

TEEN-AGE
SUPER
SCIENCE
STORIES

RICHARD M.
ELAM

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STORIES

5527



By RICHARD M. ELAM

Author of TEEN-AGE SCIENCE FICTION STORIES

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TEEN-AGE
SUPER SCIENCE
STORIES

By RICHARD M. ELAM, Jr.

Illustrated by FRANK E. VAUGHN

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THE FIRST MAN INTO SPACE

Cadet Marshall Farnsworth woke from a nightmare of exploding novae and fouling rockets. After recovering from his fright, he laughed contemptuously at himself. “Here I was picked as the most stable of a group of two hundred cadets,” he thought, “and chosen to make man’s first trip into space, yet I’m shaking like a leaf.”

He got out of bed and went over to the window. From his father’s temporary apartment, he could see distant Skyharbor, the scene of the plunge into space tomorrow night. He had been awarded the frightening honor of making that trip.

As he watched teardrop cars whip along Phoenix, Arizona’s, double-decked streets, elevated over one another to avoid dangerous intersections and delaying stop lights, he thought back over the years; to the 1950’s, when mice and monkeys were sent up in Vikings to launch mankind’s first probing of the mysterious space beyond Earth, and the first satellites were launched; to the 1960’s, when huger, multiple-stage rockets finally conquered the problem of escape velocity; to 1975—today—when man was finally ready to send one of his own kind into the uninhabited deeps.

Marsh climbed back into bed, but sleep would not come.

In the adjoining room, he could hear the footsteps of mother and father. By their sound he knew they were the footsteps of worried people. This hurt Marsh more than his own uneasiness.

The anxiety had begun for them, he knew, when he had first signed up for space-cadet training. They had known there was an extremely high percentage of washouts, and after each test he passed, they had pretended to be glad. But Marsh knew that inwardly they had hoped he would fail, for they were aware of the ultimate goal that the space scientists were working for—the goal that had just now been reached.

Marsh finally fell into a troubled sleep that lasted until morning.

He woke early, before the alarm rang. He got up, showered, pulled on his blue-corded cadet uniform, and tugged on the polished gray boots. He took one final look around his room as though in farewell, then went out to the kitchen.

His folks were up ahead of time too, trying to act as though it were just another day. Dad was pretending to enjoy his morning paper, nodding only casually to Marsh as he came in. Mom was stirring scrambled eggs in the skillet, but she wasn't a very good actor, Marsh noticed, for she furtively wiped her eyes with her free hand.

The eggs were cooked too hard and the toast had to be scraped, but no one seemed to care. The three of them sat down at the table, still speaking in monosyllables and of unimportant things. They made a pretense of eating.

"Well, Mom," Dad suddenly said with a forced jollity that was intended to break the tension, "the Farnsworth family has finally got a celebrity in it."

"I don't see why they don't send an older man!" Mom burst out, as though she had been holding it in as long as she could. "Sending a boy who isn't even twenty-two—"

"Things are different nowadays, Mom," Dad explained, still with the assumed calmness that masked his real feelings.

“These days, men grow up faster and mature quicker. They’re stronger and more alert than older men—” His voice trailed off as if he were unable to convince himself.

“*Somebody* has to go,” Marsh said. “Why not a younger man without family and responsibility? That’s why they’re giving younger men more opportunities today than they used to.”

“It’s not younger men I’m talking about!” Mom blurted. “It’s you, Marsh!”

Dad leaned over and patted Mom on the shoulder. “Now, Ruth, we promised not to get excited this morning.”

“I’m sorry,” Mom said weakly. “But Marsh is too young to —” She caught herself and put her hand over her mouth.

“Stop talking like that!” Dad said. “Marsh is coming back. There’ve been thousands of rockets sent aloft. The space engineers have made sure that every bug has been ironed out before risking a man’s life. Why, that rocket which Marsh is going up in is as safe as our auto in the garage, isn’t it, Marsh?”

“I hope so, Dad,” Marsh murmured.

Later, as Dad drove Marsh to the field, each brooded silently. Every scene along the way seemed to take on a new look for Marsh. He saw things that he had never noticed before. It was an uncomfortable feeling, almost as if he were seeing these things for the last as well as the first time.

Finally the airport came into view. The guards at the gate recognized Marsh and ushered the Farnsworth car through ahead of scores of others that crowded the entrance. Some

eager news photographers slipped up close and shot off flash bulbs in Marsh's eyes.

Skyharbor, once a small commercial field, had been taken over by the Air Force in recent years and converted into the largest rocket experimental center in the United States.

Dad drove up to the building that would be the scene of Marsh's first exhaustive tests and briefings. He stopped the car, and Marsh jumped out. Their good-bye was brief. Marsh saw his father's mouth quiver. There was a tightness in his own throat. He had gone through any number of grueling tests to prove that he could take the rigors of space, but not one of them had prepared him for the hardest moments of parting.

When Dad had driven off, Marsh reported first to the psychiatrist who checked his condition.

"Pulse fast, a rise in blood pressure," he said. "You're excited, aren't you, son?"

"Yes, sir," Marsh admitted. "Maybe they've got the wrong man, sir. I might fail them."

The doctor grinned. "They don't have the wrong man," he said. "They might have, with a so-called iron-nerved fellow. He could contain his tension and fears until later, until maybe the moment of blast-off. Then he'd let go, and when he needed his calmest judgment he wouldn't have it. No, Marshall, there isn't a man alive who could make this history-making flight without some anxiety. Forget it. You'll feel better as the day goes on. I'll see you once more before the blast-off."

Marsh felt more at ease already. He went on to the space surgeon, was given a complete physical examination, and was pronounced in perfect condition. Then began his review briefing on everything he would encounter during the flight.

Blast-off time was for 2230, an hour and a half before midnight. Since at night, in the Western Hemisphere, Earth was masking the sun, the complications of excessive temperatures in the outer reaches were avoided during the time Marsh would be outside the ship. Marsh would occupy the small upper third section of a three-stage rocket. The first two parts would be jettisoned after reaching their peak velocities. Top speed of the third stage would carry Marsh into a perpetual-flight orbit around Earth, along the route that a permanent space station was to be built after the results of the flight were studied. After spending a little while in this orbit, Marsh would begin the precarious journey back to Earth, in gliding flight.

He got a few hours of sleep after sunset. When an officer shook him, he rose from the cot he had been lying on in a private room of General Forsythe, Chief of Space Operations.

"It's almost time, son," the officer said. "Your CO wants to see you in the outside office."

Marsh went into the adjoining room and found his cadet chief awaiting him. The youth detected an unusual warmth about the severe gentleman who previously had shown only a firm, uncompromising attitude. Colonel Tregasker was past middle age, and his white, sparse hair was smoothed down close to his head in regulation neatness.

"Well, this is it, Marshall," the colonel said. "How I envy you this honor of being the first human to enter space. However, I do feel that a part of me is going along too, since I had a small share in preparing you for the trip. If the training was harsh at times, I believe that shortly you will understand the reason for it."

"I didn't feel that the Colonel was either too soft or strict, sir," Marsh said diplomatically.

A speaker out on the brilliantly lit field blared loudly in the cool desert night: "X minus forty minutes."

"We can't talk all night, Marshall," the colonel said briskly. "You've got a job to do. But first, a few of your friends want to wish you luck." He called into the anteroom, "You may come in, gentlemen!"

There filed smartly into the room ten youths who had survived the hard prespace course with Marsh and would be his successors in case he failed tonight. They formed a line and shook hands with Marsh. The first was Armen Norton who had gotten sick in the rugged centrifuge at a force of 9 G's, then had rallied to pass the test.

"Good luck, Marsh," he said.

Next was lanky Lawrence Egan who had been certain he would wash out during navigation phase in the planetarium. "All the luck in the world, Marsh," he added.

Each cadet brought back a special memory of his training as they passed before him, wishing him success.

When they had gone and the speaker outside had announced: "X minus thirty minutes," the colonel said that he and Marsh had better be leaving. Colonel Tregasker was to be Marsh's escort to the ship.

Photographers and newspapermen swarmed about them as they climbed into the jeep that was to take them to the launching site farther out on the field. Questions were flung at the two from all sides, but the colonel deftly maneuvered the jeep through the mob and sped off over the asphalt.

At the blast-off site, Marsh could see that the police had their hands full keeping out thousands of spectators who were trying to get into the closed-off area. The field was choked

with a tide of humanity milling about in wild confusion. Giant searchlights, both at the airport and in other parts of Phoenix, directed spears of light on the towering rocket that held the interest of all the world tonight. There was one light, far larger than the rest, with powerful condensing lenses and connected to a giant radar screen, which would guide Marsh home from his trip among the stars.

A high wire fence surrounded the launching ramp and blockhouses. International scientists and dignitaries with priorities formed a ring around the fence, but even they were not allowed inside the small circle of important activity. The guards waved the colonel and Marsh through the gate.

Marsh had spent many weeks in a mock-up of the tiny third stage in which he was to spend his time aloft, but he had never been close to the completely assembled ship until this moment. The three stages had been nicknamed, “Tom,” “Dick,” and “Harry.” Marsh swallowed as his eyes roved up the side of the great vessel, part of a project that had cost millions to perfect and was as high as a four-story building.

The gigantic base, “Big Tom,” was the section that would have the hardest job to do, that of thrusting the rocket through the densest part of the atmosphere, and this was a great deal larger than the other sections. Marsh knew that most of the ship’s bulk was made up of the propellant fuel of hydrazine hydrate and its oxidizer, nitric acid.

“We’re going into that blockhouse over there,” Colonel Tregasker said. “You’ll don your space gear in there.”

First a multitude of gadgets with wires were fastened to the cadet’s wrists, ankles, nose, and head. Marsh knew this to be one of the most important phases of the flight—to find out a man’s reaction to space flight under actual rocketing conditions. Each wire would telemeter certain information by radio back to the airport. After a tight inner G suit had been

put on to prevent blackout, the plastic and rubber outer garment was zipped up around Marsh, and then he was ready except for his helmet, which would not be donned until later.

Marsh and the colonel went back outside. The open-cage elevator was lowered from the top of the big latticed platform that surrounded the rocket. The two got into the cage, and it rose with them. Marsh had lost most of his anxiety and tension during the activities of the day, but his knees felt rubbery in these final moments as the elevator carried him high above the noisy confusion of the airport. *This was it.*

As they stepped from the cage onto the platform of the third stage, Marsh heard the speaker below call out: “X minus twenty minutes.”

There were eleven engineers and workmen on the platform readying the compartment that Marsh would occupy. Marsh suddenly felt helpless and alone as he faced the small chamber that might very well be his death cell. Its intricate dials and wires were staggering in their complexity.

Marsh turned and shook hands with Colonel Tregasker. “Good-bye, sir,” he said in a quavering voice. “I hope I remember everything the Corps taught me.” He tried to smile, but his facial muscles twitched uncontrollably.

“Good luck, son—lots of it,” the officer said huskily. Suddenly he leaned forward and embraced the youth with a firm, fatherly hug. “This is not regulations,” he mumbled gruffly, “but hang regulations!” He turned quickly and asked to be carried down to the ground.

A man brought Marsh’s helmet and placed it over his head, then clamped it to the suit. Knobs on the suit were twisted, and Marsh felt a warm, pressurized helium-oxygen mixture fill his suit and headpiece.

Marsh stepped through the hatch into the small compartment. He reclined in the soft contour chair, and the straps were fastened by one of the engineers over his chest, waist, and legs. The wires connected to various parts of his body had been brought together into a single unit in the helmet. A wire cable leading from the panel was plugged into the outside of the helmet to complete the circuit.

Final tests were run off to make sure everything was in proper working order, including the two-way short-wave radio that would have to penetrate the electrical ocean of the ionosphere. Then the double-hatch air lock was closed. Through his helmet receiver, Marsh could hear the final minutes and seconds being called off from inside the blockhouse.

“Everything O.K.?” Marsh was asked by someone on the platform.

“Yes, sir,” Marsh replied.

“Then you’re on your own,” were the final ominous words.

“X minus five minutes,” called the speaker.

It was the longest five minutes that Marsh could remember. He was painfully aware of his cramped quarters. He thought of the tons of explosive beneath him that presently would literally blow him sky-high. And he thought of the millions of people the world over who, at this moment, were hovering at radios and TV’s anxiously awaiting the dawn of the space age. Finally he thought of Dad and Mom, lost in that multitude of night watchers, and among the few who were not primarily concerned with the scientific aspect of the experiment. He wondered if he would ever see them again.

“X minus sixty seconds!”

Marsh knew that a warning flare was being sent up, to be followed by a whistle and a cloud of smoke from one of the blockhouses. As he felt fear trying to master him, he began reviewing all the things he must remember and, above all, what to do in an emergency.

“X minus ten seconds—five—four—three—two—one—FIRE!”

There was a mighty explosion at Skyharbor.

The initial jolt which Marsh felt was much fiercer than the gradually built up speed of the whirling centrifuge in training. He was crushed deeply into his contour chair. It felt as though someone were pressing on his eyeballs; indeed, as if every organ in his body were clinging to his backbone. But these first moments would be the worst. A gauge showed a force of 7 G's on him—equal to half a ton.

He watched the Mach numbers rise on the dial in front of his eyes on an overhead panel. Each Mach number represented that much times the speed of sound, 1,090 feet per second, 740 miles an hour.

Marsh knew “Big Tom” would blast for about a minute and a half under control of the automatic pilot, at which time it would drop free at an altitude of twenty-five miles and sink Earthward in a metal mesh 'chute.

Marsh's hurting eyes flicked to the outside temperature gauge. It was on a steady 67 degrees below zero Fahrenheit, and would be until he reached twenty miles. A reflecting prism gave him a square of view of the sky outside. The clear deep blue of the cloud-free stratosphere met his eyes.

Mach 5, Mach 6, Mach 7 passed very quickly. He heard a rumble and felt a jerk. “Big Tom” was breaking free. The first

hurdle had been successfully overcome, and the ship had already begun tilting into its trajectory.

There was a new surge of agony on his body as the second stage picked up the acceleration at a force of 7 G's again. Marsh clamped his jaws as the force pulled his lips back from his teeth and dragged his cheek muscles down. The Mach numbers continued to rise—11, 12, 13—to altitude 200 miles, the outer fringe of the earth's atmosphere. There was a slight lifting of the pressure on his body. The rocket was still in the stratosphere, but the sky was getting purple.

Mach 14—10,000 miles an hour.

"Dick" would jettison any moment. Marsh had been aloft only about four minutes, but it had seemed an age, every tortured second of it.

There was another rumble as the second stage broke free. Marsh felt a new surge directly beneath him as his own occupied section, "Harry," began blasting. It was comforting to realize he had successfully weathered those tons of exploding hydrazine and acid that could have reduced him to nothing if something had gone wrong. Although his speed was still building up, the weight on him began to ease steadily as his body's inertia finally yielded to the sickeningly swift acceleration.

The speedometer needle climbed to Mach 21, the peak velocity of the rocket, 16,000 miles per hour. His altitude was 350 miles—man's highest ascent. Slowly then, the speedometer began to drop back. Marsh heard the turbo pumps and jets go silent as the "lift" fuel was spent and rocket "Harry" began its free-flight orbit around Earth.

The ship had reached a speed which exactly counterbalanced the pull of gravity, and it could, theoretically, travel this way forever, provided no other outside force acted upon it. The

effect on Marsh now was as if he had stopped moving. Relieved of the viselike pressure, his stomach and chest for a few seconds felt like inflated balloons.

“Cadet Farnsworth,” the voice of General Forsythe spoke into his helmet receiver, “are you all right?”

“Yes, sir,” Marsh replied. “That is, I think so.”

It was good to hear a human voice again, something to hold onto in this crazy unreal world into which he had been hurtled.

“We’re getting the electronic readings from your gauges O.K.,” the voice went on. “The doctor says your pulse is satisfactory under the circumstances.”

It was queer having your pulse read from 350 miles up in the air.

Marsh realized, of course, that he was not truly in the “air.” A glance at his air-pressure gauge confirmed this. He was virtually in a vacuum. The temperature and wind velocity outside might have astounded him if he were not prepared for the readings. The heat was over 2000 degrees Fahrenheit, and the wind velocity was of hurricane force! But these figures meant nothing because of the sparseness of air molecules. Temperature and wind applied only to the individual particles, which were thousands of feet apart.

“How is your cosmic-ray count?” asked the general.

Marsh checked the C-ray counter on the panel from which clicking sounds were coming. “It’s low, sir. Nothing to worry about.”

Cosmic rays, the most powerful emanations known, were the only radiation in space that could not be protected against.

But in small doses they had been found not to be dangerous.

“As soon as our recorders get more of the figures your telemeter is giving us,” the operations chief said, “you can leave the rocket.”

When Marsh got the O.K. a few minutes later, he eagerly unstrapped the belts around his body. He could hardly contain his excitement at being the first person to view the globe of Earth from space. As he struggled to his feet, the lightness of zero gravity made him momentarily giddy, and it took some minutes for him to adjust to the terribly strange sensation.

He had disconnected the cable leading from his helmet to the ship's transmitter and switched on the ship's fast-lens movie camera that would photograph the area covered by “Harry.” Then he was ready to go outside. He pressed a button on the wall, and the first air-lock hatch opened. He floated into the narrow alcove and closed the door in the cramped chamber behind him. He watched a gauge, and when it showed normal pressure and temperature again, he opened the outside hatch, closing it behind him. Had Marsh permitted the vacuum of space to contact the interior of the ship's quarters, delicate instruments would have been ruined by the sudden decompression and loss of heat. Marsh fastened his safety line to the ship so that there was no chance of his becoming separated from it.

Then he looked “downward,” to experience the thrill of his life. Like a gigantic relief map, the panorama of Earth stretched across his vision. A downy blanket of gray atmosphere spread over the whole of it, and patches of clouds were seen floating like phantom shapes beneath the clear vastness of the stratosphere. It was a stunning sight for Marsh, seeing the pinpoint lights of the night cities extending from horizon to horizon. It gave him an exhilarating feeling of being a king over it all.

Earth appeared to be rotating, but Marsh knew it was largely his own and the rocket's fast speed that was responsible for the illusion. As he hung in this region of the exosphere, he was thankful for his cadet training in zero gravity. A special machine, developed only in recent years, simulated the weightlessness of space and trained the cadets for endurance in such artificial conditions.

"Describe some of the things you see, Marshall," General Forsythe said over Marsh's helmet receiver. "I've just cut in a recorder."

"It's a scene almost beyond description, sir," Marsh said into the helmet mike. "The sky is thickly powdered with stars. The Milky Way is very distinct, and I can make out lots of fuzzy spots that must be star clusters and nebulae and comets. Mars is like an extremely bright taillight, and the moon is so strong it hurts my eyes as much as the direct sun does on earth."

Marsh saw a faintly luminous blur pass beyond the ship. It had been almost too sudden to catch. He believed it to be a meteor diving Earthward at a speed around forty-five miles a second. He reported this to the general.

As he brought his eyes down from the more distant fixtures of space to those closer by on Earth, a strange thing happened. He was suddenly seized with a fear of falling, although his zero-gravity training had been intended to prepare him against this very thing. A cold sweat came out over his body, and an uncontrollable panic threatened to take hold of him.

He made a sudden movement as though to catch himself. Forgetting the magnification of motion in frictionless space and his own weightlessness, he was shot quickly to the end of his safety line like a cracked whip. His body jerked at the taut end and then sped swiftly back in reaction toward the ship, head foremost. A collision could crack his helmet, exposing

his body to decompression, causing him to swell like a balloon and finally explode.

In the grip of numbing fear, only at the last moment did he have the presence of mind to flip his body in a half-cartwheel and bring his boots up in front of him for protection. His feet bumped against the rocket's side, and the motion sent him hurtling back out to the end of the safety line again. This back-and-forth action occurred several times before he could stop completely.

"I've got to be careful," he panted to himself, as he thought of how close his space career had come to being ended scarcely before it had begun.

General Forsythe cut in with great concern, wondering what had happened. When Marsh had explained and the general seemed satisfied that Marsh had recovered himself, he had Marsh go on with his description.

His senseless fear having gone now, Marsh looked down calmly, entranced as the features of the United States passed below his gaze. He named the cities he could identify, also the mountain ranges, lakes, and rivers, explaining just how they looked from 350 miles up. In only a fraction of an hour's time, the rocket had traversed the entire country and was approaching the twinkling phosphorescence of the Atlantic.

Marsh asked if "Tom" and "Dick" had landed safely.

"Tom" landed near Roswell, New Mexico," General Forsythe told him, "and the 'chute of the second section has been reported seen north of Dallas. I think you'd better start back now, Marshall. It'll take us many months to analyze all the information we've gotten. We can't contact you very well on the other side of the world either, and thirdly, I don't want you exposed to the sun's rays outside the atmosphere in the Eastern Hemisphere any longer than can be helped."

Marsh tugged carefully on his safety line and floated slowly back toward the ship. He entered the air lock. Then, inside, he raised the angle of his contour chair to upright position, facing the console of the ship's manual controls for the glide Earthward. He plugged in his telemeter helmet cable and buckled one of the straps across his waist.

Since he was still moving at many thousands of miles an hour, it would be suicide to plunge straight downward. He and the glider would be turned into a meteoric torch. Rather, he would have to spend considerable time soaring in and out of the atmosphere in braking ellipses until he reached much lower speed. Then the Earth's gravitational pull would do the rest.

This was going to be the trickiest part of the operation, and the most dangerous. Where before, Marsh had depended on automatic controls to guide him, now much of the responsibility was on his own judgment. He remembered the many hours he had sweated through to log his flying time. Now he could look back on that period in his training and thank his lucky stars for it.

He took the manual controls and angled into the atmosphere. He carefully watched the AHF dial—the atmospheric heat friction gauge. When he had neared the dangerous incendiary point, with the ship having literally become red-hot, he soared into the frictionless vacuum again. He had to keep this up a long time in order to reduce his devastating speed.

It was something of a shock to him to leave the black midnight of Earth's slumbering side for the brilliant hemisphere where the people of Europe and Asia were going about their daytime tasks. He would have liked to study this other half of the world which he had glimpsed only a few times before in his supersonic test flights, but he knew this would have to wait for future flights.

