

But he had little time to wonder at the new laws which had control of him. He was in the most desperate situation imaginable; one that was entirely foreign to human experience and he would have to do some bold, pioneer thinking if he were to extricate himself.

Gazing out the window of his little room he decided to take a long chance, really the only one possible. He pulled the switch which discharged the gases in the head of his rocket. The butt of the rocket pointed directly toward the ship, and Clifford knew a little gas might do no good at all, and too might send him ricocheting far beyond the pull of the ship and make his position even worse—if such a thing were possible. In truth though he did not expect anything to happen at all.

He released a fraction of the gas in the nose of the rocket. To his surprise he went winging across the quarter of a mile and he cut his gas immediately. Before he hardly knew what happened, his rocket swapped ends, the magnets caught the pull of the steel ship and with a resounding jar he made contact head on as neatly as he could have wished.

Even in his joy at having retrieved himself from a hopeless situation he thought with a great deal of interest of the mechanism of the rocket that permitted it to move through the vacuity of space. Surely there was

no atmosphere where he was, for the friction of it would have started him in a spiral descent toward the earth. Then what law caused the change of velocity and enabled him to make contact?

He pondered over the thing as he moved his crawlers this way and that, working back and forth over the huge hull, in his search for the porthole.

DEEPLY engrossed with this problem, for the scientific trend of his nature was always alert, one of his mirrors discovered the porthole and he worked his rocket over near it.

The glass was opaque with frost which had gathered inside the ship. He extended one of the mirrors so that it tapped on the glass. He waited and tapped again.

Was Rothberg dead? Was he all alone beyond the barriers which divided life to earth?

Sad and discouraged he waited and tapped again. Then he gasped with joy. Something was rubbing away at the frost on the glass! Rothberg must be alive!

He watched breathlessly as a place was cleaned and the drawn face of the old man pressed against the glass. There seemed to be a hopeless bravery in the haggard features as the gray old eyes searched about to seek the cause of that noise out in the cosmos. Rothberg's eyes opened with a start. Hope leaped into them. Every feature portrayed the fight for control he made as he took in the rocket and then Clifford himself.

Before Clifford could send any kind of a signal Rothberg left the porthole and soon he returned with an empty pitcher which he turned upside down and motioned to his throat indicating it was choked and dry. Clifford noticed that he was gasping. The ship was big and had contained a good many cubic feet of air, but it was plain that Rothberg now had little of it left to breathe. Briggs most certainly had lied about his invention to rinse carbon from respired air. Rothberg must have help soon or there would be no need of it at all.

Even as Rothberg stared at him hope seemed to fade from the kindly old face. He was no mean scientist and certainly knew what insurmountable difficulties to his rescue. Clifford motioned that he must return better equipped before he could hope to do anything.

The old eyes smiled encouragement but the chin sagged a little and then drew up tight and firm. Plainly Rothberg believed he would never come out alive. Yet, what could Clifford do to encourage him? The immutable laws which confined life to the earth were all against him. Try as he would he could think of no plan to enter the ship without exposing both of them to certain death.

He glanced at his chronometer. The loss in not making direct contact had eaten heavily into his time and he was nearly back around the earth again. Time to kick off was at hand. He indicated with motions that he would soon be back, and Rothberg took his finger and wrote on a portion of the frosted glass:

"Tell Crystal BB—"

The sentence was but started. Whatever he wrote or intended to write, Clifford could not know, for contact came and the gases discharged. He was shot away. In a few seconds he found himself floating downward as the blades of his helicopter caught the rare upper air and began to race furiously above the tube.

He had been but a few seconds going up. It took him an hour to come down. Telescopes on the earth's surface must have picked up his descent, for there were ten thousand people gathered around the

farmstead near the outskirts of town, when he landed. He opened the door and staggered out of the rocket. Then thousand voices and auto horns drove him deaf with their raucous noise.

The Solution At Last!

HE paid no attention to the insistent reporters who trailed him. All he wanted was a phone to find out what had happened in the rocket yard after he had left. Among all that sea of faces about him was none he felt he could ask such a personal question. He hailed a car and the man inside seemed glad to be of service. Clifford asked to be driven at once to the munition works which was only a mile away. They went into seventy by the time they were on the highway.