Finally, after a long time, his velocity was slowed enough so that the tug of gravity was stronger than the rocket's ability to pull up out of the atmosphere. At this point, Marsh cut in "Harry's" forward braking jets to check his falling speed.

"There's something else to worry about," he thought to himself. "Will old Harry hold together or will he fly apart in the crushing atmosphere?"

The directional radio signals from the powerful Skyharbor transmitter were growing stronger as Marsh neared the shores of California. He could see the winking lights of San Diego and Los Angeles, and farther inland the swinging thread that was the beacon at Skyharbor. All planes in his path of flight had been grounded for the past few hours because of the space flight. The only ground light scanning the skies was the gigantic space beacon in Phoenix.

When Marsh reached Arizona, he began spiraling downward over the state to kill the rest of his altitude and air speed. Even now the plane was a hurtling supersonic metal sliver streaking through the night skies like a comet. He topped the snow-capped summits of the towering San Francisco Peaks on the drive southward, and he recognized the sprawling serpent of the Grand Canyon. Then he was in the lower desert regions of moon-splashed sand and cactus. Although the fire-hot temperature of the outer skin had subsided, there had been damage done to the walls and instruments, and possibly to other parts, too. Marsh was worried lest his outside controls might be too warped to give him a good touchdown, if indeed he could get down safely at all.

A few thousand feet up, Marsh lowered his landing gear. Now the only problem left was to land himself and the valuable ship safely inside the narrow parallels of the airstrip. He circled the airport several times as his altitude continued to plummet.

The meter fell rapidly. His braking rocket fuel was gone now. From here on in, he would be on gliding power alone.

“Easy does it, Marshall,” the general said quietly into his ear. “You’re lining up fine. Level it out a little and keep straight with the approach lights. That’s fine. You’re just about in.”

The lights of the airport seeming to rush up at him, Marsh felt a jolt as the wheels touched ground on the west end of the runway. He kept the ship steady as it scurried along the smooth asphalt, losing the last of its once tremendous velocity. The plane hit the restraining wire across the strip and came to a sudden stop, shoving Marsh hard against the single safety belt he wore. Finally, incredibly, the ship was still and he was safe.

He unfastened his strap and removed his space helmet. The heat of the compartment brought the sweat out on his face. He rose on wobbly legs and pressed the buttons to the hatches. The last door flew open to admit the cool, bracing air of Earth which he had wondered if he would ever inhale again.

His aloneness was over then, suddenly and boisterously, as men swarmed over him with congratulations, eager questions, and looks of respect. Reporters’ flash bulbs popped, and he felt like a new Lindbergh as he was pulled down to the ground and mobbed. Finally the police came to his rescue and pushed back the curiosity seekers and newspapermen. Then only three men were allowed through the cordon.

The first to reach him was General Forsythe, who almost seemed to have ridden with him the whole way. He grabbed Marsh’s hand and clapped him on the shoulder. He said briefly, “You’ve launched the age of space travel, Marshall. Congratulations, son. Now go home with your father and get a good night’s rest. We’ll see you tomorrow.”

“Thank you, sir,” Marsh replied.

Colonel Tregasker came forward, and there was moisture visible in the eyes of the cadet officer. "Now that one of my boys has made the first trip into space and fulfilled a career-long dream, I can retire in peace," he murmured. "I'm proud to have been associated with you, Marshall Farnsworth. Congratulations, my boy."

Then Dad had his turn. He stood for a moment in front of his son as though undecided what to do, hat in hand, the night breeze ruffling his hair. Mr. Farnsworth seemed embarrassed by the grandeur of the moment and reluctant to accept a part in one of the greatest accomplishments of modern times.

Marsh moved forward and clasped his shoulders. "I did it, Dad," he said.

"Thank God for bringing you back safely," his father murmured huskily. "Are you ready to go home, son?"

Suddenly Marsh was terribly weary, and he felt as if he could sleep for days. "I am kind of tired," he said. "Let's go home and see Mom."

The people around seemed to realize that this was not their moment. They parted ranks quietly as the father and his son walked through them and got into their car. As they drove off, even the stars and planets seemed to be standing silent and watchful, in respect for the dawn of space travel on the tiny pebble that was Earth.

MYSTERY EYES OVER EARTH

Dr. Myron Lowenthal, gaunt, keen-eyed, and sixty, shuffled over to the receptionist's desk in an office in the Pentagon. Clutched tightly beneath one spidery arm was a worn brief case.

"May I see Mr. Goodnight, miss?" Dr. Lowenthal asked.

"Who shall I say is calling, sir?" the young woman asked mechanically, not looking up.

"Lowenthal."

The young woman's eyes lighted alertly as if the name were of great significance to her. "Of course, Dr. Lowenthal. Mr. Goodnight is expecting you. Go right in."

At the sight of Dr. Lowenthal and his brief case, Mr. Goodnight rose slowly to his feet, his face reflecting deep interest not unmixed with apprehension.

“You—you have finished the translation?” he asked.

Dr. Lowenthal placed the brief case on the desk, and Goodnight’s fingers were far from steady as he opened the case and pulled out top-secret manuscripts.

First he laid aside the sheaf of strange, charred papers, each protected by a cellophane envelope. The sheets were of very thin, amazingly tough material of unknown substance, and they were covered with tiny, neat hieroglyphics. The papers had been found by a farm boy twelve months before in Wickenburg, Arizona, and Dr. Lowenthal, archaeologist and cryptographer, had been all this time trying to decipher the hidden message.

Before reading the translation, Goodnight asked, “Is it your belief that this sheaf of papers was dropped from a flying saucer, as we first thought?”

“Undoubtedly,” Lowenthal replied.

“Is it good—or bad?” Goodnight asked tremulously.

“Perhaps you had better read it, sir, and judge for yourself.”

Mr. Goodnight began reading the manuscript translation:

FROM: Kal-Pota-Tekkala, Observer 13-J07, Group 507.

TO: Grand Council, Federation of the Triple Suns, Planet Ykaa, Takarala Sector GZ-5000-7076, Milky Way Galaxy.

SUBJECT: Planets of Sun 00836-Y, Specifically, Third Takarala Sector GZ-5000-7070.

Planet Called Earth, Charaan Year 37,811.

It is now my tenth year of observation in the planetary group called the solar system. In this brief report I shall review somewhat randomly a few of the things I have witnessed on Earth, only planet of intelligent life in this system and therefore the only world of interest to us in the Federation.

I arrived in the Earth year 1947. (What a youthful civilization this is, but about average in their development as compared to some 28,000 other worlds the Federation has so far observed.) I pride myself on being among the first of us (Group 507) to be detected by Earthmen in recent times. This was, of course, the sighting by one Kenneth Arnold near Mt. Rainier in America, the most advanced country of Earth. Our receivers picked up the newscast of the sighting and translated. Arnold's description of having seen what looked like "saucers" led to our craft being thereafter named "flying saucers."

Soon after this sighting, our receivers told us that nearly all the nations of Earth had taken up the cry of "Saucers! Saucers!" Indeed, the men of Earth must truly have been overwhelmed by the abundance of our craft in the sky at this time when our greatest concentration of observers viewed the planet.

It is hard to realize that many Earth inhabitants still doubt that there are other planets of habitation beside their own in the universe. (This is an opinion formed from reports of news commentators.) Yet how they can close their minds to such a fact, when they know that there are many billions of suns and planets, is beyond my comprehension. Of course, Earth has been an island to itself since the beginning of its civilization,

and since they have not even yet ventured into space, I can understand their skepticism somewhat.

Incidentally, this skepticism of Earthmen is remarkable. Yes, even after the evidence of our heavy concentration of craft in their skies for ten years (at our latest visit), many even now doubt our reality. This is in spite of our near collisions with Earth craft reported by reputable witnesses (especially the Chiles-Whitted episode near Montgomery, Alabama, United States of America). Yet those who do believe in us are very staunch supporters, and I have heard newscasters say there have been some convincing books written on the subject. Some day—when we make contact—all must surely believe.

Earth is a planet of many races and different political groups. Although an effort is being made for co-operation through an organization called United Nations (not to be confused with United States), there is no real, enforceable unity among the countries of Earth. The planet has not even advanced to the point of a common tongue! Without being able to speak the same language, there is too much opportunity for misunderstanding, and this must be one of the causes of the deplorable bloodshed this planet has gone through in its history.

It is good to know that democracy presently seems to hold the balance of power on Earth. The world leader, America, has been a champion of democracy since its colonization by Europeans, and perhaps it has saved Earth from total disaster by intervention on two occasions in recent years.

There is one major threat to the democratic life of Earth. This is the nation of Russia, located in the Eurasian area. Its leaders have taken to the archaic system of totalitarianism. But at the present time the democracies are so strong that Russia appears hesitant to take the path of conquest. Besides this, I believe all realize that Earth cannot stand another world war because of the frightful nuclear weapons that would be

used. In such a war there would be no victor, only losers and world destruction.

If Earth avoids the pitfall of major warfare, I believe she is on the threshold of great things. Even now she is launching satellites into space in the first step toward space travel. The aircraft of Earth are attaining greater speed, height, and maneuverability. They are still slow and awkward, of course, compared to the craft we have, but the engineers are learning, even as we had to do thousands of years ago.

Since Earthmen have still not gone into space, there has been no experimentation on craft utilizing force fields, but after observing our craft for the past ten years, I am sure the scientists have come up with some theories as to how we get about. They are baffled by our motions that seem to defy the laws of physics. They report that no living person can withstand the abrupt turns and acceleration of which we are capable. When they have utilized the cosmic rays of space and understand that a force field will permit a flyer to spin and soar with his craft, without distress of any kind, then they will have unlocked the key to what they believe to be a dark mystery.

Their attempts to overtake us in their jet craft have been laughable. I often wonder what they would do if we should suddenly stop and dare them to approach closer. Should they fire on us, it would undoubtedly fill them with fear and dismay to see their shots bounce harmlessly off our force field.

It is my opinion that the more prosperous races of the planet are not the leaders that they could be. There is much frivolity and lack of emotional discipline about them, and few seem to employ their fullest mental capabilities. Their radio and picture-radio are entirely in the realm of entertainment, and formal education seems to be largely abandoned after an Earthman has passed his school years. Our receivers

constantly pick up, day in and day out, music of definite rhythms which seem to be enjoying current popularity. These melodies survive for only a few weeks, then new ones take their place and are, in turn, played to their deaths. There is a noble class of music that is heard less frequently and usually at late hours. This never seems to lose popularity, for some of our recorded pickups of these long compositions have been compared with recordings made some two hundred years ago by our prior observers, and they are identical.

Regarding the subject of frivolity, there is a deadly “game” being played unceasingly across the pathways of Earth, particularly in prosperous America. Although not really a game, of course, I am reminded of one as I see it going on. Each player is in control of a free vehicle (or “guided missile” as I think of it), and he attempts to survive by avoiding collision with another player. Some are indifferent to the game and drive their cars unexcitedly and with caution. Other players—and there are many of them—appear to enjoy the game very much and drive their “weapons” with reckless haste and seeming indifference to their own safety and the safety of others. Many of these players lose the game, and their remains are carried away systematically. It is very disturbing to see this bloody game going on without end, and I should feel better if America would abandon it in favor of travel of a less dangerous nature. But they seem years away from a truly safe, fully automatic car of our type with the electronic protection shield.

While on the subject of fatality, it is with regret that I heard of the disintegration of Paltaa-Vezek and his craft some days ago. Paltaa and I were boys together barely three hundred (Earth) years ago on the Symphony Lake plantation. We went through sleep-absorption education together for twenty years, and he was my dear friend. Paltaa’s force field collapsed when he was escaping a fleet of Earth craft which were rising into the sky in pursuit. At an acceleration of some 5,000 miles

an hour, his craft collided with air in inertia, and he and his “saucer” were vaporized in a blinding flash and thunderous roar. The radio commentators calmly informed the world that it was merely a large meteor burning itself up in the atmosphere. (The stubborn refusal of Earthmen to accept our existence continually baffles me.)

From what I have heard these radio spokesmen say, Earthmen who believe in us seem to regard us with a sort of awe. They rightly consider us much farther advanced than themselves, but you should hear the outlandish descriptions some have given us. And after the weird appearance they present to us, too!

I have judged the people of Earth to be excitable and unpredictable. Therefore I can understand the Federation’s reluctance to have us make contact. Earthmen undoubtedly regard us as invaders and would treat us as such, although they must realize we have shown no acts of aggression. Nevertheless, there have been a few unfortunate instances that might tend to make them think we are belligerent (namely, the Mantell case in 1948). Kaal-taa-ar, pilot of the involved craft, I understand, has been recalled to Ykaa because of his mistake in permitting an Earth craft to venture into his force field, thereby destroying the alien craft and violating our strict orders to avoid any incidents with Earth craft.

In spite of the obvious risk, it is my greatest anticipation to meet these Earth folk face to face. Our observations have been from afar and therefore lacking much that we could really know about these people. I’m sure there are things they could teach us, and of course there is much that we could do to make happier their own existence. Some day, I know, the Federation will give the word to land on Earth soil. Should I be one of those fortunate ones, I am ready, and if it costs me my life I shall be satisfied to have first enjoyed making

contact with other men who live so many light-years from our own Ykaa.

When will this contact be, my friends?

Today?

Tomorrow?

When?

As he concluded his reading of the report, Mr. Goodnight's eyes reflected the relief he felt.

"It is reassuring, Doctor, isn't it?" he asked, huskily.

"I think so," Dr. Lowenthal replied. "Even with my liberal translation, the nonaggressive attitude comes through continually."

"This is the final proof we needed as to the authenticity of the saucers," Goodnight remarked. "This couldn't possibly be a hoax, could it?"

"Not a chance. The substance of the original paper is completely alien in its composition and manufacture, and the language is undoubtedly the creation of minds farther advanced than our own."

Mr. Goodnight sighed as if a great burden had been lifted from him. "Well, our part in this is closed, Dr. Lowenthal," he said. "It is out of our hands."

"And now?" Lowenthal prompted.

"It is the job of others to determine if the manuscript is to be made public. This thing could be revolutionary in impact, Dr.

Lowenthal. It could change the thinking and living of every person on Earth.”

The scientist nodded in agreement. “You know, Mr. Goodnight,” he said after a meditative pause, “I believe that Kal-Pota-Tekkala would be a rather nice fellow to know. I should really like to meet him.”

“So would I,” Goodnight replied, then added significantly with a sparkle of anticipation in his eyes, “Who knows? Perhaps some day, Doctor, not too distant, we *shall*.”

RACE AROUND THE SUN

Steve Gordon stared out of the forward port of the *Condon Comet*, which was streaking toward the sun. A dense filter protected his eyes from the searing brilliance of the star, looming ever larger by the day and hour as the rocket devoured the miles at a speed never before equaled by a space flyer.

“We’ll whip Dennis easily if we can keep up this pace!” exclaimed Steve’s older brother, Bart, in his clipped way.

Steve saw a gloating, almost fanatical, expression on Bart’s face. Bart’s one passion in life was to beat a Dennis ship with a Condon craft. The rivalry extended back eighteen years to 2003, when the youths’ fathers had first started their competing light-space-craft companies.

“Take a look out back, Steve, and see if we’re still gaining,” Bart said.

Steve left his seat and at the rear of the compartment searched the TV screen, which showed the star-filled darkness behind the ship. A small silvery mote, the *Dennis Meteor*, moved against the immobile stars.

“We’re well ahead,” Steve reported, turning back. “Why don’t you let up, Bart? We’ll burn out our jets at this speed!”

Bart’s expression was grimly set. “This is the moment Dad wished for all his life, Steve. A Condon ship has always

played second best to a Dennis. Now that we seem to have broken through, do you think I'm going to let up?"

Steve realized that an eventual victory for Bart would not settle anything, for then Jim Dennis would strike back with an even better ship next year, and the fight would continue. On and on it would go until one of them took a foolhardy chance. Then disaster would be the final victor in the feud.

"We're going a hundred miles a second!" Steve protested. "We're already ahead of Jim's last year's record!"

"I'm going to set a record around the sun that no Dennis ship will ever top!" Bart asserted stubbornly.

Steve had come along as Bart's assistant mainly in the hope of somehow calming his brother's hotly competitive spirit and restraining him from over-stepping the bounds of common caution in this race that held the interest of the entire world.

Steve looked over the strain dials on the control panel. The needle was wavering toward the danger point.

"Bart, slow down!" Steve burst out. "We'll shake ourselves to pieces! This refrigerator gauge has been acting funny too!"

Bart checked the panel dials. "I guess we can afford to coast a little," he admitted.

They pushed levers, and Steve felt the little ship bucking gently as her forward jets braked to slower speed.

"Why do you and Jim have to keep going on like this year after year?" Steve asked. "A Dennis-Condon merger would make for a terrific space ship."

Bart grinned tolerantly. "Still trying, aren't you, Steve?" Then he frowned. "If Jim Dennis wants peace, let him come to us."

Then we'll incorporate his best points in our machines and call them Condons."

"It would have to be a fifty-fifty proposition, Bart," Steve reminded him. "Jim has as much pride as we do."

The younger man studied the slowly enlarging yolk of Sol in front of them. In spite of the heavy filter over the port, it seemed as though the terrific light and heat were burning through his eyes.

This was Steve's first trip, but he had been told by Bart that the celestial furnace had an aura about it that seemed to penetrate clear to one's bones. Their refrigerating unit and heat-repulsing hull would be taxed hard to keep them from bursting into flame.

"Better check on Jim again," Bart said impatiently.

"He's holding back; I know he is. He won't try to overtake us yet," Steve replied. Nevertheless, he got up to take another look at the screen. He was glad to see that his assumption was correct.

He returned to his seat at the panel and carefully kept tab on the readings, covering first one dial and then another. Some minutes later the refrigerator-gauge needle unexpectedly soared above the subzero mark. Almost at the same moment, Steve felt encroaching heat pressing in on him from all sides. The sweat popped out. The heat filled his nostrils, burned his lungs.

"The refrigerator has broken down!" Steve gasped.

His gaze shifted to Bart, who was rubbing a moist hand over his crimsoning face. Bart's fingers jerked instinctively from the levers that had quickly grown too hot to handle. In the motion, Bart's arm carelessly brushed against one of the side

jet levers. The ship veered on its gyroscopic balance and plunged out of control.

Steve bumped against the far corner of the compartment, feeling bruises all over him, but he was not really hurt, although it seemed as though he were breathing fire. Bart's head had struck the fire drill, a big welding machine for repairing breaks in the hull, stupefying him.

Steve shook his head to clear it and scrambled to his seat, righting the ship again and putting it on automatic pilot. Then he got up and hurried down the corridor to the garb room. His magnetic shoes clacked along the metal floor. Hurriedly, Steve donned space suit, oxygen tank, and helmet.

The insulated gear momentarily cut out the oppressive heat. But in another few minutes he and Bart would be sizzling like steaks on a griddle, for even the insulation of their suits could not withstand raw heat for long. The only way out, as Steve saw it, was to call on Jim Dennis.

Steve carried another set of gear down the corridor and shook Bart. "Put this on, Bart," he said. "It'll protect you from the heat."

Bart was gasping in the hot air of the compartment, his face scarlet and shining, but he took the gear. Next, Steve went outside onto the skin of the *Condon Comet*. The vault of starlight closed in all about him, and the deep web of midnight space seemed to extend endlessly. There was the sweeping veil of the Milky Way galaxy and here closer the pulsing, blinding sphere of Sol. There was another startling light, a driving streak of firestreams and silvery glow—the *Dennis Meteor*.

Jim and his co-pilot, Pete Rogers, could hardly miss seeing them. Quickly the *Dennis Meteor* drew abreast of the *Condon Comet*, but then it swept on past overhead!

Steve felt bitterness and disappointment well up in him. He had always thought Jim to be a “right guy.” Could it be that the winning of the race was more important to him than two persons’ lives?

The only hope now was a hasty repair of the refrigerator unit. Steve hustled back into the ship and made his way to the rear where the cooling machinery was located. He found Bart working there, his helmet off. Steve removed his own helmet, for apparently Bart had repaired the trouble. The customary blandness of the atmosphere had been restored.

“What happened to it?” Steve asked.

“The dynamo burned out,” Bart answered. “I just coupled in the spare one. Where have you been?”

“Out on the skin,” Steve said. “I was trying to signal Jim Dennis.”

Bart’s face went red again, and he muttered to himself.

“I didn’t think there was any chance of repairing the trouble,” Steve went on.

“I’d rather burn than take help from Jim Dennis!” Bart snapped. “Did Dennis see you?”

“He must have. He went right overhead.”

“Obviously he didn’t stop, though.”

“No, he didn’t,” Steve said frankly.

“I wouldn’t have believed that of Dennis,” Bart murmured. “I thought he was a better man than that.”

“He may not have seen me, Bart. Let’s give him the benefit of the doubt.”

“I’ll give him nothing!” Bart rapped. “If Jim Dennis wants a fight to the finish, we’ll give it to him!”

Bart began immediately to battle to regain their lead. It was a frenzied, closely fought contest for many hours, the lead seesawing back and forth. It took the top speed Bart’s craft was capable of to gain the lead he was finally able to maintain.

Only when Jim Dennis appeared content to linger behind again did Bart cut their driving velocity. Once more Steve felt he could breathe easier—for a while at least.

In the days that followed, there were no changes in position. Steve and Bart took turns at the controls during the sleeping periods. They could see the planet Venus at a distance. Their flight had been planned to avoid close proximity with Earth’s twin because of the retarding effect of her gravity.

The sun steadily dominated the sky, an enormous cottony ball of atomic fury with a surface temperature of 6000 degrees centigrade and an interior heat around 20,000,000 degrees. The red leaping flames of the chromosphere were like the mountainous waves of a gigantic cosmic ocean as they lapped millions of miles out into surrounding space. Magnetic storms—sunspots—all of them large enough to swallow the Earth, were seen as whirling dark cyclones in the sea of gas.

As the *Condon Comet* moved around and behind the star, it began to close in on the planet Mercury. The ship was actually overtaking the miniature world even though it was circling the sun at a rapid thirty miles a second.

On the fifth day away from Earth, the *Condon Comet* reached its apogee, the farthest point of its orbit from the mother planet. It was “behind” the sun now, the dominant ball eclipsing the Earth. By now Mercury had grown hugely, a big pebbly world that literally shimmered with the frightening

heat that poured down upon it. It was a startling sight, halved into hemispheres of darkness and extreme brilliance. The closer side was so hot that streams of molten tin and lead flowed, while that side away from the sun approached the arctic cold of absolute zero.

“I hope we don’t have to land there, Bart,” Steve spoke uncomfortably, looking out the port.

They began to feel the gravitational attraction of the miniature world, and they had to bolster rocket fire to combat it. Unlike Venus, Mercury could not be avoided in this flight.

Steve watched the gauges, especially the refrigerator dial. The latter was holding up well under this maximum barrage of heat from Sol, but there was still an oppressive hotness that reached through the laboring artificial coolness and penetrated Steve’s pores like insidious rays.

“If the *Comet* isn’t superior to Dennis’s in any other way, it’s made of better heat-resistant alloy,” Bart had said with self-assurance before leaving Earth. Steve wondered now if the proof of this assertion would be settled before both ships were beyond the sun’s reach.

Hours later, when the *Condon Comet* had passed Mercury, Steve was impelled to check on their rivals behind. For a moment he couldn’t find the ship on the TV screen. When he spotted it at last, by changing the direction of the movable screen, he was amazed to find the craft far below, hovering over the planet.

“Bart!” Steve called. “It looks as if Jim and Pete are in trouble! They’re diving for Mercury and seem to be heading for the terminator line between the dark half and the light!”

Steve wished there were some kind of radio communication between the ships, but electrical interference from the sun

made radio impossible on these round-the-sun races.

“We’ve got to go down there, Bart,” Steve said.

“We haven’t won yet, Steve. There’s still the record to beat.”

“Will you stop thinking about records!” Steve retorted. “There are a couple of men down there in trouble!”

“Did they stop for us?” Bart bit out. “It’s probably only a trick to lure us down so that Dennis can make a quick getaway!”

But Steve knew that his brother was not as cold-hearted as he pretended to be. Bart proved it in the next few minutes when he reluctantly turned the *Comet’s* nose downward with a savage thrust of the upper tail jets.

“You’ll never regret this,” Steve said.

“I wonder,” Bart grunted, without satisfaction.

As the ship moved strongly into Mercury’s gravitation field, Bart lined the automatic pilot up with the tiny speck on the rocky world below that was the *Dennis Meteor*. Then he and Steve strapped down on their protective couches for the grueling landing.

Steve felt as though his chest were crushed under the rapid deceleration. It was the effect of a swiftly dropping elevator multiplied hundreds of times as the *Comet’s* forward jets thrust against Mercury’s crust to brake the hurtling speed. Steve finally blacked out; he always did. When he came to, they had landed, and through blurry eyes Steve saw his brother struggling to release himself from his straps.

They went to the port. The *Dennis Meteor* was in bad shape, its prow crumpled into a huge face of rock. Its occupants could have been killed by the concussion, although there was

a good chance that they were still alive if they had had time to strap down.

Steve noted their rugged surroundings, where strange rock pillars thrust into the black sky from a shimmering, white-hot plain. Snaky rifts of incalculable depth split the torrid landscape.

“The ship landed on its side,” Bart observed, speaking over his short-range helmet radio. “The escape port is underneath!”

There was no point of exit from the ship for the trapped occupants if they were still alive, Steve observed. Even the rocket tubes had been crushed flat. Actually the *Dennis Meteor* was a complete ruin, its entire glossy surface warped and corrugated.

“You can see the ship broke down under the heat,” Bart said. “That’s why they had to crash-land.”

“Look here on the other side!” Steve’s voice suddenly crackled in alarm over his helmet radio.

Bart joined him. Only now did they see that the craft had nearly rolled down a precipitous incline into a canyon stream of molten lead far below. The ship was balanced precariously on the ledge. It seemed as if the slightest jar would send it hurtling down the slope.

“We’ve got to get them out of there before the ship falls!” Steve said. “The precipice looks so crumbly it may give way at any minute!”

“I don’t see how we can get them out,” Bart commented.

Steve thought a moment. “The fire drill! We can cut a hole in the top of the ship!”

Bart frowned. "The force of the drill or even our weight on top of it may cause the ship to go. But if you're game, I am."

They brought the fire drill out of the *Condon Comet*, and as they climbed up onto the warped hull of the other ship with it, Bart smiled wryly. "I never thought I'd see the day that I'd risk my neck for a Dennis," he remarked.

A moment later, when Bart was about to start the drill, he asked, "Ever try swimming through molten metal, Steve? You'd better think about it. We may be doing it in a second."

Steve felt weak in the knees as he looked down into the plunging gulf where the metallic river tossed against blackened rocks. A person flung into that stream would be a cinder in scant moments.

Steve gritted his teeth. "Start it up, Bart."

The machine whined into action, pouring a thin stream of blue-hot biting energy against the heat-resistant alloy. The rocket shuddered under the drill's action, and Steve felt waves of fear course through him. The drill moved in an arc that was to be a circle barely large enough for the two men inside to squeeze through in their space suits.

When the job was halfway done, the ship ground forward several feet. Steve saw Bart's face drain whitely. Steve could almost feel the scorching bite of liquid metal against his body. Yet the ship somehow clung stubbornly to its precarious support.

They renewed their efforts, and the arc grew. Finally the circle was full round. Bart stood up and jammed a foot against the isolated ring, and it dropped inside. Steve held his breath as he looked in, afraid of what he might see. He felt immeasurable relief as Jim and Pete came up to the opening attired in space gear. They shoved a ladder into place and

started up. Steve gave Pete a hand, for he seemed to be shaken up. Suddenly the ship rumbled a foot or two. It was going any instant. The four of them carefully walked the length of the craft and made their way down the flattened rocket tubes.

Bart was the last to jump to the ground. His movement affected the delicate balance of the ship, and it slid forward, its stern arching straight up as it dipped over the gulf. The ground shook, and a moment later the *Dennis Meteor* had thundered to oblivion into the river of lead.

After Jim and Pete had expressed gratitude for their rescue, the four fell into silence as they trooped back to the *Condon Comet*. Although no one spoke, Steve felt that the others, like himself, must be thinking many things. Would this mark the end of the long feud, or would it be only a temporary truce?

Jim Dennis walking with a limp, studied the Condon ship. He circled the rocket completely and closely examined the smooth hull, still undamaged by the abnormal heat bombardment it was taking.

When they were inside, Jim was the first to speak. "This ship is terrific," he said simply.

"You admit that?" Bart asked incredulously.

"I've never seen a craft stand up so perfectly under extreme heat," Jim continued. "I think you've done it, Bart. It's the finest light space ship ever built."

"An engineer who started out with Dad made this alloy," Bart declared. "He told me he thought he had finally come up with the ideal metal."

"The *Meteor* rattled like an old freighter the whole way!" Jim complained. "We spent a lot of time in the rear checking on the rocket tubes. We were afraid they'd shake loose. I guess

we must have been back there when we passed you, for the last time I looked out you were ahead of us.”

That explained why they hadn’t seen his wave, Steve thought.

“It sure was a lucky break for us that you brought your drill along,” Jim went on. “I had so much confidence in the *Meteor* I was sure we wouldn’t need it.”

“I felt the same way,” Bart admitted, “but Steve insisted we bring it. That kid brother of mine always did have more practical sense than I.”

“I’ve been doing a lot of thinking since we crash-landed, Bart,” Jim said. “I’ve been thinking that maybe this feud has gone on long enough and that you must be as sick of it as I am. Together, we could turn out ships that would be just about perfect. What do you say, Bart?”

Bart’s face grew stern and thoughtful. Finally he answered, “I’ll have to think it over first, Dennis.”

“While you’re thinking, we may as well have a look-see,” Jim said. He went over to the panel and checked the readings. “You seem to be way ahead of my old record, Bart. You’re still going to try to beat it, aren’t you?”

Steve knew this remark had broken down the last of Bart’s stubborn pride and reserve. His brother smiled and thrust out his hand to Jim Dennis. “You’re a good loser, Jim,” he said.

“I’m no loser,” Jim answered, grinning. “I’m a winner—we both are.”

Young Steve Condon sighed contentedly. He glanced at Pete Rogers, who winked at him. Jim and Bart sat down side by side at the control panel of the *Condon Comet*. Steve didn’t

doubt for a moment that the long feud was finally at an end.
He was satisfied that his father would have liked it this way.

FLIGHT OF THE CENTAURUS

Spacemaster Brigger came into the navigation compartment of the *Centaurus*, which was thrusting into the starry night of space far beyond Saturn. Rob Allison, junior officer, looked up from the desk where he sat, wondering at the frown on the skipper's face.

"It's just as I feared, Allison," Mr. Brigger said gravely. "The men are sorry they signed on for Titania and are grumbling already. They think they'll be ridiculed when they get back."

"Because of Dr. Franz's being discredited by all the scientists, I suppose?"

The skipper nodded. "They're sure they're on a wild-goose chase. I'm afraid I'm inclined to agree with them."

"I guess you and the crew, sir, are only reflecting the opinion of almost everyone else on Earth," Rob mused bitterly.

The spacemaster of the *Centaurus* dropped onto a plastic bench beside a port that overlooked the star fields of the outer solar system. "Exactly why did your brother Grant authorize this expedition, Allison? Does he really believe we'll find animal life on Uranus' satellite or is it something else?"

Grant Allison, an illustrious front-rank explorer of several years before, was now president of Interplanet Exploration, which controlled research space travel.

Rob relaxed as he prepared to answer. “You probably didn’t know, sir, that Dr. Franz put my brother through space school when our father couldn’t afford it. He was Grant’s teacher in space mechanics in high school and thought he showed unusual promise.”

“That would explain President Allison’s interest in Dr. Franz,” Mr. Brigger agreed, “but I can’t understand an intelligent man like your brother falling for a harebrained story such as Dr. Franz told.”

The facts of Dr. Franz’s amazing discovery were known to the whole world. While studying the planet Uranus a distance of two and a half years before, the research ship blew a rocket tube and was forced down on Titania, Uranus’ largest moon. While the crewmen repaired the craft, Dr. Franz went prospecting. After he returned, he reported that he saw fish life swimming beneath Titania’s solid ice sheet, where the temperature was 300 degrees below zero Fahrenheit. The crewmen were too interested in their work and, not having a scientific curiosity anyhow, did not bother to verify the scientist’s claim.

Upon returning to Earth, Dr. Franz, who was in the early stage of a fatal illness, told the scientific world of his remarkable discovery. He was totally unprepared for the rebuff he received from all quarters. No scientist on Earth would admit that Dr. Franz’s preposterous tale could possibly be true. Those people who would not go as far as calling Dr. Franz a dishonest publicity seeker (as some did) were nevertheless agreed that the ordeal he had gone through must have been too much for him. Dr. Franz died six months later of his illness—a brokenhearted man.

“Grant truly believed Dr. Franz found life on Titania,” Rob said to the skipper of the *Centaurus*. “He’s so sure of it that he has risked his own career on this expedition. If this fails, he says public sentiment will force him out of office.”

“Your brother must have a lot of confidence in you, Allison,” Mr. Brigger said, “making you head of this research trip which is so important to him. But from what I hear of your exploits on other planets, he has reason to trust you.”

“Thank you,” Rob murmured. “I couldn’t do a good job, though, if I didn’t believe as whole-heartedly in this as Grant does. I believe, as Grant does, that Dr. Franz spoke the truth.”

“It will certainly be a revolutionary discovery for science if you find and bring back evidence of that,” the skipper admitted.

Before leaving the compartment, Mr. Brigger added, “Let’s hope we don’t have a mutiny on our hands before this thing is over.”

Alone, Rob got up and stared out of the port into the perpetual black deeps where the star points glowed like polished gems.

Some minutes later a young spaceman with sandy, disordered hair that even space regulations could do nothing with, came into the compartment. Jim Hawley was Rob’s best friend and had flighted a number of expeditions with him. There was a sober look on Jim’s customarily jovial face.

“The men are complaining like babies, Rob,” Jim said. “Do you think they’ll be any good to us?”

“They’ll have to be, Jim,” Rob answered grimly. “They’re all we have.”

Jim looked at his stalwart young friend in admiration. “You and Grant are all right, Rob. Not many men would risk their careers on an old man’s whims. Aren’t you scared—just a little bit?”

“I’m plenty scared,” Rob told him, with a nervous smile. “I’m only a subofficer of five months, and here I am in charge of an expedition. Don’t think that isn’t frightening. In a sense, the lives of all men aboard the ship will be in my hands after we land.”

“If you need me,” Jim assured him, “here’s one buddy you can count on.”

Two days later the *Centaurus* had intercepted the orbit of Titania and was beginning to barrel surfaceward. Rob, looking outside from the officer’s platform up forward, saw a huge rocky world filling the port, its mantle of ice shimmering in the reflected light of the unseen primary body.

The *Centaurus* dropped lower over a plateau that Rob had pointed out to Mr. Brigger as the spot where Dr. Franz had visited. The underjets threw out pencils of braking power to check the plunge of the space ship.

Finally the *Centaurus* touched down on its tail fins and then Spacemaster Brigger said to Rob, “It’s all yours now, Allison.”

Looking out over the hoary wilderness, completely airless because of the little world’s inability to retain an atmosphere, Rob felt suddenly incompetent. Only now did he realize fully his youthful inexperience. It was one thing to be an idle witness on a journey; it was another to be in charge of a crew of men.

Rob heard footsteps on the platform and turned to see Jim Hawley walking up. Jim grinned in his engaging fashion, and it was like a tonic to Rob’s spirits.

“What do you say we get started, Rob?” he said. “We’ve got a lot to do.”

Rob had the skipper round up the crew in the orientation compartment as soon as he had made his own plans. Then he laid before them the order of procedure. On a flannel board he tacked an enlarged map he had copied from one owned by Dr. Franz.

“Here’s a sketch of this area,” Rob explained. “Dr. Franz neglected to mark where he had seen the fishlike animal swimming beneath the ice. He did report that he was only able to find one after days of searching. They must be very scarce.”

“So scarce there probably aren’t any at all,” retorted one of the subofficers in a low voice.

Rob ignored the remark and went on with his explanation. “We’ll scatter out over the area and begin searching. It won’t be an easy job because the ice isn’t completely clear but is streaked through with ammonia and other opaque solubles.”

“Just how long will we have to keep up this search?” another crewman demanded. “I don’t want to spend Christmas in this forsaken place.”

Spacemaster Brigger spoke up then. “We can spend seven days on searching and still have enough supplies and fuel to get us home again. If we don’t find anything in that time, we start back just the same. Is that clear, Mr. Allison?”

“Yes, sir,” Rob said. Seven days sounded like ample time, but the area they had to cover was several square miles. From Dr. Franz’s description of the place, the liquid medium beneath the ice was wide and deep, a veritable ocean. Beneath this solution the ice began again and extended into the core of the small planet.

Explanations over, the majority of the crew, about twenty spacemen, climbed into their space gear, Rob and Jim with

them. Mr. Brigger and a few key personnel would remain aboard to attend the operational facilities of the ship. The suits were triple-reinforced against the exceeding cold and were electrically heated. The helmets, with inside radio sets, were frost-free types, and the shoes were doubly weighted and spike-soled for navigating over the icy, low-gravity surface.

The men descended to the ground on an escalator dropped from the side of the *Centaurus*. Rob had the men spread out, two by two, as safety buddies. He concentrated on the farther corners of the ice field to begin with, intending to bring the searchers closer and closer to the ship each day.

As the men began hiking over the glacier, Rob and Jim talked together through their helmet radio sets.

“I don’t understand how the water under the ice flows without freezing in this superlow temperature,” Jim remarked.

“It can’t be water,” Rob answered. “It’s something else, probably a liquefied gas with an extremely low freezing point. Wherever it is, it must contain all the elements needed to support its strange life forms.”

“Let’s start looking too, Jim,” Rob suggested.

The first “day” passed without success. Then the second. Night was only a relative term, for Uranus, Titania’s main source of light, was never out of the sky. On the third day, some of the men complained about having to spend ten hours at a time in biting cold weather searching for something they were sure did not even exist. Despite the men’s heavily insulated suits, the ultralow temperature that frosted the suits like mold could not be entirely kept out. Rob sympathized with the men, but there was no other way to do the job.

It was on the fifth day that one of the searchers spotted a small thick-bodied shape several feet beneath the ice. The cordon of searchers had closed in more than halfway to the ship by now.

“Jim, will you supervise operation of the ice saw?” Rob asked, when they had joined the men who had made the discovery.

Jim nodded and left.

“Has it moved yet?” Rob asked one of the crewmen, trying to curb the almost overpowering excitement he felt.

“No,” one of them replied. “It seems to be dead and embedded in the ice.”

Presently the ice saw came trundling up on its ski runners, being pushed along by Jim and two others. It was a boxlike machine, heavily insulated against the cold. Jim dropped the blade and turned on the machine, guiding it along an invisible outline around the imprisoned thing. He went over the cuts several times, lowering the blade each time until a depth of several feet was reached. Then he gave the saw a side-to-side motion, and there was a sharp crack as the block of ice was snapped off beneath the surface.

By now all the searchers had come over. Jim worked the lifters on the machine and the block of ice, containing its inanimate prisoner, was raised and set down. The men crowded close and looked. Then Rob looked, and Jim. Rob felt a sickening disappointment as he realized their failure. There was no creature inside the ice at all. It was nothing but a slab of rock.

One of the men snorted contemptuously. Another laughed openly in scorn.

Rob bit his lips and regretfully ordered the ice saw back to the ship. Then he sent the men back to their positions of search.

The young officer felt little hope. The ring was closing in toward the *Centaurus*. There wasn't much more area that hadn't already been examined. Rob, realizing the attitude of the men, knew they hadn't probed as diligently as they were supposed to have. Very likely large areas had been only carelessly examined. But that couldn't be helped.

Rob went through the last day with the slow resignation of defeat settling within him. In only a few hours the searchers would have covered the entire area, and their own moment of victory would be at hand.

When the search was finally over and still no one had found anything moving beneath the ice, Rob knew how it felt to taste defeat.

Jim clapped Rob sympathetically on the shoulder. "I'm sorry, Rob," he said. "Perhaps later on there will be another expedition."

"There won't be any more to this place, you can be sure of that!" Rob blurted. "After this failure, the Space Command certainly won't send any more good money after bad!"

Later, as all on board the *Centaurus* slept, Rob tossed restlessly on his cot. He heard the quiet breathing of the crewmen in the adjoining compartments. They were happy; their reluctant job was done and they were going home. The blast-off was scheduled for 0600 the next morning.

Rob could not stand his plaguing thoughts. He got out of bed and pulled on his clothes. He looked across the room at Jim Hawley, breathing deeply in sound slumber. Rob walked down the corridor to the garb room and began tugging on space gear. He realized only then how bone-weary he was, how his head ached from the tension of the past weeks, how heavily his heart throbbed in his breast. He couldn't relax any place now, he knew, but it would be easier outside, continuing the search to the very end.

Rob tucked an electron gun in the holster of his suit, then left the *Centaurus*. He struck out over the glacier pack, his head lowered. It came to him then how difficult it would have been for the men to detect any moving object in the murky maze below.

Hours passed and Rob found himself far from the ship. He was shivering from the stubborn cold. He turned the heat in his suit to full strength and pushed his aching legs faster to speed up the circulation. His eyes never left the ground, searching, searching....

If he were the only one involved in the failure, it wouldn't matter so much, but it was his brother's problem too. Grant hadn't made many mistakes on research expeditions—that was why he held the highest office in the organization. After this, though, it would go hard with him. Then there was the misunderstood Dr. Franz, who deserved a better fate than being labeled an old man who in his final days seemed to have lost his clear, scientific outlook.

“Maybe, though, the public was right,” Rob thought. “Maybe it was a hoax Dr. Franz pulled in order to gain public recognition he had never quite made.” But even now, in the blackest moment, Rob couldn’t really believe this of the dear friend who had launched his brother’s career.

Rob’s legs were beginning to feel like stumps as the time dragged on. He stumbled often on burls of ice that cluttered the wasteland. Finally he tripped and fell heavily, and it seemed that he did not even have the strength to rise again. His helmet was flat on the ice and his eyes, misted over with sleeplessness, were still looking downward.

Then he caught a sign of movement in the depths. He blinked his eyes to clear the glaze out of them.

“There it is again!” he said aloud. “It’s no hallucination either!” It was a long dark shape threading its way sluggishly down below. Now the thing was rising to the surface. Cold, bulging eyes peered into his own.

With numb fingers Rob uncached his electron gun and pressed the barrel against the ice. A moment later the creature was hanging buoyant and lifeless under the submerged edge of the ice layer. Rob struggled to his feet, astounded at the renewed energy he now had. He memorized the spot as best his dazed faculties would allow. Then he laid the pistol on the ice for an additional marker. He began running toward the ship.

From that moment on, Rob’s mind seemed to be in a dream world. He vaguely remembered the long way back to the space ship and then nearly collapsing before reaching it. He dimly remembered Jim, who had missed him, coming outside and assisting him into the warmth of the vessel. And he barely recalled pouring out the story of his find.

Now, much later, he was fully awake and the nightmare was over. He found himself on his cot, fully dressed. Jim Hawley was looking down on him. Rob was aware that the ship was moving. He knew the *Centaurus* had already blasted off for home.

“Did you find—!” he exclaimed.

Jim soothed him with a smile. “Yeah, we dug out your monster and we’ve got him aboard. If you’re through being a sleepyhead, I’ll take you to see him.”

Cold, bulging eyes peered into his own.

“How long have I been under?”

“Twelve hours.”

“Wow!”

“Feel rested?”

“Good as new,” Rob answered.

They went down the corridor to one of the cold-storage compartments. Several of the crew were inside, as well as the skipper. But Rob wasn’t noticing the men. He was looking at a dark alien form lying on the floor. Rob went over closer and knelt down. The creature was fishlike, and the strangest thing about it was the glistening dark skin, similar to metal. Rob touched it and it was like stroking cold steel.

“No wonder it can live in such frigid temperatures,” Rob murmured, “with a metallic covering like that! Won’t the scientists back home have a picnic dissecting him?”

He stood up and found his gaze level with Mr. Brigger’s.

“I never believed in your fantastic theory,” the chief officer said, “and I still doubt it after I’ve seen it. But I admired your spirit from the first, Allison. I believe you would have been as good a loser as a winner and I’m proud to have flighted with you.”