At the works he got hold of Crystal and was much relieved when she answered the phone.

"Mrs. Briggs," he said and found it hard to get used to the fact that she was BB's wife, "I have good news for you."

"Tell me," she begged, "Is he alive?" "Yes, he is alive, but his condition is desperate. Your—I mean there were no provisions made for oxygen or water. I don't know about food."

"Could you speak with him at all?"

"No, but I saw him plainly at the port hole. He seemed brave but rather discouraged. I don't think he has much hope."

"Have you," she begged, "Did you find anything to give hope?"

"Not up there," he replied and wondered whether he should tell her the truth, "There is no way I can think of to transfer him to a rocket while the ship is aloft. We must bring her down."

"But you said it couldn't be brought down! That it was like death! You told BB that and it's true!"

"Listen a minute," he insisted, "I forgot one thing when I told Briggs that."

"What?" she cried eagerly.

"That the ship was of steel. We'll have to build magnets."

"Magnets?"

"Yes, powerful enough to hinder the ship at every revolution so that its speed may be checked enough to bring it under the influence of the earth's gravity."

"But that would crush him!"

"No, get hold of Blair and the rest of the Board. It will take close calculations, but the ship can be brought down in a spiral which will increase as it meets the friction of heavier and heavier layers of air. Blair can calculate where to place our magnets so as to let her drop in the sea outside the harbor. She is hollow and will rise and we can get him out."

"Oh God!" she said earnestly, "I hope you are right."

He hung up and went back to the plant.

In an hour Gertz, Played, Rails, and Blair were there and a few minutes later Crystal and Briggs came into the dingy room used as an office.

Briggs regarded Clifford with the eyes of a wary cat. There was a hint of suppressed ferocity in his manner, and an excited curiosity in his gaze, but he did not ask how Clifford had fared aloft nor what he had learned. In fact he tried to act as though nothing had happened that morning in the rocket yard. Clifford after a look of appraisal gave him no more attention and went over to the group of scientists who had already gathered. Crystal followed him and Briggs remained near the door.

He explained in a few words how he had started work on the largest electro-magnets ever constructed and how he hoped to hamper the speed of the satellite until it would respond to the earth's gravitational influence. He asked Blair to calculate where the magnets would have to be mounted to bring down the ship just off shore in the Atlantic, and asked Gertz to calculate the power necessary to influence the ship.

Gertz listened until Clifford had finished and then he shook his warty little head. Rails echoed that shake by a baffled expression on his lean features.

"Your theory will not work out," Gertz whispered to him so that the girl could not hear.

"Why?" Clifford asked alarmed.

GERTZ lowered one eyelid as though trying to penetrate a deep distance, "I believe you had a fair example of how short a distance the magnetic field will affect in the way your magnets acted in the rocket as you circled the ship. Two hundred miles is entirely too far for the last hope that the use of electro-magnets will bring down the ship."

Clifford dared not look at Crystal. He knew the expression on his face would betray him. But he did not look at Briggs who had pushed into the group to catch what Gertz was saying. Briggs' face was an impersonal mask. If he felt any emotion he did not show it by the slightest change of expression.

"Has anything gone wrong?" Crystal asked as silence seemed to smother the little group.

Clifford ran his fingers through his short cropped hair and made no reply.

To cover their gloom the Scientists discussed electro-magnetism with an air of abstraction which revealed that their minds were on something else.

"What has gone wrong?" Crystal asked again.

"Nothing! Nothing at all!" Clifford shouted nervously above the low buzz of voices.

Every man in the room turned upon him as though they thought his worry had suddenly turned him daft.

"I've got it!" he shouted again and waived a doubled fist. "Listen you men. Find some flaw in this if you can! Rockets are the solution after all! We have dozens of them ready at the laboratory. Fill them with bar magnets to increase their weight and hold on the ship. Fire enough of them to hamper her and bring her down in a spiral until she hits the sea!"

"You've got it!" Gertz beamed, pounding his fist on his knee. "Fire them with no more velocity than just to make contact? They will drag her down. The problem of how many is for Professor Blair!"