He smiled and offered his hand to Rob, who shook it. Then the others came forward, and they too offered congratulations. But Rob’s thoughts weren’t for his own success this day. They were reaching ahead to when Grant Allison would be even more of a fabulous figure in the field of space science, and Dr. Franz would at last have claimed his well-deserved victory.

EXPEDITION PLUTO

“The lieutenant doesn’t think you’ve got your mind on navigation, Rob,” Duff Ford was saying, as he and Rob Allison stood before a port of the rocket ship *Rigel* looking out over the sea of space.

“Does it show that much?” the lean young spaceman answered.

“We’ll find him, Rob,” the redhead answered. “Stop eating your heart out.”

“You never knew Jim Hawley, did you, Duff?” Rob asked.

“No, but from what I’ve heard of him, he’s quite a guy. Always smiling and bursting with friendliness.”

“That’s Jim,” Rob said, a tightness in his throat. “I sure would like to know what happened to him and the others on Pluto.”

“How come you didn’t get to go along on the first Pluto expedition?” Duff asked. “I thought you and Jim Hawley always went together.”

“I’ve been working with my brother in the States,” Rob replied. “As the new president of Interplanet Exploration, he’s been awfully busy.”

“There’s a real guy,” Duff said with admiration, “your brother Grant. I guess he’s the greatest spaceman who’s been born.

And judging by your own record around the solar system, Rob, you're not far behind him."

"Thanks for the flattery," Rob said, grinning.

It felt good to smile again. He hadn't smiled since he'd learned about the break in communication from the Pluto expedition ship *Capella*. The breakoff had come suddenly after landing, and the source of the trouble was unknown. As soon as Rob had heard that the *Rigel* was going in search of the missing explorers, he had signed up for the trip as assistant to the navigator. He'd been grateful for the companionship of young Duff Ford, a likeable fellow he'd met in space school. Duff was a regular crewman, an air purifier, on the *Rigel*.

Duff was speaking again. "Think we'll get by the big boy there with the halo?"

Rob looked at the giant, glowing pearl of Saturn, which had been growing before their eyes for the past couple of days. Though placid and beautiful against the velvet sky, the ringed planet was a real menace to the *Rigel*.

"Lieutenant Stone said it's going to be a tight squeeze," Rob answered. "We hope we've got enough rocket power to fight off the terrific gravity pull of Saturn and his moons."

"I can't understand why we couldn't go on a beeline to Pluto without even coming close to the other planets," Duff said. "Pluto is a long ways off the plane of the outer planets, isn't it?"

"We could," Rob answered, "if it weren't for floating clouds of explosive hydrogen which have been found to exist outside of the plane of the ecliptic. That's why we have to stay in close until we're past Neptune."

“Won’t Uranus and Neptune give us trouble?” Duff asked. “They’re pretty big too.”

“Uranus is far around on his orbit, and Neptune is heading away from us. However, we’ll see Neptune at a distance.”

Hours later Rob was in the navigation compartment with Lieutenant Stone, his immediate superior. They were leaning over a level ground-glass screen upon which were a projected television image and a panel of dials. In the middle of the scene was poised the oblate sphere of Saturn and its spinning necklace of millions of meteoric particles. Scattered about were globes of varying sizes, which were Saturn’s moons. The screen surface was roughened to take pencil marks. A tiny dot represented the *Rigel*, and arcs were drawn to show the motions of all the objects.

“Our closest approach to the planet will be here at point ‘X’,” spoke the navigator. Glancing at his watch, he added, “We’ve got about five minutes to go.”

As they waited, Rob went over to the side port where he could watch the luminous planet directly. He thought he had never seen a sight so beautiful. Saturn was banded with color layers something in the manner of Jupiter, only in softer tints. Riotous masses seethed and tossed in the cauldron of fury beneath the apparently paper-thin girdle of shaded bands.

“It’s gorgeous—but deadly too,” Lieutenant Stone commented.

“Yes, sir,” Rob murmured, “and I’m in no mood for a bath of methane and ammonia. We’ve got to get to Pluto; that’s the only thing that’s important!”

At zero hour, all rockets were blowing at full capacity. Rob could feel the *Rigel* bending to the implacable will of the big

world. As the ship's nose was pulled inward, the young spaceman could see the anxiety on his superior's face.

"I hope we've calculated this thing correctly, Rob," the lieutenant said tightly. "The ship should begin to turn tail on Saturn in a little while."

But the *Rigel* still had not turned after twenty, nor even forty, minutes.

"We're losing ground!" Lieutenant Stone said, checking a dial on the screen. "Something's wrong! But that can't be!"

Rob went over to the screen, where the spectroscope dial showed that the globe was growing closer, although it was not visibly so. If the *Rigel* were not checked within a short time, the space ship would plunge into Saturn's poisonous atmosphere! Rob picked up a clipboard of papers and began studying it.

"I'd give anything if we were on the *Procyon* which took you and your brother to Jupiter!" Lieutenant Stone complained. "The *Rigel*'s built primarily for distance and hasn't a fraction of the *Procyon*'s rocket thrust!"

"There seems to be something wrong in the figures for Titan!" Rob suddenly spoke.

Lieutenant Stone looked over his shoulder. Silently the two went through the figures, inspecting every equation where the numbers appeared relating to Saturn's largest satellite.

"The figures are wrong in two places!" the officer exclaimed. "No wonder we miscalculated the total gravity pull! Whoever prepared these notes back at the base will surely catch it! I guess we can't blame him too much, though. These figures were worked up on extra short notice for us."

“What’re we going to do, lieutenant?” Rob asked. “The ship’s on top power drive now!”

Lieutenant Stone explained the new development over the intercom phone to Spacemaster O’Leary. The skipper verified the fact that the *Rigel* was on full thrust. He said that there was no other alternative but to abandon ship and make for the moon Japetus in the two space boats and hope to be picked up later from there.

“We can’t abandon the ship!” Rob burst out uncontrollably.

“And why not, Allison?” came the skipper’s retort over the intercom.

“I beg your pardon, sir, but I was thinking of the *Capella* and her crew!” Rob said. “What will happen to them?”

“That can’t be helped I’m afraid,” the skipper replied. “My first duty is to my ship and men. Both of you prepare to abandon ship.”

When Spacemaster O’Leary had cut off, Lieutenant Stone said, “I’m sorry, Rob. I know how much you thought of Spaceman Hawley, but there’s nothing more to be done. Better get together what stuff you want to take along.”

However, as the officer began getting up his things, Rob remained at the screen, poring over it and a little mathematical machine called an electronic computer.

“Ready to go, Rob?” Lieutenant Stone asked sometime later.

“I think I’ve found something, sir!” Rob said, holding a place on the screen with his finger.

“A die-hard, if I ever saw one,” murmured his superior, with an admiring grin. He came over to see.

“Scylla is known to have a slightly unpredictable orbit,” Rob said. “During the past few minutes I’ve traced it cutting inward toward the planet. I’ve checked the moon’s gravity-and-distance ratio on the computer, and I believe if we delay the abandon-ship for several more minutes we can pull free of Saturn and its family!”

“Let me see,” the lieutenant said. They checked the slight movement of Saturn’s tenth satellite, which had been discovered in 1963. Scylla was tiny, a dense ball of rock only three miles in diameter. But its diminishing gravity pull as it moved away could be enough to swing the balance in favor of the *Rigel*.

Lieutenant Stone agreed with Rob’s finding in general, although in the brief time available there was no opportunity to make a positive measurement. He phoned the skipper, who was ready to send out the first space boat. Lieutenant Stone reported to him Rob’s find.

“If you agree it’s worth a chance, lieutenant, I’ll play ball,” the skipper replied.

As Rob stared apprehensively at the big planet from the side port, he tormented himself about whether he had done the right thing in suggesting what he did. Had the *Rigel* been abandoned, as was planned, all hands would have been saved. As things stood now, however, the entire crew might perish. Still, Rob could not really regret taking the responsibility. Times before, when there had been lives at stake, he had stuck by his convictions and had never failed to accept danger when that seemed the best move for all concerned.

Rob and Lieutenant Stone kept their eyes glued on the TV screen, particularly the speck that was Scylla and the slight motion it was describing. Rob felt shudders rock the space ship as great powers locked in combat.

Some minutes later, Lieutenant Stone checked the dials and said with a deep sigh of relief, "I think we've done it! Thanks, Rob!"

They had done it. The balance was swung in favor of the *Rigel* as Saturn's tiny companion continued to move away, giving up the fight. From now on the planet would appear to diminish in size, but it would be many hours before its commanding sphere would be lost among the other millions of lights in the heavens.

For days and days, nothing seemed to change in the endless depths of black space as the *Rigel* sped toward Pluto. There were the same monotonous patterns of stardust and the eternally broad sweep of the Milky Way and other remote galaxies. Only the distant planets grew and shrank in size. As the space ship neared Neptune, the big green world enlarged importantly. Rob and Duff, in an off-duty hour, watched the frigid, lonely planet.

"Neptune reminds me a little of Earth," Rob said.

Duff's brows raised questioningly. "I can't see *any* similarity. Why, Neptune is four times Earth's diameter!"

"But Neptune's mean surface gravity is the same as Earth's because of its low density," Rob replied. "Like Saturn, another big puffball, Neptune has a small rocky core surrounded by huge layers of ice and atmosphere. Both Neptune and Earth have a greenish cast, and each has a satellite of about the same size and at about the same distance away."

"There's one big difference, though, Rob," Duff said. "Neptune's a zillion times colder."

"It's still not as cold as we're going to find Pluto," Rob reminded him, "near absolute zero!"

The redhead made a wry face. “Why did you have to say that? It’s so warm and comfortable in here!”

As the *Rigel* drove onward, thousands of miles a minute, day upon day, Rob grew impatient to reach Pluto. He was thinking of Jim Hawley and the *Capella* crew undergoing unknown hardship and peril. The radio circuit with the ill-fated space ship had been left open in case she was able to get a message through. But none had come during all this time, and Rob was beginning to doubt that he would ever see his fun-loving friend again.

The day finally came when the *Rigel* hovered over the little planet, which was not quite as large a world as Mars. Rob and Duff, with some of the other crewmen in the pilots’ compartment, stared down upon trackless wastes of incredible frozen beauty. Ever since the ship had dropped low enough to reveal the dazzling surface features of the solar system’s most distant planet, no one had spoken. The bizarre landscape seemed to have awed everyone into a state of silent fascination.

Suddenly Duff broke the quiet. “Look, what a pretty blue lake!”

Rob saw the small body of water partly surrounded by a canyon of towering ice cliffs. In the twilight glow of stars and the weak sun, the lake and peaks sparkled with a clarity that reminded Rob of great jewels.

“It’s a lake rightly enough,” Spacemaster O’Leary said. “You can see the ripples, but that’s no water.” He checked the thermocouple. “It’s 348 degrees below zero Fahrenheit down there! That’s a lake of *liquid oxygen*. I’ve seen them on the dark side of Mercury.”

Rob gasped in astonishment. He had visited most of the planets, but there was nothing to compare with a wonder such

as this.

Lieutenant Stone then spoke. “Those ice cliffs don’t look to be frozen water. Do you think they might be chunks of dry ice, sir?”

“That’s my opinion,” the spacemaster replied, “—solid carbon dioxide. Notice those other crystal peaks off to the right. They are probably ammonia. I’ve seen them on Mercury, too.”

There was a scant, dense atmosphere close to the ground—that had been known. It was a strange-looking substance, Rob thought. It lay like a blanket of gray-blue mist between the space ship, which was several thousands of feet up, and the ground below. The compressed atmosphere was filled with small clouds of icelike particles which floated lazily near the surface like tiny fish in a cosmic ocean. Everything about the scene suggested a terrible coldness almost beyond human realization.

“Our bearings indicate this is approximately the area where the *Capella* was last heard from,” the skipper declared. “But I see nothing of the ship. Do any of you?”

With the others, Rob strained his eyes to pick out a shiny cigar shape in the bleak stretches below. It seemed an impossible task, and he was reminded of an old analogy of the elusive needle in the haystack. There were broad areas of dark rock between the icebergs, filmed over lightly with rime. Such dark expanses could account for Pluto’s weak solar reflection, Rob decided.

The *Rigel* cut its power to a low cruising speed and began making a detailed search. Scanning scopes were used to magnify the view, but the job promised to be a long and painstaking one.

Perhaps it would even take too long to be of any service to the *Capella*, Rob thought gloomily, as his scope swept the ground. His speculations then took an even grimmer turn. Perhaps the lake of oxygen had swallowed up the space ship! Or maybe the craft lay buried under layers of frost.

The hours of search, many of them, dragged by. At last the skipper called his crewmen together and make a pronouncement that shocked Rob.

“There’s no purpose in keeping up the search any longer,” he said decisively. “Even if we should find the ship now, we don’t have enough fuel to land and blast off again. I’m afraid the elements have claimed the *Capella* and that the first expedition to Pluto will have to be written off the books.”

“But, sir,...!” Rob burst out.

The spacemaster looked at him levelly.

“I’m sorry, Rob. I realize you’ve got a more personal interest in the *Capella* than the rest of us. But we’re simply licked.”

Rob turned away from him in abject despair and stared unseeingly out of the port. Filling his inner eye, to the oblivion of all else, was the sight of a grinning young spaceman, with a perpetually rumpled shock of blond hair. *He’d never see Jim Hawley again.* Knowing this, it was as though a part of himself had suddenly died.

As the Rigel headed away from the area over which it had cruised unsuccessfully for so long a time, a burst of static came over the long-silent, open circuit of the space ship’s radio. Rob’s heart thrilled with hope. Could it really be the *Capella* trying to make contact?

More static followed, then a muffled voice, barely audible, saying: “*Capella* to space ship. Can you hear?”

Spacemaster O'Leary scooped up the radio mike, eager as a child. "Yes! Yes! Give your location!"

The communication came over badly, but O'Leary found out that he was speaking to the *Capella's* skipper, Spacemaster Nielson. Port telescopes were pointed to the spot given as the location of the downed rocket. Rob focused his on the upright craft, which was buried in hoarfrost and situated on the top of a slope leading down into the blue oxygen lake. Rob realized that only the luckiest of glances could have picked up the camouflaged ship.

On the mike again, Spacemaster O'Leary asked, "Are all aboard the ship well?"

"We're all suffering from the cold," was the reply. "Remember we've been here for weeks, although it seems like years! We had to draw from the atomic reactor to make a heater, but that isn't adequate. Some of the men have frostbite. The ship is under a foot of frozen matter as you can see. The truth of the matter is we came woefully unprepared to tackle such an icebox!"

"How did you get marooned?" asked O'Leary.

"As soon as we landed, the frost began piling up," Nielson replied. "It clogged our jets and our aerial, which is the reason we lost contact with Earth. The hull defrosters were a complete failure. We just now got the antenna partially repaired after all these weeks. One of the crewmen, Jim Hawley, had to work outside on it. He's taken an especially rough beating from the cold."

"I hate to tell you this," O'Leary said somberly, "but I don't know how we can save you." He explained about the lowered fuel supply. Then he reminded Spacemaster Nielson of the fact that even should the *Rigel* enter Pluto's atmosphere, she

would most certainly be overcome by the same fate that had been the *Capella's*.

Rob, hearing this, made a suggestion to Spacemaster O'Leary. "The two space boats may be able to go down there and back before the frost gets them, sir."

The *Rigel's* commander looked at him gravely, "I can't ask a crewman to take a chance like that."

Rob looked at him steadily. "I'll pilot one of the boats myself, sir."

"You Allisons have more courage than sense," O'Leary retorted gruffly. "But you can try it."

Lieutenant Stone spoke up. "I'll take the other boat down, sir. Lieutenant Myers can fill in as navigator if I fail to get back."

Shortly later, as Rob climbed into one of the rescue craft, Duff Ford followed him, similarly clothed in a cumbersome space suit. "You may need some help, Rob," he said.

Rob smiled at him. "Thanks, Duff. I guess I would like some company."

Both youths carried heat guns, as did Lieutenant Stone, for blasting ice. The escape locks of the *Rigel* opened, and the boats slipped out into the vacuum of space. The life crafts were propelled by jets of compressed air and could seat nine men comfortably. Both boats would thus easily accommodate the sixteen crew members of the *Capella*. The suits worn by Rob and Duff were like those carried by the *Capella's* crew on the expedition. They were heavily insulated, electrically heated, and contained air spaces for additional prevention of heat loss.

Rob dove quickly toward the planet's surface. Time was the important element in this venture. He saw the capsule shape of Lieutenant Stone's boat, which had gotten a head start, just below. Rob felt a steady battering against the hull as he neared the ground. This was caused by the suspended frozen particles in the atmosphere.

Rob opened the forward braking jets, which poured against the big flat area of dry ice beneath. A dense cloud enveloped the craft as the surface of the carbon dioxide was warmed and evaporated into gas.

The landing, therefore, had to be made more through judgment than through vision. When Rob felt a gentle bump under him, he felt immeasurably better.

"That was close!" Duff remarked over his helmet radio.

"I see the lieutenant landed safely too," Rob said. "He's getting out."

"He left his jets idling," Duff said. "Maybe we ought to do the same."

"Right," Rob agreed. Cutting down the engine power, he then jumped out with his heat gun, followed by Duff.

The *Capella* stood about forty feet away. The flat of dry ice was free of the cloud now, and visibility was good under the glow of the stars and the sun, which resembled a bright arc light. As Lieutenant Stone came over with his gun in hand, Rob was shocked to see a coating of frost growing over the officer's suit just like a fur covering! The same thing was happening to him and Duff, of course. Rob was grateful for the antifreeze compound which had been rubbed onto the facepiece of his helmet to keep vision clear.

“Let’s get over there,” the lieutenant said over his helmet radio.

Rob could already feel the insidious cold getting in to him, seemingly to the very marrow of his bones. The grimness of the situation was relieved to some extent as he saw Lieutenant Stone crunching along in front of him, clouds of vaporizing dry ice swirling comically upward with every step he took. It looked as though his boots were smoking!

The *Capella* was an awesome, frigid sight. Its prow jutted upward into the twilight sky like a gigantic icicle. It seemed unbelievable that anyone could still be alive inside such a desolate, arctic tomb. Rob and his companions made a quick search about the ship to see which place had the thinnest coating of ice on it.

“I believe the jet chambers are the easiest escape openings,” Rob suggested. “There’s less ice on them than anywhere else.”

Lieutenant Stone nodded. “Let’s start blasting.”

Dense white vapors poured over them from the generated heat as they fired upward into the jet cylinders. There were small, rocking explosions, and balls of fire burst before their eyes. Duff was knocked off his feet, and Rob and the officer were shaken. Duff rose again and valiantly went back to work with his companions.

“We must have ignited small amounts of explosive gases in the atmosphere,” Lieutenant Stone said.

The explosions began to be fewer, but the white vapors persisted. At last holes were opened in three of the large cylinders. Rob looked up, and presently space-suited figures appeared overhead in the opening he had blasted out. The men quickly hooked ladders, used for cleaning the jet chambers,

over the side and started down—clumsily after the bitter ordeal they had gone through.

Some were so overcome by the raw cold they could scarcely walk when they were outside. One of the research scientists complained mournfully about having to leave his equipment behind. Each man was assisted across the ice to the waiting space boats. Spacemaster Nielson, who appeared in somewhat better shape than most of his men, helped in this.

“The engines have gone dead!” Duff noticed.

“I sure hope we can get them started up again,” the lieutenant groaned, helping the last crewman he was to take into his rocket.

Rob told Lieutenant Stone to go on, that he had only one more crewman to help out of the *Capella*. Lieutenant Stone got in, closed the door, and started up the stalled jets. They sputtered reluctantly, then began firing evenly. Rob was grateful to see the capsule shape lift safely into the sky a moment later.

Rob and Duff returned to the doomed ship and motioned for the last crewman at the top of the rocket shaft to come down. The space-suited figure was about to start when he suddenly collapsed and fell over on the floor up above!

“Give me a boost into the chamber,” Rob asked Duff.

Duff assisted him, and he caught hold of the lower rung of the ladder and pulled himself inside. It was an exhausting climb up the ladder in his bulky suit, and for a moment or two he thought he could not make it except for the man’s pressing need.

Finally he reached the floor level and leaned over the crewman who had collapsed. It was Jim Hawley, his face ashy

gray with cold! Rob hastily propped him over his shoulders. In Pluto's light gravity pull it was not too much of a load.

Carefully Rob started down the ladder. The icy glaze that encrusted the metal rungs was treacherous. A fall might easily be fatal, for a torn suit would bring quick death from the temperature.

Rob found Duff jumping up and down to keep warm. He looked like a frolicking polar bear in his frost-whitened suit. Gently Rob handed the limp body of Jim Hawley down to Duff. Then Rob leaped to the ground. Together they started off, supporting Jim between them. Suddenly Duff halted, jerking Rob backward. Rob turned and saw Duff pointing upward at the *Capella*, which was tottering on its base fins! The fire blasts had obviously upset the ship's balance.

Rob motioned for them to hurry. Just as they reached the space boat they felt the ground tremble. They turned and saw the space ship topple over with a ground-shaking crash and begin to roll down the slope toward the lake of liquid oxygen.

Rob gave a cry of fear.

"What's the matter?" Duff asked.

His voice came muffled over Rob's helmet. It seemed that the freeze was going to destroy their means of communication too. "When the ship reaches that lake, there's going to be a fierce explosion!" Rob replied.

"Why?" Duff inquired.

"Our heat guns warmed up the ship and when it hits the lake," Rob told him, "the liquid oxygen will reach its boiling point and vaporize with terrific force!"

Duff's steps quickened at this, and finally the two, with their burden, were at the craft. They blasted at the frozen seams of the door with their guns. Even in the few minutes' time, layers of frost covered the small rocket. White clouds and small explosions accompanied his and Duff's efforts.

The door had had to be closed in order to keep the crewmen inside from suffering even more from the bone-chilling temperature. Through the frosted window Rob could see the men pushing against the door with their feeble strength, trying to help.

Rob felt panicky. It appeared that the few minutes' delay in rescuing Jim might cost them their lives. He glanced down at the huddle on the ground that was Jim Hawley. If Jim didn't get out of this biting freeze in another minute, he would probably never survive it.