Clifford's eyes were glowing as he looked at the girl and then for Briggs, but Briggs had disappeared. Not that anyone cared. BB had been useful in completing the rockets, but now nothing more complicated than bar magnets were needed to do the work.

Daybreak came again and Clifford stood beside the girl as the rockets shrieked upward to meet the ship. They watch through telescopes which had been mounted in the yard.

Clifford turned to the foremen and demanded:

"There are eleven of them. Blair said there should only be ten! Great God you will drown him sure!"

"We fired only ten," the foreman declared stubbornly. "Didn't I count them myself. Every man working counted them. There were only ten."

Clifford drew his lips thin and wondered if he had miscounted. The ship was then past the vision of his telescope and too far away to recount. But one thing was certain, she was coming down swiftly. The halt in her flight and the curvature of her orbit were apparent even though Blair had figured it would take three revolutions to bring it down and it would fall faster when it encountered denser air.

Though six hours remained before they expected the ship to fall, there was an immediate surge for the shore line. Thousands of autos crammed each other and honked for room. They crowded each other and edged for positions as close as possible to the point Professor Blair had picked for the landing.

That extra rocket troubled Clifford no little, though he said no more about it. He got Crystal and a number of close friends aboard a small cutter and pushed off to avoid the mob ashore. Briggs could not be found. Crystal seemed worried but the intense suspense as to the fate of her father must have kept her mind off him to some extent, for she did not mention him in all the six hours she waited—watching the passing of the steel satellite in its narrowing orbit.

Noon came. The summer sun blazed down upon the swelling waves as they came sweeping in from the limitless sea. Thousands upon thousands of people who jammed the shore had been waiting since early morning.

CHAPTER VIII

A Rescue and a Tragedy

THEY milled about raising a ceaseless dust which settled slowly in the calm suffocating heat, and still they held tenaciously to their places near the shore.

Little boats and large ones ploughed here and there seeking a point of vantage back of the long watery lane governed by government cutters.

Someone shouted: "There it comes!"

The shout was taken up and tossed from man to man. Heads craned and all eyes strained toward the east. The wave of humanity on shore surged forward. There were cries, the shouting of officers and shouting of the eager, curious mass they sought to hold in check. Ten thousand hands shaded ten

thousand upturned eyes from the glare of the high noonday sun.

A huge monoplane swept in from the sea bringing passengers from down coast to witness the most marvelous landing in the history of men. And when the mob saw the new comer was no more than a huge plane, it wailed in disappointment; but did not retreat in the slightest.

Minutes passed. The sultry heat seemed almost unbearable. The rails of the cutter were like furnace rods fresh from the fire. Clifford shielded Crystal with her lavender parasol, taking the sun himself.

And then from out the horizon sped a long gray shape, silent as an oncoming hawk. It was not riding high as had been expected, but hugging the sea. Even as they watched it spanked the water and sent a long silver veil of spray sparkling into the sun.

Crystal caught her hands together and stood petrified unable to bring her glasses to her eyes for a better view. Clifford felt a thrill not wholly accounted for by the success of the rescue. Something historic was taking place, something which held a marvelous prophecy—that some day this miracle should become an hourly occurrence and earth folks would ride in from the cosmos to land with exactness at every port of the world.

The ship came speeding on, skipping upon the water, like a flat rock tossed across the surface of a pond. She dove and Stortz groaned and leaned far over the rail. She rose, her wet steel glistening in the sunlight and still Crystal made not the slightest move.

A mile away Clifford saw that something was riding her back. He brought his forgotten glasses to his eyes. It was a rocket! One that seemed strangely familiar even at that distance. It looked like the one that Briggs had made for the rescue flight. There were eleven after all! Briggs must have fired the other one in hopes of sinking the ship.

"Good God!" Clifford breathed and the girl turned about and found her voice at last.

"Is he dead?" she screamed, "Is he dead?"

Clifford shook his head, but his heart sank for he felt that it would be only a question of minutes now. That eleventh rocket was dragging down the ship. It was diving again! Plowing deep and then wallowing back to the surface like a wounded sea beast.

Clifford turned to the captain of the cutter. "Have you a rifle on board?"