Suddenly remembering the terrible danger from the *Capella*, Rob glanced in its direction through an opening in the clouds. "There's a break!" he said hopefully over his radio. "An ice boulder has blocked the ship temporarily!"

In reply, Rob heard only a muffled squawk over his receiver. Their radios had succumbed to the freeze.

When it appeared that the door seams were free enough, Rob and Duff dropped their guns and began tugging on the door. Those inside pushed at the same time. With a tearing sound the door swung open. Rob and Duff helped Jim in swiftly.

"Keep him on his feet and moving!" Rob told them, forgetting for a moment that his radio was dead. He then made motions to show what he wanted them to do.

He jerked the door partially closed, took his pilot's seat, and started the jets. They choked and gave fitful bursts. Then they died. Rob grabbed up his heat gun and hopped outside. He

crunched over dry ice to the rear of the space boat and began blasting into the jet tubes.

The numbing glacial cold seeped through his insulated boots and space dress. He stamped his feet as he worked. Now and then he cast a glance at the *Capella*, which was working free of the ice boulder and slipping downhill again. The instantaneous freezing nature of the climate was causing friction and helping to delay the huge craft to some extent.

A moment later, when Rob decided that the jet tubes were opened, a strange feeling came over him. It was a mixture of giddiness and sleepy lethargy.

“You’re freezing to death!” his subconscious warned. “Get moving! Get moving!” He shook himself and staggered back on numb legs to the door of the space boat. His head cleared as he forced open the door with the help of Duff from inside. He crawled in and slumped into his seat, panting heavily and drinking in gulps of sweet oxygen.

He dared not even think what would happen if the jets should not fire this time. He switched on the power and slammed his foot against the choking pedal. The jets sputtered, then quickened, then purred with regularity! Rob heaved a mighty sigh and opened the throttle. The space boat lifted into the sky with a jolt that caused the weary passengers to tumble against each other.

When they were well above the ground, Rob motioned for Duff to keep his eyes on the *Capella*, which was nearing its destruction. A moment later they saw it plunge into the oxygen lake, and Rob flinched. There followed a ghastly flash and roar, a detonation that was as fierce as Rob had predicted. The two young spacemen felt some of the shock currents even at their height. But they were safely above the danger, and that was all that really mattered.

Some hours later the *Rigel* was heading earthward again. As soon as he was permitted, Rob paid a visit to the infirmary where most of the crew of the *Capella* lay for treatment. In one of the beds Rob saw a familiar smiling face and tousled sandy head that warmed his heart.

“Hi, hero!” Jim Hawley greeted. He had a comical appearance with his cold-reddened ears and nose.

“How are you doing, Jim?” Rob asked, pressing his shoulder gently.

“Fine. I’ve got some frostbitten appendages, but the doc says I won’t lose any of them, thanks to you.”

“Thanks to you, your whole crew was saved,” Rob countered. “If you hadn’t fixed that antenna....”

Jim looked thoughtful for a moment. “I guess it’s thanks to everybody on this trip, Rob.”

Thinking of the heroic work of Lieutenant Stone and Duff on Pluto and the other crewmen who had trusted their lives to his doubtful theory in the Saturn crisis, Rob had to agree with him. “You’re right, Jim,” he murmured. “This trip it’s ‘thanks to everybody.’ And I can’t say it too much.”

MERCY FLIGHT TO LUNA

Toby Workman stared out of the window of his room on the rim of the space station, wondering what he should do. As the countless stars of black space trooped slowly past in an endless caravan, the boy was still haunted by the nightmare of last week. That nightmare could yet end forever his dreams of a space pilot's career. Toby was looking in the direction of the mist-covered globe, five thousand miles away, which was Earth. The space station was a celestial lookout, a scientific laboratory, and a harbor for space-going rockets.

"What're you thinking, Toby?" asked Lou Penner, his roommate.

"I'm wondering if I should take Dr. Shepard and Deb to Luna," Toby answered.

“Are you crazy?” Lou blurted. “Do you think they’d ride with you after all that mess that happened last week? Remember, too, you never did get along with Deb’s dad very well.”

Toby turned from the window, his sturdy shoulders slumped in defeat, a brooding unhappiness on his sensitive face. “You sound just like the others, Lou,” he said bitterly.

“I’m not saying I believe you were responsible for the accident,” Lou said carefully. “I’m just giving you the cold facts.”

Just then over the wall speaker of their room came another appeal for a pilot to carry the doctor and his daughter, who was a nurse trainee, on the desperate mission to Luna to administer antitoxin in the sudden outbreak of contagious fever.

“There’s no one else, Lou,” Toby said. “I’m the only licensed pilot on the space station right now. You’ve got fifty hours to go yet on yours, and the express bringing other pilots from Mars won’t be in for a long time. A delay may let the fever grow into an epidemic.” Toby opened his locker and began pulling out flying gear. “I’m going to try it, Lou.”

“How are you going to get the doctor to ride with you?” Lou wanted to know.

“Just keep out of his sight until we’ve blasted off and are on our way,” Toby said. “Then he’ll have to go along.”

Lou grinned at him. “I should have guessed you’d try this, knowing how daring you are and your mania for helping people.”

The event which had been ruinous for Toby had occurred when he had been piloting a sight-seeing rocket for

vacationists from Earth. It was his first big job. While they were coming into dock on the giant revolving wheel which was the space station, something had happened to the braking rockets, and the ship had collided with the hangar, injuring several people. When it was discovered that nothing was wrong with the rockets, Toby was unofficially accused of negligence pending further investigation, although his license hadn't been taken away. If no mechanical defect should be found, Toby knew he would be suspended from space flying indefinitely, possible for life.

Toby had Lou inform the operations officer of his offer to make the flight to Luna. Then he dressed and made his way toward the inner hub of the wheel where the vast hangar was located. He walked along the narrow corridors in a jerky movement, not yet having gotten used to the artificial gravity which was created by the continual rotation of the space station. He and Lou had been on the station only a month. Many high-school students came here every summer in order to build up a flying record, thereby hastening the day when they would be full-fledged rocket pilots.

As he looked for his ship, Toby saw the investigating crew still examining the big craft in which he'd had the accident. Their significant report might come at any time. Toby had the small rocket flyer, which Lou and he were renting together, towed to the air lock. Toby wished he had time to have the ship checked, but if he waited for that, they'd lose their precious time advantage.

Toby waited, with pounding heart and idling rocket motors, for his passengers. Presently, through the side port of his pilot's compartment, he could see the brisk strides of Dr. Shepard and his young daughter. A steward helped the two inside with their medical equipment, then waved a farewell to Toby.

"All set, sir?" Toby called to the doctor.

“Yes,” Dr. Shepard returned.

Toby clamped shut the airtight door. He revved the motors to launching thrust, and their roar drowned out the quiet hissing of the oxygen out-putter. He fastened his safety belt, told the others to do so, and then was off.

When the painful effects of blast-off were over and the ship was on a smooth trajectory, Toby heard a click of metallic soles along the magnetic floor and braced himself for the unpleasantness he knew was coming.

When Dr. Shepard recognized him, he exclaimed angrily, “You!”

“Yes, it’s I, sir,” Toby admitted. “I knew you and Deb had to get to Luna as quickly as possible.”

The doctor’s lean, angular face reddened. “But you’re incompetent! I thought your license had been revoked! If you believe you’re doing something heroic, Toby, consider also that you’re risking the lives of us who could be of service to those stricken people on Luna!” He paused a moment for breath, then went on. “A person your age has no business flying rocket ships in the first place. It’s a job for older men with mature judgment!”

With that, Dr. Shepard clattered back to his seat in the back, leaving Toby with a feeling of being as incompetent as the doctor had said. He stared glumly out the forward port at the wrinkled witch-face of Luna. Her gaping craters were like taunting eyes, and her jagged mountains appeared to wear the twisted grin of a mocking giant. Even nature herself seemed allied against him.

Suddenly he had company again. It was Deb this time. He studied her pretty face closely, wondering if the inscrutable

look on it meant that she was one of that majority of disbelievers or whether perhaps....

“Tell me, Deb,” he said to her, “do you believe that accident was my fault?”

She smiled sympathetically, tossing her titian curls. Her large clear eyes were sincere and direct. “Would it make any difference to the examining board if I did believe in you?” she asked.

“No, they’d still lift my license if they wanted to,” he answered, “but it would make a lot of difference to me.”

“You said it wasn’t your fault,” she said softly, “and I believe you, Toby.”

Suddenly Toby didn’t feel quite so lonely. “It helps a lot to know that one person, at least, believes in me,” Toby said gratefully. “Thanks, Deb.”

Dr. Shepard called his daughter back. Toby had half expected Deb to say what she had. She was a swell person. Even since she had been transferred to his school class, he had known her as a quiet girl who couldn’t believe the worst in anybody. Like Lou and himself, she was doing extra summer work in order to earn her space nurse’s rating sooner. Her father was considered one of the best space surgeons. Toby had never been one of his favorites among the fellows who came to see Deb. Toby had heard from Deb that her father regarded him as reckless and too ambitious for his age. The doctor’s own education had been a plodding one, hence his inability to accept the idea of young people still in high school piloting rockets.

The flight continued to be a tense one for Toby as the dragging hours passed. Dr. Shepard kept Deb in the back, leaving Toby with only the cold remote stars for

companionship. When Toby slept, he put the rocket on automatic pilot, but he could not completely relax.

On the last leg of the journey, Toby heard a buzz on his radio set and tuned it in. It was Lieutenant Cameron, operations officer at the space station, and Toby's heart froze with dread as his sobering message came through:

"I've been instructed to tell you that this is your last trip as a pilot, Workman, at least for a long time. The investigation of the craft in which you had the accident is nearly completed, and there seems to be no mechanical defect upon which the disaster can be blamed. I'm afraid it boils down simply to a serious error of judgment, Workman. I'm sorry, but the chief says your license will be revoked upon your return to the space station."

"Yes, sir," Toby murmured, and signed off numbly.

Although the message was not exactly a surprise, Toby hadn't known it was going to be so hard to take. It made him feel all empty and hopeless inside. He had a strong urge to get up and walk right out of the ship into the black deeps, there to drift in the weightless vacuum forever. But the fact that he was responsible for his passengers kept him in his seat, told him to stick to his job and see it through, to dare hope even in this grimmest hour.

At last the forward port revealed the bleak wilderness of Luna down below. Toby lined up the tiny space harbor in his landing sights. He placed the rocket flyer on automatic pilot and went back to the rear.

"We're about to land," he told his passengers. "Fasten your belts securely."

He returned to his seat and began sliding shiny floor levers. There was a rumble of smooth gyroscope bearings as the

rocket's outer torpedo-shaped casing did a complete half turn. This brought the rear jets facing the moon so that they were in position to act as brakes as the rocket plunged groundward. The passengers were unaware of this, for the inner shell in which they sat remained in its original position, but they could feel the drag of deceleration as the ship began losing its blazing speed. Toby steeled himself for the agonizing pressure that would come when the ship reached full deceleration.

Suddenly something prompted him to look at the speedometer. What he saw nearly caused his heart to stop beating. The ship was not losing enough speed. The jets were jammed!

He thought how ironical it was for the very same thing to happen to him twice—two cases of jet braking failure—but he might never live to bear the disgrace of this one. Nor would the Shepards, with their precious knowledge and serum. Thinking of them brought Toby up out of his seat.

Toby's fumbling hand found the lift stick. As the rocket angled up from the frost-bitten ground, he saw a racing blur of Lunar landscape, pumice drifts, and buildings so near he could almost have reached out and touched them. It was such a close call that it left Toby shaking. The rocket scurried off over the barren land like a frightened bird.

Toby heard a clatter down the aisle. He turned and saw Dr. Shepard being flung about like a chip on an ocean. Toby staggered down the passageway after him. Necessarily rough, he shoved the doctor back into the seat from which he had unbuckled himself, and strapped him tightly. Deb was a pale ghost still buckled down beside him, her eyes wide in terror, her body tense as a coiled spring.

"Make him stay put!" Toby ordered and slipped and slid back to the front. As the rugged moonscape swept dazzlingly across the port, Toby headed the rocket's nose upward again. A

nauseating giddiness was threatening to overcome him. Toby shook his head vigorously and hung on.

When the rocket had lifted high over the planet, he began “purging” the jet chambers, a procedure sometimes effective in pulling them out of a state of jamming. The action consisted of alternately giving the tubes a sudden full thrust, followed by a few moments of total inactivity. At each burst, Toby felt as if his head would be snapped off his neck. At last he sensed that the jets were working freely. This was confirmed by a glance at the instrument panel.

Once again he headed the ship in for a landing. He felt the rhythmic jerks of the firestreams in normal braking thrust, and he sighed in relief. Some minutes later the rocket touched down gently on the soil of the moon. They were safe.

Toby helped the bruised and shaken Shepards into space suits and got them outside. He felt pretty badly mauled himself and thought he’d keel over at any moment as he saw the eternal stars of the Lunar sky grow dim before his eyes. Then someone gave him a supporting arm into the waiting room of the spaceport.

It was some time before Toby felt like himself. He found that he and the Shepards, coming to full consciousness themselves, were surrounded by people.

“I’ve been in the space service a long time,” Toby heard someone say, “but that was the slickest landing I’ve ever seen! That young fellow must have superman nerves to do what he did!”

Toby never saw so many grinning faces watching him or so many hands clapping him on the shoulder.

“It was certainly a show of calm judgment and expertness, Workman,” a man in uniform said and stuck out a big palm to

him. Toby took it, blinking incredulously, for he faced none other than Commander Jameson, the chief on Luna.

“I thought you’d like to know,” the commander went on, “that I just now got a message from Lieutenant Cameron reporting that, upon re-examination, they found a defective valve that could conceivably have caused your accident last week. After your showing on this landing, I’m sure they’ll agree it wasn’t a case of incompetence.”

“Thank you, sir,” Toby mumbled, bewildered by this sudden reversal of fortune.

“You’ve convinced another person, Toby,” the boy heard beside him and saw a haggard, rarely smiling Dr. Shepard. “I guess I’ve misjudged you young people. It seems you can handle ships with the best of them!”

Toby looked past the doctor and saw Deb regarding him with quiet admiration. Her wordless compliment was the most appreciated of them all. Who could say but that her lone faith had kept him going in that dark moment when he had been ready to give up?

THE PERIL FROM OUTER SPACE

Young Lieutenant Rob Allison rode the escalator down the side of the space ship to the ground. His heartbeat had increased its tempo since he had been ordered from Earth to report to Space Command headquarters on Luna. There had been palpable unrest throughout Earth for several weeks now. No one seemed to know just what it was, but it was frightfully real—that, everyone would admit. And Rob had an uneasy feeling that his trip to Luna was somehow connected with the mystery.

“Have a good ride, sir?” a steward at ground level asked the youth.

“Well enough,” Rob said.

Rob had not yet gotten used to being called “Sir.” It made him feel older—an experienced spaceman—not his mere nineteen years of age. More than that, it gave him a false sense of importance.

The steward saw before him a tall, husky fellow who filled his space suit well. He saw a young man who carried himself confidently, yet in no way pretentiously, despite his unofficial nickname of “the Space Command’s youngest hero.”

Rob’s eyes roved about looking for the jeep which General Forester had said would be here to meet him. He glimpsed the distant Lunar panorama which was the scene of his first interplanetary adventure some years before. He had visited all the planets or their moons since then. There had been perils,

defeats, triumphs. It amazed him that he was still alive after it all. Beyond the gaunt stone buildings of the colony, the serrated tops of the Lunary Appenines pricked the black sky where stars almost too many to comprehend lay scattered like self-luminous gems.

“Lieutenant Allison!” came a voice from across the drifts of pumice. “Over here!”

Rob approached the jeep, jogging along with the ease of an elf’s tread in Luna’s light gravity. Rob recognized a circlet of rockets on the driver’s plastic helmet and was both surprised and flattered.

“General Forester!” he said over his suit radio. He saw the officer’s grin within the shadows of his headgear.

“You’re just about the most important person in the world now, Rob,” General Forester said, “and so I thought I’d come for you personally.” His narrow brown mustache thinned to a pencil line as he continued to smile welcomingly.

Rob felt a disturbing jolt within him as he heard the general’s words. What significance lay behind this remark?

“I’m flattered, sir,” Rob said.

“You shouldn’t be,” the general said brusquely, in a strange reversal of manner. It was odd how quickly his sunny expression became grim. “I’m afraid we’re more interested in you for what you can do for us—and Earth—than in your personality.”

Rob felt the uneasy tightening of the noose of suspense. He felt suddenly naked and alone, his confidence shaky. He wanted to ask why he had been chosen to take on an apparently enormous task. The general anticipated him.

“We picked you, Rob, for this biggest of all jobs because you’ve been through all the terror and suspense that the project might entail. Your reputation for courage has caught up with you, Rob, and we’re going to use it for all it’s worth!”

Rob felt his pulse throbbing in his temples as the jeep scurried over the sand dunes toward Space Command headquarters. While his heart could scarcely contain his excitement, his mind was equally frantic for facts. “What is the job, sir?” he asked quietly.

“You’ve noticed, of course, the suppressed terror of the people back home in the past weeks,” the general said. “They know something big is wrong, that their very lives are being menaced. How they found out I don’t know, because the strictest censorship has been held. Maybe it’s a sort of telepathic hysteria that can’t be censored. At any rate it’s there, and there’s already been trouble from it. The Command at home has been getting crank letters demanding that we tell the people what is wrong. This kind of thing can lead to something bad.”

“Then something is wrong?” Rob ventured, watching the officer expertly avoid a treacherous crack in the frost-riven ground.

The general’s face became haggard, and there was a trace of terror in his own eyes. “There is. Something even worse than the people must suspect.”

Rob shuddered. All of a sudden the minus-200-degree temperature outside his space suit seemed to have penetrated inside. He checked the heater and found that it was all right. No, this was a mental chill.

Next came the inevitable question, “What is this—thing?”

“You and your crew will be sworn to strictest secrecy before you blast off from Luna,” General Forester said. “That pledge of secrecy for you begins at this instant. If the people back home got even an inkling of what the trouble is, there would be widespread panic.”

“You have my word, sir,” Rob said.

That pledge of secrecy for you begins at this instant.

There followed an electric silence for several moments. It was as if the general himself were rallying courage. “There is a giant radioactive cloud approaching the solar system from outer space at a terrific speed. The cloud covers an area roughly as big as Jupiter. Scientists have been plotting its trajectory with electronic instruments for a long time, and there is no doubt but that it will collide with the system if nothing is done about it. Life, of course, would be wiped out completely.”

Rob felt the horror of the statement clear to the marrow of his bones. It left him shaking and numb. The general noticed the effect on him.

“That’s the way it left me when I first heard about it,” he admitted. “If it affects us two, who are reasonably adjusted to the terrors of space, how do you think it would affect ordinary persons?”

After the shock had lessened somewhat, Rob was able to speak. “But you do have a weapon against this cloud?” he said hopefully.

“We hope we have,” General Forester replied. “It’s called Operation Big Boy.”

There was no more time for discussion. The jeep topped a rise, just below which lay the hub of buildings making up the Space Command. Rob suffered further agony of suspense as they parked and glided over the sands to the general's office in the main building. Rob was glad to get out of his space suit, for he had been in a cold sweat ever since he had heard the first sobering words about the cosmic terror. Rob and the general locked themselves in the privacy of the latter's quarters.

"The appearance of the R-cloud, as we call it, has necessitated using our topmost military weapon," General Forester resumed. "You and no one else except the World Security Commission has known that the Space Command has had for some time a stockpile of cosmic-ray bombs which could literally blow Earth apart. You and your crew will carry a set of these bombs and try to scatter the mass so that it won't penetrate the solar system. But of course there's no assurance that the bombs can do this."

Rob heaved a deep sigh. He knew at last what was in store for him, but this knowledge held little satisfaction. The things spoken between him and the general in the few minutes they had been together had been staggering in concept. It was hard for him to realize that he was part of such a colossal scheme. It was more like a dream.

"Naturally you and your crew will run considerable risk," General Forester said. "I've been told to give you the refusal of the job if you feel that you cannot go through with it. But I pray that you'll give it considerable thought before you turn it down. I don't know of a better man in the service to trust with the future of humanity."

The future of humanity. Dependent upon him, an insignificant one of several billions who populated Earth! The idea nearly bowled Rob over. Yet he found himself agreeing to take on

the task. He spoke quickly lest he wait too long and find himself withdrawing.

General Forester led him out of the building through a connecting tunnel to a plastic-domed hangar. Here Rob saw a little hundred-foot X-500 Cetus fighter rocket crawling with a ground crew that was obviously readying it for flight. It was quickly evident to Rob that the Cetus was a specially adapted make, for it was unusually deep-bodied.

“This is your ship,” the general explained. “It’s a model that was built especially to carry the C-bomb. There’s one room for a crew of six. The rest of the bulk is for shielding against radiation from the bomb.”

Rob could readily appreciate this latter fact, knowing that cosmic-ray energy was many times more powerful than nuclear fission.

“Is the crew on Luna now, sir?” Rob asked.

“They’ll arrive on the ferry from the space station later today,” the other replied. “Let’s go back.”

As they retraced their way through the tunnel, the general filled in more facts. “We had hoped to let the R-cloud approach closer before launching an attack, but the pressure of public suspicion makes it necessary to get on the job right away. You’ll carry the X-500 to Titan where you’ll pick up the bombs from our Command unit there and get your final instructions. After that, you’re on your own.”

Six men battling the greatest pack of energy ever faced by mankind! It was almost like tempting fate, Rob thought; like facing a mechanized army with only a club for a weapon. But Rob had confidence in the scientists of this day and their devastating brain child, the cosmic ray bomb.

Rob met his crew in the general's office. He silently studied the young men, selected as the best in their field, who would be entrusted with the lives of three billion people.

General Forester introduced them: Mort Haines, the chubby, burr-headed mechanic; tall, thin-faced Lieutenant Fox, chief pilot; navigator-radiation officer Lieutenant Swenson—big, blond and Swedish; small, prematurely balding Goode, the medic; and lastly the youngest of them all, the one who made the greatest impression on Rob. His name was Clay Gerard, a “sputter” or graduated space cadet without a rating, who would fill in on odd jobs which did not fall under the province of his more experienced companions.

Clay extended a big palm to Rob. His grip crushed Rob's hand. Rob looked into his expressive blue eyes and thought he detected some amusement in them. Rob marveled at the boy's muscle-padded shoulders, thinking how well he would fit into somebody's football backfield. Then it came to him suddenly that Clay had done just that, and exceptionally well.

“Aren't you last season's triple-threat star at Space Academy?” Rob asked.

“That's me,” Clay answered.

“I hear you ran your opponents ragged, Clay,” Rob said. “I hope you help us take care of our present enemy the same way.”

“I'll do my part,” Clay said. “I don't like to blow my own horn, but I was champ in every sport I entered. That ought to qualify me for this team, shouldn't it?” His lips twisted in a bantering grin.

General Forester broke in. “Please observe service courtesy, Cadet Gerard, and address Lieutenant Allison as ‘sir.’”

“Yes, sir,” Clay replied. He looked at Rob. “You and I must be about the same age—sir.”

The subtly prolonged final word did not escape Rob. Something warned him that he might have a mildly rebellious spirit in his crew.

“I believe so,” Rob returned, “and I’m sure both of us will act our ages on this project. The future of our planet depends on it.”

“I know, sir,” Clay answered with unexpected soberness that made Rob hope he had misjudged him.

The crew was briefed in detail on the facts of Operation Big Boy from the moment they would depart from Luna to the final act of guiding the last cosmic missile into their antagonist. After this, the crew was dismissed to attend to their final affairs and get some hours of rest.

Later, Rob heard that a girl by the name of Gerard was working in the communications office, and he went over to see if she were any kin to Clay. Clay had left before he had heard her name spoken, so he couldn’t find out from him.

He found auburn-topped Dulcie Gerard at the transspace radio switchboard handling a communication between a lonely doctor on Mars and his wife back on Earth. When it was over, she switched off and turned to Rob with tears in her brown eyes. “Can I help you?” she asked.

“You’re crying,” Rob said.

She smiled prettily. “It was that conversation I had on the board. It touched me, the way they talked.”

Suddenly the girl stared at him so intently that he found himself blushing.

“I’m sorry,” she said, “but aren’t you Lieutenant Allison?”

“Guilty,” he said.

“I’ve heard of all the wonderful things you’ve done,” Dulcie went on, “but I never thought I’d meet you in person.”

Rob shuffled his feet in embarrassment and decided to get down to business. “The information clerk down the hall told me you’re Dulcie Gerard,” he said, “and I wondered if Clay Gerard is your brother?”

At the mention of the name, her face took on a softened, somewhat tragic expression. “I don’t know whether he’s my brother or son, the way I’ve been looking after him since our folks died a few years ago.” She smiled wryly. “We’re close to the same age, but Clay seems to have a strong feeling for family ties. He’s not home much, but he likes to have a home to come to when he’s tired or just wants to and I’ve tried to provide it for him.”

“I just met your brother today, but somehow he didn’t impress me as being that way,” Rob said. “He gives me the impression of being, well—completely independent.”

“Don’t be so polite, lieutenant. Clay’s attitude is painfully superior, but of course I love him in spite of his faults. He’s such a sweet guy otherwise.” Her eyes then began to glow with a deep fear. “Just the same, I’m scared to death about him. Clay is like a powder keg, and some day somebody’s going to light his fuse. He’s going to blow right up and he’ll be in a lot of trouble.”

Rob couldn’t answer because he feared she spoke the truth. Clay Gerard was heading for a fall. Even in this short time, he had detected it.

“What am I going to do, lieutenant?” she asked helplessly.

Rob wished he had an answer for her, because already he had begun to admire this valiant young person. But once again he had no answer, and he told her so.

“Of course you wouldn’t know,” Dulcie said with a sympathetic smile. “He told me he was on your crew that’s leaving on a special mission today. Maybe since you’ve talked to me you’ll be able to understand him on the trip a little better anyway, lieutenant.”

“I’ll try to do that, Miss Gerard,” Rob promised, “but I’m afraid it’ll be mostly up to Clay himself. I wish you’d talk to him and tell him how important it is that he make himself a part of the team on this voyage and not just a triple-threat star. I can’t tell you how vital it is for him to do this.”

“It must be a terribly important flight,” the girl said. “The Space Command has been using its priority wave length more than ever in the past few days.”

“Sorry, but I can’t give out any information,” Rob told her. “All Space Command flights are top secret, you know.”

“I know. But a person can’t help wondering. I mean after all that panic that’s going on back on Earth—”

It would never do for her to find out about Operation Big Boy, Rob thought worriedly, so he decided to end the conversation completely.

He looked at his watch and said, “I’ve got to get back to my quarters now. I’m grateful for what you told me about your brother. If he co-operates with us, we’ll go halfway with him. Just remind him of that.”

Dulcie looked at him intently. “Clay and I are the last of the Gerards, Lieutenant Allison. Our heritage has been a great one, and I guess that’s what’s helped to make Clay like he is.

It's because Clay is the last of our family to carry the name that I want so hard for him to make good."

"With a sister like you encouraging him, Miss Gerard, I don't see how he can miss," Rob told her gallantly and with an engaging smile.

Her thoughtful gaze followed his figure until it disappeared around the far corner of the hall.

A few hours afterward, the six-man crew of the Cetus X-500 was in the Space Command planetarium receiving final briefing from General Forester. The spacious dark room gleamed with thousands of lights, each one of them accurately depicting a prominent star in the heavens. General Forester pointed to a pulsing hazy spot against the starlight.

"This is the R-cloud," he said. "It's really invisible, of course, but it's made visible in here to show you its location. Its apparent direction is a few degrees south of the bright star Procyon in the constellation Canis Minor, almost on the plane of the ecliptic. Some of our scientists believe the cloud was an eruption from Procyon about fifteen years ago. Starting eleven light years away and traveling nearly at the speed of light, it's just getting here."

"Am I right, sir," Lieutenant Swenson said, "in assuming that there will be a colossal explosion when our bombs contact it?"

"Undoubtedly," the general assured him. "For that reason you will release the guided missiles when you reach the edge of the solar system. Unless the cloud changes course, which we have no reason to believe that it will do, the point of contact will be ten billion miles distant from the sun. Our scientists believe that is a safe enough distance from us. The flash will probably be of novalike proportions."

The general turned over to Rob and Lieutenant Swenson, the navigator, stacks of charts and tables that had been prepared showing the exact location of their ship and the cloud every minute of the way. It was a project requiring infinitely careful calculation, and Rob marveled at the mathematical ingenuity that had gone into the prodigious task. A miniature of the much larger electrometer which had first detected the menacing cloud had been installed in the rocket fighter so that Rob could continually keep it in his electronic sights, so to speak, at all times.

“You will blast off at 1835, seventeen minutes from now,” the general concluded, “and cross planetary orbits under full atomic thrust to Titan. You will land at our base there, have a final mechanical check, and load your bombs. General Carmichael, the chief there, will advise you of any conditions that might have changed since you left here. After that you will blast off to your rendezvous with the R-cloud. Any questions?”

There were none. Like himself, Rob noted that his companions seemed to be rather numbed by the enormity of their task. It seemed almost ridiculous that six persons could be expected to accomplish the incredible job plotted for them.

“My sister said she talked to you,” Clay Gerard said to Rob when the Cetus X-500 had blasted off and her crew had unbuckled from acceleration couches.

“That’s right, Clay,” Rob answered. “I’m afraid she was a little suspicious about our mission. Did she try to get any information out of you?”

Rob knew he had touched off a spark as Clay’s handsome face colored. “Sis isn’t one to go prying into official business, lieutenant! That’s why she holds such a confidential job.

Besides, I know enough about regulations to know what I can say and what I can't!"

"Don't get out of line, Clay," Rob reminded him. "I wasn't implying that either one of you were violating rules."

"Sis is a swell guy, lieutenant. She's one in a million."

"I've met her, Clay. I know she is."

Rob felt Clay's eyes appraising him from head to foot.

"You must've been quite a star yourself when you were in cadet school, lieutenant," he said. "I mean, since you've been such a hero on different space expeditions."

"As a matter of fact, I couldn't seem to do anything extra well, Clay," Rob admitted.

Rob thought Clay looked somewhat pleased to hear this. He wondered then if Clay had not set him up as his own personal rival who must be overcome as he had overcome all others he had vied with.

Rob noticed Mort Haines, the stocky mechanic, watching them both closely from the other side of the compartment. Was that an expression of contempt he was directing at the strapping young "sputter"? He had observed such an expression once before when Clay had spoken of his accomplishments.

Rob hoped desperately that there would be no personal conflicts. A clash of temperaments, even a trivial one, could endanger the operation. Rob resolved that if he did notice anyone getting out of line he would replace the offender on Titan with a new crew member. He could not afford to take any chances.

Rob was first aware of trouble when he heard a commotion down the corridor. He sprang from the electroscope, where he had been checking on the movement of the R-cloud, and clicked rapidly down the aisle. He caught the scene in a graphic instant. Harry Goode's small form was wedged courageously between the scrambling figures of Clay and Mort Haines. There had obviously been some blows thrown, for there was a cut on Mort's face.

"Let them go, Harry," Rob said.

He stepped back and the combatants cooled down.

"What happened?" Rob asked.

Mort sponged his cut with a handkerchief. "The big guy was bragging about the records he had set, sir. I was busy checking a rocket chamber that was heating up, and I told him to lose himself. He said he had as much right in here as I did and that I'd have to throw him out. I was starting to oblige him, sir, when you came in."

"Better get back to that rocket trouble, Mort," Rob said.

"Yes, sir," Mort said and went back into the cramped quarters of the engine compartment.

"Thanks, Harry," Rob said to the medic, whose sparse fringe of hair had been disordered in the struggle.

Rob took Clay into the corridor where they were alone.

"Was Mort's story true?" Rob asked.

"I don't like his use of the word 'bragging,'" Clay protested. "We just happened to get to talking about sports and I told him about the track meet in 2002 when I set new records in the running broad jump and mile run. Then suddenly he

springs up all red-faced, accusing me of bragging ever since he has known me. That got me hot then, and I guess one thing led to another.”

Rob looked at him squarely. “I’m afraid I’m going to have to replace you on Titan, Clay,” he said quietly.

The color drained out of the big fellow’s face. He was shocked. “Why—why?” he blurted.

“Because I’m afraid your attitude is a danger to the success of the project,” Rob said.

“My attitude?” Clay asked in surprise. “What attitude?”

“Think about it awhile and I believe you’ll understand if you’re honest with yourself. If you can’t figure it out, my explaining won’t do much good.”

As this sank in, Clay’s initial pallidness gave way to a red suffusion of anger. “I know what it is! You can’t stand the competition! You’re afraid the name of Gerard will steal the glory from the Allison reputation on this flight!”

Just then there was an unexpected witness on the scene. Lieutenant Swenson was striding rapidly up the corridor.

“I couldn’t help listening,” he said, “and I can’t help putting in my two cents!”

He planted his stalwart body in front of Clay Gerard. “Lieutenant Allison is too much of a gentleman to give you the lesson you deserve, Gerard, so I’ll do it myself verbally—and physically too if you prefer.”

“The idea of your name competing with his in reputation is laughable. He’s set records for unselfish service you’ll never touch. You’ve set your records for personal glory, but his were

an outcome of risking his life to save his friends. And what Lieutenant Allison meant by your attitude was a polite way of saying you're a troublemaker and an unmitigated braggart. Every word you speak is a challenge to someone. Tell me, have you ever lost a race?"

"No, sir," Clay returned meekly, under the shock of the officer's blast.

"Well, you're losing this one. You're not good enough for this team, Gerard, and you're going to be put ashore on Titan. I can't imagine a person who calls himself a spaceman and takes the oath of allegiance to duty letting petty interests take first place in an operation as important as this. I don't believe you have realized yet that the future of life itself on Earth depends on the success of this flight."

For a moment Lieutenant Swenson seemed to have run out of steam as his big chest gasped for breath. Clay was so overcome he stood with lips trembling and eyes smarting. Rob suspected this was perhaps the first real dressing-down he had had in his life, something that probably his own father had never done.

Clay Gerard said nothing in defense.

Lieutenant Swenson turned to Rob. "I'm sorry Rob, but I couldn't help it. When I heard him blast out at you—"

Rob remained silent and Lieutenant Swenson walked off with some embarrassment.

Just then the rocket fighter angled up and sent Rob and Clay rolling over against the wall of the corridor. Clay's head thumped against the metal, and the blow appeared to daze him. Rob helped him up as the ship continued to rock.

"Are you hurt?" Rob asked him.

Clay shook his head vigorously. “I—I don’t think so.”

Rob hastened to the engine room, some impulse telling him that the misbehaving rocket chamber might be behind the trouble. He found Mort in front of an opening in the floor, a frantic look on his face.

“The rocket cylinder that was heating up has blown a leak!” he shouted above a deafening swooshing sound from below.

“Can you repair it?” Rob asked. “The ship is practically out of control!”

“Tell Lieutenant Fox to cut all jets and keep her even,” the mechanic said. “I’ll have to go down into the hold to plug the break-through so it’ll last until we reach Titan.”

Rob leaned over the hold and felt hot air rushing up at him. It was dark and crowded with machinery down there. “I don’t see how you can work down there in all that heat.”

Mort shrugged. “I’ll have to, or we may never land. If I’d checked it when I had that tangle with Cadet Gerard I might have saved the blowout.”

Rob sensed someone behind him and turned to see Clay, who had followed him into the engine room. Rob saw a stark look on the cadet’s face as though the grave significance of his clash with Mort were suddenly made startlingly real to him.

“Can I help?” Clay asked.

“If you can, we’ll let you know,” Rob told him as he hurried from the room toward the pilot’s nest forward.

After instructing Lieutenant Fox, Rob returned to the engine room. As though anxious to make himself useful, Clay was leaning over the hold into which Mort had disappeared, pointing a flashlight for him. The other crewmen, except for the pilot, were gathered around in a tense knot. By now, the ship had leveled off somewhat and the unevenness was less severe.

“How is Mort coming?” Rob asked them.

“He’s complaining of the heat, sir,” Harry said. “He’s liable to collapse down there.”

Rob leaned over the hold. “How are you, Mort?”

“I’m nearly through!” came a feeble reply.

“He sounds weak,” Lieutenant Swenson said.

“I wish one of us knew how to repair the damage,” Rob said. “We could give him relief.” He turned to Clay. “Let me have the light.”

Rob shone the flashlight around the confining interior of the rocket hold. He could see the squatting figure of Mort in the far corner pressed against the huge glittering curve of the jet chamber.

Minutes later, Mort had just announced that the job was completed when there was a burst of radiant light that filled the entire hold. An acrid, burning smell swirled into the room above.

“Hand me that fire extinguisher!” Rob cried and began lowering himself. Someone thrust the CO₂ extinguisher from its wall rack into his hand, and he disappeared into the smoky hold. Through the gray veil that choked the basement room,

Rob could see growing lurid flames. He pointed the extinguisher full into the fire and saw white clouds of carbon dioxide suffocating the blaze. When he could see no more redness, Rob moved forward and tumbled along the floor for Mort. He retched and coughed from the smoke. He'd be needing help soon.

His probing hands finally located Mort's inert body and he began dragging it back toward the opening in the ceiling. A few steps away and under the hole he found Lieutenant Swenson waiting there to help. The navigator took the heavy weight from his arms and handed it up through the circular opening to the others. Then he turned to give help to Rob.

When Rob had recovered sufficiently several minutes later, with no more than a tight chest and raw throat, he checked with Harry Goode, who had put Mort to bed as soon as he came out of the hold.

"How is he, Harry?" Rob asked.

The medic shook his head gravely. "He doesn't look too good to me, sir," he replied. "He's got a lot of burns and he swallowed plenty of smoke. He'll be a lucky guy if he pulls through."

"He knew this might happen when he took that welding torch down there," Rob murmured. "But he knew the job had to be done." He coughed.

"Better let me check you over too, lieutenant," Harry said. "You swallowed some smoke yourself."

"I'll be all right," Rob said. "I'll have the space surgeon look at me on Titan, though."

Rob went back to join the others. When he told them the unfavorable news about Mort, a gloomy silence settled over

the compartment. Mort had been well liked, having quickly become a friend to all except Clay Gerard.

“I checked the hold when the smoke lifted,” Lieutenant Swenson said, breaking the oppressive stillness. “Mort’s torch must have touched off latent gases in the chamber. There’s some charred machinery down there but no real damage from the explosion. Fox said the ship’s moving all right again.”

Clay seemed ashamed to gather here with the others. He was lingering in the corridor looking out the port. Rob had begun to feel sorry for the young fellow whose quarrel with Mort had led to such tragic results. Rob went out to join him.

“Nearly time to take to landing couches,” Rob remarked as he saw the curved, mistbound world that was Titan.

“Yes, sir,” Clay answered, without spirit.

“Did you hear me tell the others about Mort’s condition?” Rob asked.

Clay barely nodded. “If he dies, I will be the one who killed him.”

“It’s not your fault that he was hurt,” Rob soothed. “He knew what he was getting into when he went down into the hold with the torch.”

“But if we hadn’t fought he could have prevented the blowout,” Clay argued. “I heard him say it.”

“If there’s to be any blame for the accident, it’ll rest with the inspection team back on Luna which should have found the weakened temper of the chamber. They have stress gauges to detect such things, and they should have found it, particularly on a ship whose mission is so important.”

Clay smiled wanly. "I know you're just trying to make me feel better, lieutenant. The truth of the matter is that I'm everything Lieutenant Swenson said I am. I know now what sort of unselfish records he said you'd made. It was just like the one Mort made when he went down into the hold, knowing the risk he was taking."

"I think, given time, you'll make a good spaceman," Rob said.

Clay's unhappy face studied the approaching world outside for several moments in silence until there came the pilot's report of altitude and Rob knew it was time to strap down. Lieutenant Fox switched in the robot pilot that would make the landing and joined his companions on the row of degravity couches in another compartment. All buckled the plastic belts across their bodies and yielded themselves to the discomfort of swiftly cutting speed.

As soon as the ship landed, Rob unbuckled and, with Harry Goode, hurried to the compartment where Mort had been placed. Harry took the injured man's pulse and told Rob that it was weak.

"We'll get him to the infirmary immediately," Rob said and went to the radio nook just off the pilot's nest. He put through a call to the Space Command headquarters.

"General Carmichael speaking," came a firm, booming voice over the amplifier. "Come in, X-500."

"This is Lieutenant Allison, sir," Rob spoke. "We've had an accident aboard and a man has been badly hurt. Will you send out a stretcher for him?"

"Certainly," came the reply. "What was the man's duty?"

"Mechanic 101, sir," Rob answered.

“We’ve got a replacement for him,” the general said. “While we’re on the subject of bad news, Allison, I’ll give you mine.”

“What’s that, sir?” Rob asked anxiously.

“Just that the people of Earth are closer than ever to panic stage,” said General Carmichael. “A switchboard operator on Luna half guessed our secret and when she telephoned someone on Earth the operators back there picked up the message. You won’t have much time for layover here, Allison. You’ll have to be off almost immediately so that we can report success of Operation Big Boy as soon as possible.”

Rob suddenly went cold with dread and disappointment. Dulcie Gerard, whom he had considered one of the squarest persons he had ever met, had suddenly destroyed his faith in her completely. It made Rob wonder if making themselves unpopular wasn’t a confirmed Gerard trait.

Some minutes later, Rob and his crewmates solemnly followed the stretcher bearers out of the ship. Through the plastic airtight case Rob could see the still-as-death figure of the burr-headed mechanic who had risked his life for his friends. The party trooped across the ice slick that lay between the X-500 and Space Command headquarters on Titan.

General Carmichael met the group inside the air lock of the headquarters. His small, sharp eyes looked out from under thick gray brows at the identically dressed men before him, streams of condensed vapor rolling off their glossy suits.

Rob pulled off his helmet and advanced. “I’m Allison, sir,” he said, offering his hand.

The wiry general shook hands briskly. “Glad to meet you, Allison.” He frowned. “We’ve got a lot to do, so we may as well get started.”

General Carmichael led them into his private office.

“Your mechanic replacement will be over shortly,” the officer told them when they were seated. “His name is Olney. A good man. You’re lucky he was available. We’re kind of shorthanded here and really can’t spare anyone. None of us on the project thought your crew would have to be replaced at this final stage, but of course accidents can’t be avoided.”

Rob glanced over at Clay Gerard. Rob thought he detected a flicker of hope in the youth’s eyes. Rob pondered deeply, wondering if he should go ahead with the replacement of Clay as he had said he would do. But it wouldn’t be easy to explain Clay to General Carmichael. Giving the appearance to Rob of being a strict old-timer, the chief officer did not look to be too understanding a person on a matter such as this. Then too, he had said he simply had no other men to spare.

And yet Rob knew he must consider his other crewmen. If Clay were unreliable, what right had he to risk their lives just to give a mixed-up young fellow another chance? Rob didn’t know what to do, so he looked to his friends for advice. He resolved to act on their judgment, since they were older men. Rob caught Lieutenant Swenson’s eye. To his wordless inquiry, the navigator-radiation officer nodded. Lieutenant Fox did the same. The silent vote had given the impetuous Clay Gerard another chance, and for some reason Rob was glad that it had come out this way. Clay, who had been watching the other raptly, knew he had been reinstated, and he smiled his gratitude.

General Carmichael handed each of them pencil-like tubes which he told them they would wear in their upper blouse pockets at all times during the flight.

“These instruments record cosmic-ray radiation,” the general said. “As you know, a concentration of these rays will cause agonizing death. You will be the first crew ever to carry C-

bombs on a mission because fortunately we've never had to use them before."

Less than an hour and a half later, the Cetus X-500 was ready to go. General Carmichael replaced the charts given Rob by General Forester with ones carrying figures for the accelerated moment of departure.

Rob considered Bruce Olney a capable fill-in for the valiant Mort Haines, if looks were any criterion. He was a slender, straw blond, with intelligent eyes. He wore a miniature good-luck horse-shoe charm around his neck.

A report from the infirmary showed that Mort Haines was still in serious condition. Rob saw Clay Gerard wince as he heard the news. Clay had been an exceedingly quiet individual since the accident to the mechanic, a different person entirely. His blatant self-confidence had been whittled down strikingly to a brooding reserve.