"Why, yes," the captain answered plainly puzzled.

"Have one brought to me at once, sir. It may save the satellite."

The Captain barked an order. Clifford looked again at the satellite wallowing along, half under water.

"Get to as quick as you can, Captain," he begged.

The Captain shouted an order and the cutter got under way.

The satellite was still moving swiftly, but losing its speed like a passenger train drawing into a station. Someone handed Clifford a rifle. He took it and did not look around, his eyes still upon the satellite.

"What are you going to do?" Crystal cried.

"Briggs' bullet set off the rocket in the yard. I am hoping mine will shake her loose from the ship."

With a scream of discharging gases, the rocket soared away with such rapidity the eye could hardly follow its long gray shape into the air. But Clifford was not trying to watch its meteorlike flight. He was looking at the satellite. The shock had sent her under again, but before she was swallowed by the sea something long and rigid toppled from the soaring rocket and struck the glistening hull. A man had fallen stiffly from the rocket and as he struck the hull he shattered into a thousand flying ruby crystals which sparkled in the sun. Frozen in the absolute cold of space he had shattered like rotten glass. Clifford thought of the little rubber ball he had dropped into the container of liquid air.

"It's BB!" the girl screamed and covered her eyes with her hands.

Clifford caught her and looked down at the undulating surface of the glittering sea. The satellite was nowhere to be seen.

For a moment not a sound came from sea or deck, except the lapping of waves and the throb of engines. Clifford still held Crystal and felt her shaken with despair. He did not know how to comfort her. All that he could do was to stand stiffly and think.

Suddenly he heard another bark of orders. A running of hurried feet across deck. The confused shouting and reshouting of orders.

Boats were being lowered! Why?

He looked again down at the sea and saw a feeble churning of the water near the place where the satellite had gone down. A head came above the ways and then sank from sight.

Rothberg! He must have broken the porthole glass and come up as the ship sank.

A week later Rothberg was about again. He beamed at Clifford as he came into the room. Crystal was standing beside his chair watching Clifford with a new admiration in her eyes.

"There is one thing that puzzles me," Clifford said, "And that is what killed Briggs? What was he doing up there anyway?"

Rothberg's mouth drew firm and Crystal looked at the pattern of a rich rug which was spread across the floor.

"The answer is very simple," Rothberg answered after a pause. "I saw him make contact and watched him through the porthole. He opened the door of the rocket and it seemed his chest literally blew open like a rotten tire under too much pressure. He had a sledge hammer in his hand and I took it he planned to break the porthole glass. No doubt he would have succeeded but he overlooked the fact that the pressure of air inside his lungs was fifteen pounds to the square inch. He had on some kind of a jacket to protect him from the cold, but the explosion blew it wide open."

Rothberg shook his shoulders as though ridding himself of what had occurred up there, then he said confidently:

"We're going it for satellites right this time, my boy. Fit them for passengers as well as mail. It's a big thing that we have circled the earth in two hours, but eventually we may run an air line between here and Venus. You know the main problem of interplanetary flight has been that of landing the ship, and now we have solved that!"

He put his large veined hands upon the girl. "Crystal, little soldier, get out and let us get to work."

She turned and left them reluctantly. Clifford watched her until she reached the door. She turned and though neither said a word, a glance between them held a promise that all would turn out right.

THE END

What Is Your Knowledge Of Science?

Test Yourself By This Questionnaire

1. What velocity does the earth have in its orbit? What velocity must a body have to escape from the sun, at the distance of the earth? (Page 777)
2. What speed of ejected gases did Dr. Goddard get in his rocket experiments? (Page 778)
3. What is the atomic weight of iron? (Page 822)
4. What is the name given to the ends of our nerves? To what may our nervous system be likened? Why? (Page 849)
5. What is the chemical composition of quartz? (Page 859)
6. What are the conditions necessary for life Similar to ours on any planet? (Page 863)
7. What advantages does the moon possess over the earth for astronomical observations? (Page 864)
8. In what part of the solar system is Ganymede? What are some of its characteristics? (Page 867)
9. What are the most important of the endocrine glands? What are their functions? (Page 837)
10. Where is the pituitary gland located? (Page 838)