When the crew of the X-500 was already in the ship and about to blast off, General Carmichael spoke his final disturbing speech over their radio, "I've just had another report from General Forester. The people are mobbing the White House demanding to know what it is that threatens their lives. The President doesn't believe he can hold them off much longer." The general's tone became grimmer and more emotional as he concluded. "Operation Big Boy has got to be a success, Allison. There's no two ways about it. I want the next message you send to give the good news that we will immediately broadcast throughout the system. Good luck and God be with you."

The six of them stared at one another soberly as the final words were spoken. The full enormity of their duty seemed to have struck them just now for the first time. Rob choked down the lump that pressed up into his throat. He took a full breath, readying himself, then gave his first command.

“Blast-off couches,” he spoke quietly. “Prepare for launching.”

When the roaring thunder of the blast-off was behind them and the rocket ship was grasping for the stars, Clay unbuckled his straps and turned to Rob.

“I don’t believe Dulcie spread that report about our project, lieutenant,” he said. “She wouldn’t lose her head. Not her. She’s the calmest one in the family. Besides, she’s a—a—”

“A Gerard?” Rob supplied, smiling faintly.

Clay flushed. “I guess I haven’t really changed, have I?” he said bleakly.

Rob’s brows furrowed. “I’d like to believe she didn’t do it too. But she’s the switchboard operator on Luna. She was on when we left. Who else could it have been?”

“There still must have been someone else,” Clay persisted. “I know my sister too well. She would have known what would happen if she had spoken openly.”

After setting the ship on course and under full rocket thrust, Rob and Lieutenant Swenson took time to study the elaborate firing mechanism in the navigator’s compartment that would send the bombs on their way a few hours from now. The electroscope which gave the reading on the R-cloud was located nearby. The gauge had shown consistent increase ever since the blast-off from Titan, indicating that they were drawing closer to the cosmic menace all the time.

Within the next half hour tension had grown nearly to fever pitch, and yet there was still some time before the crucial zero hour. Rob found himself pacing restlessly about the navigation compartment. Lieutenant Swenson was rattling

keys in his pocket, and Rob guessed that the others must also be similarly tightened up.

Clay's grinning face appeared at the door of the navigator's cabin. The young cadet looked as calm as if he were on nothing more than a sight-seeing tour. He carried a tray on which sealed containers filled with lavender drinks were held by magnetism.

"How about some palm-berry tea, gentlemen?" he said, setting the tray down on a magnetic table.

Lieutenant Swenson smiled at the youth whom he had tongue-lashed on the previous flight. "You're a lifesaver, Clay," he said, picking up a container and beginning to suck on the connected straw.

Palm-berry tea was a tasty beverage made from a dwarf Venusian swamp plant. It was a splendid sedative for "space nerves" and was always carried on long voyages. Under the harried circumstances of their blast-off, Rob had forgotten to have a supply of the tea put aboard.

"Where did you get this?" Rob asked, taking a glass.

"I knew it would come in handy, sir, when our stomachs got to knotting up," Clay replied, "and so I got a box from the commissary just before coming aboard. Every crew has to have a cook, so I elected myself."

What a change from the self-centered young fellow he had first met, Rob thought. It was amazing that Clay Gerard, who before must be first in everything, was now satisfied at being what he called a "cook."

Clay distributed drinks to the rest of the crew. In a little while the epidemic of jitters had subsided almost completely.

The minutes dragged on as the Cetus X-500 sped toward the bright star Procyon and the malignancy it was believed to have cast into space. When the crew spotted little Pluto plodding his lonely way through the empty deeps, they knew they were at the edge of the solar system.

Another hour slipped by, and Lieutenant Swenson began lining up the target on the ground glass of his visi-screen table. The electroscope showed a high count, and the meters Rob and the radiation officer wore were also showing the mounting ray penetration from the “hot” weapons below the insulated flooring.

“Only a few minutes to go, Rob,” Lieutenant Swenson said, studying his screen. “Better check your bomb release.”

Rob checked and found it ready to go. His fingers itched to pull the lever. Sensing the approach of zero moment, the others drifted into the compartment. The robot pilot was driving the ship, and even Lieutenant Fox had come in. A dozen eyes pored silently over the screen table.

Rob could count every tick of his watch. As the final minutes slipped away, he withdrew from the circle and went over to the bomb release. His hand was clammy as it palmed the smooth metal lever.

“Steady, Rob,” Lieutenant Swenson spoke in a dramatic whisper. “A few minutes more—twelve—nine—”

The compartment was silent as a tomb except for the soft throb of the ship’s power plant. Rob’s eyes drifted out the side port, and the stars out there dazzled him.

“Three—two—one—*fire!*”

Rob’s hand shoved forward. A muted rumble came from the floor. The noise swelled to a full-bodied roar. Then there was

a banshee-like scream, and Rob knew the first bomb had flung itself into space.

Lieutenant Swenson counted off five more seconds, and then Rob sent the second bomb on its way. This happened four more times, and each time Rob heard the final shriek as the missile cast itself into the vacuum. Rob didn't hear the last bomb scream. His ears were ringing too much from the clamor of the previous ones.

When it was all over, the purr of the power plant began dissipating the throbbing ring in Rob's ears. He felt a tremendous relief now that the job was done.

"How long before we'll see the bursts?" he asked Lieutenant Swenson.

"Not for hours," was the reply. "Don't forget, the missiles have a long way to go even though they're speeding fast as blazes."

"Then we won't know until then whether we're successful?" Harry asked.

"That's right," the navigator said.

Rob checked the compartment cosmic-ray counter and his own pencil meter. "The radiation ought to start diminishing now that the load is gone," he said.

He was mistaken, he discovered later, when the ship had been swung about on its gyros and was heading homeward. The radiation had begun increasing, in fact.

"I don't understand it," Rob said worriedly. "There's nothing down below to make the radiation concentration rise. If this keeps up, we won't last out the trip back."

Minutes later, as the concentration continued to build up, Rob knew there had to be something down there that was giving off the dangerous emanations. There was no other explanation that he could think of.

“Bruce,” Rob said to the new mechanic, “can you check the bomb chamber without direct exposure?”

The mechanic nodded. “There’s an antiradiation compartment up forward with an insulated window where I can take a look at it.”

As Bruce left the room to check, Rob thought of something. “Did any of you hear the scream of that last bomb leaving the chamber?” he asked.

When no one said anything, he continued, “I think I’ve got the answer. That last bomb must have jammed and didn’t come out.”

His guess proved substantially correct. When Bruce returned, he reported that the heat of the bomb racing along its launching track had fused with part of the track so that both hung out of the bomb hatch and were being carried along with the ship.

“We’re lucky those bombs were made to go off only on contact with the powerful omega rays in the R-cloud,” Rob spoke grimly, “or we’d be somewhere up in the Milky Way by now! We’ve got to get that bomb away from the ship before its radiation kills us.”

“Dropping that bomb off isn’t going to be any sweet job,” Bruce commented. “But being the mechanic, it ought to fall to me.”

“Hold on,” Rob cut in. “It’s a job any of us can do. It’ll take more courage than skill to cut the track off with an oxygen

torch. By fastening the torch on the end of one of our emergency insulated rods, the operator can work at a distance with less chance of radiation exposure.”

Lieutenant Swenson volunteered for the job, then Clay. Rob knew they had no time to wrangle over who was going to do it. Lieutenant Fox suggested drawing straws, and everyone agreed this was the fair method of deciding. Rob got six matches and broke one off shorter than the rest. Then he held them out for drawing. Bruce drew first and revealed a long one. Clay drew the next one and said simply, “You can stop drawing.”

Rob was confident Clay could handle the job all right, for use of the acetylene torch was emphasized in cadet training.

The youth was assisted into space gear, and the cutting torch was fastened to the end of the insulated rod. A crude shield was also fashioned from some of the insulation of the ship so as to further protect Clay from the bomb’s radiation. Even with all this, however, there was no small amount of risk. But Clay seemed happy to have drawn the job and went about his preparations lightheartedly.

“Whatever you do,” was Rob’s final warning, “don’t get the fire from your torch onto the bomb or none of us will live to tell about it.”

Clay left the ship through a side air lock, carrying his odd equipment and secured to the ship by a length of space chain so that he could not drift off into space. The eyes of the crew followed him through the port near the door as he crawled along the hull and downward toward the bomb rack. Then they lost sight of him.

As they turned from the port, Harry Goode stooped and picked up a match from the floor. “This is Clay’s match,” he said, holding it up. “I saw him drop it.”

It was a *long* match.

“That tricky guy!” Rob muttered, with a wry grin. But what he really said in his mind was, “That *great* guy!”

“He sure is anxious to make good,” Lieutenant Swenson said with admiration.

Bruce led them toward the bow of the ship where they could see Clay work on the damaged bomb hatch. They moved along a narrow aisle lined with throbbing turbines and finally down an aluminum catwalk, at the bottom of which was the doubly insulated inspection chamber containing a large observation window that looked out onto the skin of the craft.

The men crowded around the quartz port and watched Clay make his circuitous approach to the bomb hatch. Rob admired his skill in staying at the full taut length of his space chain so as to keep the maximum distance between himself and the “hot” chamber. Clay drifted like a feather in the weightless void, handling his equally light equipment with ease as he brought it into position.

Rob imagined the vacuum out there to be fairly crackling with radioactivity and potential death rays. Clay had known they were there too. Yet he had gone out willingly, risking his life.

Clay's hand guided the burning instrument to within inches of the top of the bomb.

Keeping his shield deftly in front of him, Clay lit his torch with his free hand, and the brilliant arc light burst like a nova on the eyes of the watchers. Clay next shoved the insulated rod, to which the torch was attached, toward the hatch. Slowly, cautiously, he moved the tool in closer. Only a short way below hung the gray cartridge that was the C-bomb, and the warped track that dipped out of the hatch and downward.

Without a tremor, Clay's hand guided the burning instrument to within inches of the top of the bomb. Rob shuddered to think what fury could be unleashed should the torch drift too close to the bomb.

"That boy's got what it takes," Lieutenant Swenson murmured, his subdued voice sounding strangely loud in the deathly quiet. "He knows what's at stake, but he's not excited."

Clay got the flame against the track which was the only thing holding the C-bomb to the ship. Then he began the slow, labored process of severing the tough titanium alloy. The intense heat of the oxygen-fed torch turned the metal red hot. Then another danger came into the picture.

"Can the heat from the track set off the bomb?" Harry put the danger into words.

"It could," Rob replied grimly. "It probably won't, but it could."

During the suspenseful minutes that followed, Rob heard one sucking sound after another as those around him breathed irregularly. The hot touch of the men's bodies against him betrayed their tension, their prayerful hopes.

"Easy does it, Clay," Rob thought. "Just a little more, and the track will be cut through."

The scarlet track and the blazing spot of the torch seemed to sear a hole right into Rob's eyeballs. "How can Clay stand it this long himself?" he wondered. "His nerves must be of steel wire, his pupils of quartz lenses."

"The track is cut through!" someone finally exclaimed exultantly.

Yet even with the worst part behind him, Clay didn't get overconfident. As the bomb hung there weightless in space, Clay carefully withdrew the rod and the torch from its dangerous proximity to the bomb. Then he shook off the torch until it began drifting away from him, whence it would travel unchecked until it passed into the gravitation field of some celestial body. Next Clay gently brought the rod end against the bomb and shoved ever so lightly against it. Then it too began creeping away slowly into the black deeps, never to be seen again.

"Whew!" Bruce gasped, and Rob could sense the relief of tension in those around him.

Clay discarded the rod then but kept his shield in position as he made his way around the radioactive bomb hatch and back toward the air lock where he had left the ship.

"He has discarded his hot equipment," Lieutenant Swenson said as Clay moved out of their field of vision. "Just like a natural-born spaceman—he didn't forget a thing."

When Clay had been helped into the ship with unnecessary care, each of his shipmates gave him an exuberant slap on the back and covered him with words of praise that fairly inundated him. Rob could see a grin a light year wide on the boy's face and the trace of tears too as he realized he had been accepted as one of them again.

Lieutenant Swenson summed it all up when he said, "You're an all right guy, Clay."

Harry tore off Clay's space suit, which was discarded, and began giving him all sorts of tests for radiation exposure. But Clay had protected himself well and was "clean."

The invisible peril within the ship began slacking off steadily, and later Lieutenant Swenson announced that the moment of

the first bomb's strike was at hand. The six gathered about the lookout refractor telescope in the ship's stern which had carefully been directed upon the determined spot of impact at their rear.

Rob was the first to see it through the prism eyepiece. Against the unchanging star patterns there was suddenly a brilliant flare like a ton of magnesium bursting into flame before his eyes. It blinded him for a moment with its radiance, even though there was a filter over the field lens.

"We hit it!" he breathed thankfully and turned away so that the others might see the succeeding strikes.

To make sure the destruction was complete, Lieutenant Swenson pored over the electroscope for a long time afterward and finally made a significant announcement. "Operation Big Boy is a success," he said softly. "Not only has the cloud been broken up, but its remnants will pass far out of range of the solar system. Rob, you can radio the folk back home and give them the good news."

Rob lost no time in getting to the set and pouring out the happy tidings to General Forester on Luna.

Later Rob learned of the repercussions: "The people in most quarters are stunned to know what could have happened to them," the Space Command officer told him. "But all danger of panic is over. People are leaving the streets and going back to their homes and loved ones—and to church. It's a grand victory, Rob, your greatest of all!"

"It's not my victory, general," Rob replied. "It belongs equally to the men with me—Fox, Swenson, Olney, Goode, and Gerard. They're great guys, sir, all of them." Rob had started to mention Mort among the names and inquired how he was.

“General Carmichael radioed that he has passed his crisis and is conscious,” was the gratifying answer. “The doctor says he’ll make it all right. Rob, Miss Gerard is anxious to talk to you and her brother.”

Rob couldn’t understand how Dulcie could still be on the job if she had committed the serious indiscretion of exposing the secret flight. This prompted Rob to ask the general about it. The chief officer replied that it hadn’t been Dulcie Gerard but a temporary substitute who had taken over for her. As a matter of fact, Dulcie had been very angry at her friend for what she had done.

Dulcie was allowed to talk to Rob, and the first thing she said was, “Can I speak to Clay?”

“He’s coming down the hall,” Rob told her.

“Tell me,” she said, “how did Clay do on his first assignment?”

Rob paused a moment, then replied, “Somebody lit the fuse under him like you said, Dulcie. He didn’t blow into little pieces, though. The explosion knocked the worst out of him but left behind something fine and unselfish.”

“I’m so glad I could cry!” the girl blurted.

“Here he is now,” Rob said. “I’ll let him tell you himself.”

Clay took the mike from Rob. Rob watched in admiration as Clay modestly told her the whole story, minimizing his own glory. Clay might be the last of the male Gerards, he thought, but he would certainly not be forgotten. As long as men had breath to speak, they would talk about the real hero of Operation Big Boy—and how he almost came to miss the trip altogether.

THE GHOST SHIP OF SPACE

Rock Merrill looked interestedly at the man who had introduced himself as Tony Kalmus. He had told the young former cadet that he had come all the way from Earth to see him.

“You flatter me,” Rock said.

“There’s more to it than that,” the man assured him. He was still fairly young, although his blond hair was balding on top. He shifted his heavyweight frame, that filled the chair snugly, but with deliberate slowness dug through the inner pockets of his blue jacket and brought out a folded piece of paper.

At that moment Shep Dubois came into the dormitory aboard the space service station that was 25,000 miles above Earth. Centrifugal force, provided by the rotation of the station, gave an artificial gravity so that its occupants could walk about normally.

“What’s up, Rock?” Shep asked.

“I don’t know,” Rock answered. “I just got a message over the wall speaker that this Mr. Kalmus had come to the station to see me.”

Rock introduced the two formally. Then Kalmus gave Rock the piece of folded paper. Rock opened it up. It was a photostatic copy of a torn blank scrap of paper. Rock studied it for a moment, his heart gradually increasing its beat as he unconsciously felt that he was on the verge of a big discovery.

The ragged edges of the photographed scraps looked strangely familiar. Then suddenly the answer came to him in a rush that sent his blood throbbing hard through his temples.

“I can’t believe it!” he exclaimed. “It’s the missing scrap from the *Sagittarius*!”

“You mean that after twenty years it’s turned up?” Shep said in amazement. “Now you may be able to find the *Northern Cross*, Rock!”

“That’s the reason I’m here,” Kalmus said. “I’ll leave you the photostat to compare with your own scraps, Merrill, and then you’ll know I have the missing piece for certain.”

“If you do have it, Mr. Kalmus, I’ll be indebted to you forever,” Rock said enthusiastically. “Ever since I first wanted to be a spaceman it’s been my ambition to look for my dad’s lost ship. But how did you know where to find me?”

“I asked around. Your mother told me over the phone back on Earth that she was pretty sure you had the scraps with you and that you treasured them as if they were gold.”

“I do,” Rock admitted, staring out one of the oblong ports of the dorm at the salt-and-pepper background of interstellar space. “They’re the last link I have with my father. I never saw him.”

Kalmus got up. “When you’re convinced I’ve got what you want and you’re ready to listen to a proposition about locating your dad’s lost ship, just let me know. I’m in Room 38, Deck B, overhead.”

When Kalmus had gone, Rock went to his dresser and began searching a drawer. “The box with the scraps is in one of these.”

“I still find all this hard to believe!” Shep said. “And I don’t see how Kalmus could have gotten hold of the missing scraps. They were supposed to have been destroyed with the *Sagittarius* except for the ones they salvaged for you.”

“I’m not worried about that now, Shep!” Rock told him. “The main thing is to fit the puzzle together and find the answer that I’ve wanted to know all my life—the location of the *Northern Cross* and its treasure ore.”

Rock’s father, Victor Merrill, had been a space surgeon accompanying a research expedition to Venus before Rock was born. Mineralogy was Dr. Merrill’s hobby, and while on the planet he had come across a curious mineral in a cave. Returning to Earth, he’d had the sample analyzed. The mineral was alconite, a very scarce and valuable component of an alloy used in the construction of radioactivity shields. Told that a space-ship load of the light mineral could bring him a fortune, Dr. Merrill set out again for Venus with his own expedition, financed from his life savings, planning to build a satellite hospital with the proceeds of the venture.

Dr. Merrill’s ship, the *Northern Cross*, had landed on Venus, and a load of the mineral was stocked aboard the ship. But then disaster overtook the party, the first of many tragic events that were to follow. A landslide sealed off the mine, burying most of Dr. Merrill’s crew. The four remaining, including Dr. Merrill himself, blasted off for Earth, but not having enough experienced men to adequately run the vessel, the ship was wrecked by an explosion. An SOS was radioed to a freighter bound for Venus, the *Sagittarius*. The radio operator made a note of the *Northern Cross*’s position, but shortly afterward, the *Sagittarius* itself, in a hurry to reach the stricken *Northern Cross* and with a faulty radar set, collided with an emergency fuel buoy floating in space.

When later ships salvaged the wreck of the *Sagittarius*, scraps of the radio operator’s note were found, but not enough of it

to establish the “fix” of the still missing *Northern Cross*. These scraps had later been turned over to Rock and held by him ever since. He had stubbornly clung to the fragments in the wild hope that some day he might obtain some other clue to the location of his father’s ship.

The last message from the radio operator of the *Northern Cross* had reported that the ship had lost its power of navigation after falling into a perpetual orbit about Venus. Therefore Rock and his mother had known for years that Victor Merrill’s ghost ship had become a satellite of the planet Venus.

“Here it is, Shep!” Rock exclaimed, pulling a flat tin box out of his dresser drawer.

They eagerly took the box and the photostat over to a table. Rock unlocked the container and gently removed the scorched and yellowed fragment that had been pieced together with transparent tape. He fitted the section against the ragged edges of the full-size pattern.

“It fits!” Rock said.

Swiftly the coming events passed hopefully before his mind’s eye. He visualized a search for the *Northern Cross*, a search that might yet bring a fulfillment of Dr. Merrill’s unselfish dream.

“I wonder what Mr. Kalmus wants out of this?” Rock mused.

“A share of the treasure, I’d guess,” Shep replied.

“Of course we can’t be absolutely sure of finding the *Northern Cross*, even with the exact ‘fix,’” Rock said. “If it changed its flight path after sending the SOS, there’s not much hope. But if it held its same orbit, as Dad’s radio operator reported, we should be able to locate it.”

“What do you say we listen to Kalmus’ proposition?” Shep suggested.

“The sooner the better!” Rock agreed.

As they went down the corridor, they met Johnny Colfax.

“One of these days I’m going to tell those guys what they can do with their old job, especially that little worm, Mugger!” Johnny complained. “I’m tired of all this backbreaking stuff and his fussing at us all the time!”

“I think we’re all tired of it, Johnny,” Rock sympathized.

Johnny was one of seven of them who had accepted work on the servicing station after their washout from school. Since they knew they could never go into space in the smart livery of the Space Command, this seemed to be the next best thing. But the boys had soon tired of the glamour of being out in the deeps and the hard work, and most of them were ready to go meekly back home to Earth.

“Maybe before long,” Rock told his discouraged friend, “all of us will be able to tell the big boys where to head in.”

“What do you mean?” Johnny asked.

“Come along and see,” Shep invited.

Johnny made a wry face. “I’m not in the mood to see anything now. It’s the sack for me and ten solid hours of sleep!”

Rock and Shep looked for Kalmus’ room on Deck B. As they passed a long corridor port, they saw the busy outside activity of the servicing station. They saw big clumsy-looking astroliners and streamlined, needle-prowed “atmosphere” ships approaching and leaving the docks of the octagon satellite after repairs or refueling. Smaller ferry craft darted

back and forth between the vessels like pilot fish in the company of great sharks.

The boys located Kalmus' room and found him waiting for them as though he had known they would be along. There was another man present. He looked like a walking skeleton, with thick black brows and hands like hairy tarantulas. Kalmus said his name was Jack Judas and that he was a close friend.

"My scraps match your photostat, Mr. Kalmus," Rock said. "What is your proposition?"

"I'll get right to the point. We go on an expedition to look for the *Northern Cross* and split the value of the cargo if we find it."

Rock nodded. "That's reasonable enough."

"I can rent an old ship cheaply," Kalmus went on. "Got a friend in the business over on Satellite 7, a space supply moon. He showed me just the thing for us, atomic drive and all, equipped to carry eleven men. I can dig up a crew too. How much money can you get to pay for your share?"

"That will take some figuring," Rock said, "and I'll have to talk over the proposition with the other fellows."

"I told you I'd furnish the crew," Kalmus said, with a trace of annoyance. "However, if you want to bring some of your buddies along, I guess that's your business."

"We've been together all through Academy training," Rock told him, "and that's too long a time to split up now."

Rock was able to get all his six friends together to talk over the plan, even rousing a complaining Johnny Colfax out of his brief sleep. All were in favor of making the voyage.

“I’ll split my share equally among us,” Rock said.

“Nix on that, Rock,” tall, wiry Hugh Blankenship objected. “It’s your dad’s ship and we know about his dream to build a satellite hospital. Besides, you’re the one who’s been holding the clue to its location all these years.”

All of them nodded.

“We can talk that over later,” Rock answered. “Now we’ve got to decide how we’re going to split expenses with Kalmus.”

The boys had accumulated tidy sums while working at the space station. Even Rock had a fair amount of savings despite the fact that he sent much of his monthly check home to his mother. Space pay was high, and the boys had had no place to spend their money. But of course it cost a lot of money to take a ship out into space. The boys figured that the best they could do would not be quite enough. Rock told them that he had an idea Kalmus would advance them some on their share. It was likely that he wouldn’t have come this far without being sure the trip could be financed.

Rock next told them about Kalmus wanting to furnish most of the crew.

“If all of us go,” said little Sparky Finn, with the bristly hair, “then Kalmus will have to limit the men he wants to take. It’s a simple matter of arithmetic—seven of us and four of them.”

“I’ll tell him that,” Rock agreed. “We all go or none of us goes. I’ll insist on it.”

“Do you reckon we can trust Kalmus?” Ed Somerton asked.

“He looks all right to me,” Shep said, “although of course you can’t trust first impressions sometimes.”

“He looks all right to me too,” Rock agreed. “But just the same, while we’re waiting to get the ship outfitted, I think I’ll check his references at central identification headquarters on Earth.”

Just as they were going to break up, there came a sharp rap on the dormitory door. Before the visitor could be invited in, he flung the door open and strode inside.

Rock flared at this invasion of their privacy, especially when the newcomer proved to be a person disliked by all of them. He was Carl Mugger, their immediate supervisor. Behind his back he was known as “Yap” because of his shrewish tongue.

“What have we got here—a tea party?” he blurted.

“No, a private discussion,” Rock answered evenly, trying to control his temper.

“Three of you are supposed to be on duty,” Mugger went on. “You fellows think you’re on a vacation or something?”

“We were only doing routine work in the solar mirror relay.” Hugh spoke for Ed, Leo Avery, and himself, who were the three Mugger had been talking about. “We’ve only been here a few minutes.”

“What do you think would happen to the station if I took off any time I wanted to?” he demanded, drawing his short body up to its full height.

Getting no reply, Mugger ranted on. “I’ve stood just about all I’m going to from you guys! The next time one of you goofs off I’m going to have you sent back so fast Earthward your heads will buzz!”

He glared at each of them in turn.

Shep stepped forward, a full half head taller than the little man, his face reddening from the fury mounting in him. “I don’t know about the others, Mr. Mugger, but I’m fed up with this station and you too!”

Mugger’s jaw muscles twitched and his eyes flashed. “Do all of you feel this way?” he snapped.

The others hesitated. It wouldn’t be the smartest thing to cut oneself off from his job 25,000 miles above Earth and with no other work in sight, but neither could a fellow let his buddy stand alone in something on which all of them were in sympathy. Rock made the first move.

“I feel that way,” he said boldly, and the others backed him up.

“You fellows are through!” Mugger said coldly. “You may as well get your things together and be ready to take the next ferry ship going Earthward!” He turned and went out.

Shep's natural color was beginning to return. A look of penitence came over his thoughtful face. "I'm sorry, fellows. I—I just couldn't help it."

"It was bound to happen, Shep," Rock consoled him. "But it does sort of throw us in with Kalmus in a hurry, and it means we can't afford to talk up to him quite as strongly as we might have otherwise."

"He doesn't have to know we've been fired," Leo said.

"Let's hope he doesn't," Rock answered with some concern. "Otherwise he'll set his own terms, and we'll just have to take them. Remember, we don't even have enough money to pay our share of the expenses, either."

Rock and Shep went to see Kalmus immediately. Jack Judas was present, as well as another man. He was squatty and sturdily built, with hair as black as the Coalsack. Kalmus introduced him as Ben Spooner.

Rock outlined the terms he and his friends had drawn up. Kalmus listened to them thoughtfully and impassively.

"I could bring some experienced men if you'd let me have my way," Kalmus said when Rock was through. "You fellows are pretty young, and on top of that you are washouts."

"We didn't wash out until the finals," Ed told him. "We still learned a lot about piloting and navigation in our training."

"Yeah," Leo agreed, "you don't have to worry about us getting the ship there and back."

When Kalmus saw how determined all the fellows were to go, he shrugged. "I guess you know what you can do," he said. "You'll have to take care of most of the running of the ship."

I'll have with me Ben, Jack, and Mumbly. That will make a crew of eleven, the ship's capacity."

"Then we're agreed on that," Rock said.

"Judas knows a little about piloting and can help out if necessary," Kalmus went on. "He's got a brother who's first mate on a space freighter and has flighted with him a few times. Pegg and Spooner and I were steward's helpers on a few space flights some years back. When can you fellows be ready to go?"

"The sooner the better," Rock answered.

"In a few hours?"

Rock straightened in surprise. They could hardly make their plans in that short time.

"I'm in a hurry to get started," Kalmus said. "You fellows turn over to me all the money you can get together, and we can settle for the rest when we get back. I wouldn't even hold you up for this but the dock fee and license have to be paid in cash before we leave."

"Hey, wait a minute!" Rock protested, with a laugh. "I think you're underestimating the work we've got to do. We'll have to make a trip back to Earth and get the ship and supplies lined up first. That alone will take much more than a few hours! It's twenty-five million miles to Venus at the closest approach."

"I've checked on Venus with the chief astronomer on the observatory satellite," Kalmus declared, "and we're in the best position if we start as soon as possible. I've also taken care of everything else, and I'm still ready to leave in a few hours."

Rock shook his head as if he still could not believe this. “You realize there’s a chance we might not find the *Northern Cross*, don’t you?” Rock warned.

Kalmus’ face grew taut. “I guess that’s the chance that all of us will have to take.”

He headed for the door. “Come with me, please.”

He led them down the long companionways to Hangar 7 on the outer rim of the station. Supplies were being loaded here through the station air lock into a globular nonatmospheric ship that was anchored by its magnetic grapples to the side of the station.

Tony Kalmus waved his hand at the activity and smiled at the surprised faces of Rock and Shep. “There’s our ship,” he told them. “Meet the *Dog Star*, fellows. She’s all ready to go treasure hunting!”

The little space ship *Dog Star* was on its way into deep space with its crew of eleven. The ex-cadets had sent messages home telling of their departure. But Kalmus had been in such a hurry to leave that they did not even have time to wait for replies. Nor had Rock had time to check on Kalmus’ references back on Earth.

Rock could appreciate the need for haste, however. Unless they left when they did, Venus would have moved out of its most favorable position, and it would have required much more expenditure of fuel to overtake her later.

It would be several weeks before the *Dog Star* approached the misty planet and—it was hoped—the twenty-year orbit of the ghost ship *Northern Cross*.

“Well, we’re on our way, fellows,” Rock remarked to his young friends who were gathered with him in the navigation room looking out one of the ports. “I wonder what the stars have in store for us?”

“Maybe we should have brought along an astrologer,” Hugh said with a chuckle.

“I have more faith in our own abilities, Hugh,” Rock said. “The Cadet Board doesn’t think we’ve got what it takes to be spacemen. We can prove them either right or wrong. It’s strictly up to us.”

Now that the detailed task of getting the ship underway was over, the time seemed ripe for the pooling of information that would give the travelers the exact location of the *Northern Cross*.

Kalmus and his three companions joined Rock’s party in the navigation room, Kalmus having brought along his own precious scrap from the record of the *Sagittarius*.

With the ship on autopilot, its course having been computed on the electronic brain, the eleven gathered around the navigator’s table on which were laid out sky charts and the important bits of paper.

The men and youths were able to stand about in this manner because of magnetically charged shoes which clung to the floor. Without them, the travelers would have hung weightless in the zero-gravity. The atomic power rockets had already cut their thrust after reaching required velocity, and the ship was now in free flight.

Rock fitted the torn fragments together on a white sheet of paper as Kalmus, breathing hard, leaned over his shoulder. Rock tore off some transparent tape and carefully stuck the whole together.

The radio operator's record listed certain numbers and letters that had their counterpart on the sky map. Rock traced the "fix" on a large detailed map of Venus and its environs, his finger finally stopping on one significant spot.

"This is where the *Sagittarius* had last contact with the *Northern Cross*," Rock said with suppressed excitement. "The radio man said the *N.C.* was already in free fall around Venus." He traced an imaginary path around the planet with his finger. "This orbit is our destination."

"The ship will be somewhere along there, providing it didn't slow down afterward and fall into Venus," Shep pointed out.

"True enough," Rock agreed. "We'll know the answer in a few weeks."

Kalmus told the boys how he had come into possession of his scrap with the priceless information. He said that his friend in the space salvage business who had rented them the *Dog Star* had had on hand some of the things from the destroyed *Sagittarius*. One day he had found the yellowed bits in with some bulkhead parts. He mentioned this to Kalmus, who looked up the old newspaper accounts of the double disaster and prevailed upon his friend to give him the valuable scraps. Then he had made his plans for recovering the *Northern Cross*.

Rock was elected chief navigator and leader of his group. Kalmus, of course, was already head of his own group.

The *Dog Star*'s direction known now, Rock sat at the keyboard of the electronic brain and "typed" out the corrected ship's path. The complicated math problem was solved quickly, and the answer tape was then fed into the automatic pilot. Only minor corrections of the controls for direction would have to be made by hand until the ship reached its destination.

In the space days that followed, the two groups kept pretty much to themselves. Even eating and sleeping were carried on in separate quarters. Since this was a voyage for mutual gain only, all preferred such an arrangement. Kalmus and his friends prepared their meals in the galley at a set time, and the boys took a later meal hour.

One day when the boys were reading and playing quiet games in the lounge to pass the long hours, they heard a commotion from Kalmus' part of the ship. Rock got up from the game of chess he was playing with Shep and went to the door. Kalmus was approaching briskly down the corridor, his big frame making his hard-soled shoes thump loudly against the floor.

"What's wrong?" Rock asked him.

"A meteor tore through the ship just a few feet from Mumbly," Kalmus replied. "Mumbly was so scared when he heard it that he nearly jumped out of his skin! He left the floor and floated clear up to the ceiling! We had to pull him down!"

Rock and some of the other fellows went to investigate.

The room pressure was still up, but Mumbly Pegg, the near-victim, was pale clear up to his disordered shock of red hair. Kalmus' stoop-shouldered friend kept mumbling how close he had come to being killed, a mannerism that had gained him his nickname. He talked incessantly to himself, neither getting a reply from anyone nor expecting any.

Rock found holes in opposite sides of the room where the meteorite had hurtled through. The holes were only about pea-sized and were scorched around the edges. The automatic sealing compound would keep the air in the ship from leaking out temporarily, but a permanent repair would have to be made.

“The hull’s got to be soldered from the outside,” Rock told Kalmus. “Some of the boys and I will go outside and take care of it.”

Shep and Johnny offered to go with Rock, and the three put on pressure suits. Then they took up their firing equipment and prepared to enter the air-lock tunnel leading outside.

Before unscrewing the hatch, Rock took in hand one of the safety mooring lines that was fastened to the edge of the hatch.

“These safety lines aren’t the best I’ve ever seen,” Rock commented, as he observed some worn places in the nylon. “Kalmus must have had these given to him.”

“Maybe he wants to get rid of us,” Shep said, half-seriously.

The boys hooked the safety lines to their suits, then climbed out the circular hatch into raw space itself. They still wore magnetic shoes to counteract their weightlessness and enable them to walk.

The boys took one moment to feast their eyes on the brilliant fields of star dust that surrounded them like a great dome.

Spellbound by all the vastness, Rock was comforted by the solid feel of the big round globe beneath their feet. He looked at the long narrow stem that jutted out the back of the sphere and held the smaller shielded ball of the screened-off atomic power plant. The engines were still idle; they would be until it was time to spin the ship around and blast away forward to slow the ship down a few weeks from now.

“Look at Earth over there at ‘7 o’clock,’” Shep said. “It’s just like a fuzzy, unripe peach!”

“Kind of makes you homesick, doesn’t it?” Rock said a little wistfully.

They went over to one of the meteorite holes and knelt down.

The bright fire leaped like a hot bar from Rock’s cutting torch, reddening the metal of the hull almost immediately.

“How long is this going to take?” Johnny asked worriedly. “I want to get back inside. I don’t trust these dilapidated safety lines!”

“I’m beginning to regret I brought you fellows along on this thing,” Rock said thoughtfully. “Kalmus got me so excited about the expedition that I guess I didn’t really consider the risk we were taking by venturing into space on our own. There are so many things that could go wrong.”

“We didn’t have to come,” Shep encouraged him. “Frankly, I’d have gone anywhere just to get away from the station. I’ve been miserable ever since we flunked out. Just a few trick questions and—WHAM—there were three years gone to waste!”

“Maybe they won’t be wasted if our reward is the finding of the *Northern Cross*,” Rock pointed out.

He found that he could work better by taking his feet off the hull and “hanging” face down over it, with Shep holding on to his safety line to prevent the blast of the torch from driving him outward. Johnny was busy holding the flux in position.

Suddenly the force of the blast caused Rock’s worn safety line to snap and sent him hurtling outward from the hull of the *Dog Star*!

Rock heard his own name blasting into his ears as the anguished voice of Shep called to him. Then he saw his friend

leap upward with clutching futile hands. Shep's body jerked to the end of his own line, and then the reaction sent him slamming back onto the hull.

As Rock, still numb with shock, sped farther outward, he heard the frantic calls of Shep and Johnny trail off as their radio power faded. Finally no sound reached his ears, and the oppressive silence of lonely space closed in on him. It had all happened with such suddenness that he could scarcely realize it had happened at all.

Hopelessness had already begun to get a hold on him before he began to think of how he might save himself. Perhaps it was something he had learned in cadet training that made him calm himself and think reasonably.

His stiff fingers still clutched the cutting torch that had rocketed him from the *Dog Star*. Why not use it the same way to get back? Although still streaking out laterally from the ship, he was under influence of the ship's motion and was traveling just as fast beside it.

Rock carefully judged his direction and blasted with the tool in the opposite direction. He felt the deceleration of his outbound speed as the firestream braked him. Presently the rocket reaction stopped him and he began going back toward the ship.

Rock used the cutting torch for a brake to slow his return onto the skin of the hull. Shep and Johnny clattered over to him and pulled him in to safety. Rock could see relief spreading over their faces.

"Thank goodness you're safe, Rock!" Shep said. "You nearly gave us heart failure! You sure kept your head!"

If he hadn't, Rock told himself grimly, he would not be here this minute. A spaceman had to keep his head at all times. His

cadet training had impressed that on him.

The days and weeks that followed passed uneventfully, if not exactly excitingly. There was so little to do, such a monotony of scene.

A few thousand miles from the Venus orbit, Rock fed directions for a gyroscope turn into the automatic pilot, and the rockets began spouting bursts of flame to check the *Dog Star*'s headlong rush. All aboard were forced to take to shock couches for the first time to lessen the pain on their bodies.

Had time not been a factor, Rock could have decelerated slowly with no strain. This had been the manner of their acceleration from the station. But Rock had realized that Kalmus would become impatient later and so had figured the flight for rapid deceleration and consequently much saving of time.

Kalmus and his men took the deceleration shock in different ways. Since all the couches were in the same room, Rock could study their reactions. Jack Judas and Kalmus made no outward signs of discomfort, but Spooner and Pegg groaned continually.

Although not exactly enjoying himself either, Rock, like his young friends, had been taught to take this, and through a certain pride would give no outcries. The lessening speed constricted the blood vessels in his eyes, blurring his vision, but Rock kept studying the reflecting prism over his cot to take his mind off the strain. And his hand did not drift far from the emergency controls should something go wrong.

The prism brought the outside view right into the ship. Venus dominated the scene, like a giant snowball glittering with a light of its own. Rock could see the impenetrable clouds,

chiefly of carbon dioxide, swirling and crawling over the surface of the planet like a tide. The invisible lands below were a hothouse of wind-swept desert and barren stretches. There were only a few isolated research settlements down there where brave scientists probed the hot soil for strange new things.

When the *Dog Star* slowed, the travelers were able to leave their couches.

Rock consulted the charts and got a reading of their position from Ed, who was at the navigation instruments.

“Here we are,” Rock said, indicating a spot on one of the maps. “At Point X we’ll match orbits with the *Northern Cross*, then we’ll accelerate a little so that we’re bound to overtake her eventually—that is, if she’s still in her original flight orbit.”

“She’s *got* to be there!” Kalmus cried a little frantically. “I’ve poured a fortune into this thing.”

“I’ve got as much interest in this as you have, Tony,” Rock told him evenly. “We’re no expert Spacemen, but I’m pretty sure we’re going right so far.”

The travelers began watching the radarscope for first signs of the ghost ship. But no “blips” showed on the screen. Later, every crewman was assigned a watch at the ’scope. This was intended to keep a man continually on duty.

When the ship moved in exposure to the sun, the ports had to be shielded with filter screens. An outside movable reflector blind, highly polished and operated automatically by a thermostat, reflected away much of the heat and light.

Despite its dangerous aspects, the sun was a magnificent object. Its white-hot surface was eye-searing bright and

showed dark islands of sunspot activity, any one of which could swallow Earth. Its edges threw out mountainous red tides that lapped outward many thousands of miles into the black deeps. It was a sight that brought a lump of awe into one's throat.

When he was on duty at the 'scope, Rock used the ship's small refracting telescope to see the little yellow disc of Mercury, dwarfed like a pinhead beside a grapefruit, against the sun. It reminded Rock of a small dog taunting a larger one, daring it to attack, yet forever skipping nimbly out of the way with its agile speed.

The hours of search drew into a full space day, then another, with no sign of the ghost ship. Even if the *Dog Star* had been off course a few hundred miles, a ship as large as the *Northern Cross* could not have slipped by unnoticed.

Finally Rock had to make a gloomy announcement. "In another hour we'll have made a complete revolution of Venus," he told all ten of them who were gathered around. "If we don't come across the *Northern Cross* by then, it means she's not in her orbit. She's either crashed on Venus or has gone out into space. We've been accelerating faster than an object in free fall around Venus. She couldn't have outrun us."

Kalmus' big palm slapped the table. "I won't stand for being licked, Rock! I've built my hopes so high on this thing!" His pale eyes glared restlessly and there was a red suffusion over his face.

Rock reminded him, "The matter isn't in our hands. We've done all we can do."

Kalmus lapsed into nervous silence as the minutes ticked off. He haunted the radarscope most of the time and even tried to look for the ship with the refractor, a tedious job. He was in a

constant fidget, alternately pacing and putting his eye to the instrument.

Now only fifteen minutes remained. There was still no sign of the ghost ship. Rock also was beginning to feel a growing despondency. Up until now he had not considered the consequences of failure. Now it shocked him to do so. He and his friends would be indebted to Kalmus for years to come for their share in the venture. They would either have to slave at the space station again, and eat humble crow, or try to find other jobs back on Earth.

But this wasn't all of the story. A failure would close off for all time the hope that had lived in him ever since he had known of his father's disappearance. He would have to resign himself to the thought that his father and his ship would speed along with its lifeless cargo to the ends of the universe seemingly, never to be recovered. And worse, Merrill Memorial Hospital would remain only a shattered dream that might have been.

Then there was the reaction of the unpredictable Kalmus to be considered. Would he turn on them?

Five minutes to go. No ship in sight. Nothing but star dust and more star dust and the smoldering light of Sol, like a mocking beacon.

Finally Rock had to say bitterly, "Time's up. I'm afraid we're licked. There's no sign of the *Northern Cross*."

"We've got to find that ship!" Kalmus cried. "I'll search for it if it takes a hundred years!"

"It won't do any good to search without knowing where to look," Rock reminded him.

“It won’t hurt to try anyhow,” Kalmus proposed. “We might be lucky. I’ve sunk too much in this expedition to turn back now!”

“We still intend to pay up our share of the costs, Tony,” Rock assured him. “You needn’t worry about that part of it.”

“Finding the ship means as much to you as it does to me—or so you said, Rock,” Kalmus went on stubbornly. “Why are you giving up so easily?”

“Of course it means a lot to me, but I’m not going against terrific odds. It would be crazy.” Suddenly Rock thought of something and turned to Sparky Finn. “Sparky, are you absolutely certain you figured out that navigational problem correctly? Yours was the trickiest of all.”

“I went over it twice, Rock,” Sparky replied solemnly.

“Better look at it again,” Rock proposed. “There’s a possibility we might have botched up our figures somehow. If your calculation is right, we’ll all recheck ours.”

Sparky’s math proved to be correct. Then each of the boys went over his own figures again. Halfway through his, Hugh caught an error in his work.

“Take me for a numbskull!” he burst out. “Look what I did! No wonder I flunked out in cadet school!”

“We are too far out from Venus,” Rock told Kalmus. “We’ve got to go in closer to the planet.”

The *Dog Star* swung into its new orbit. Kalmus became enthusiastic again, and Rock felt that they would meet with success this time, but if they didn’t, there was nothing more to do but admit defeat.

It was Johnny Colfax who first spotted an interesting “blip” on the radarscope screen two space days later. Half the eleven-man crew was asleep, but Johnny’s shouts brought everyone running into the main control room.

“Look, Rock, I think I’ve found it!”

Rock set the telescope in synchronization with the radar set. Then he put his eye to the telescope eyepiece and turned the hairline focus adjustment. Yes, it was really a cigar-shaped craft, man-made, just about the general shape the *Northern Cross* was supposed to be. It was a streamlined ship built to slide through the atmosphere of Venus.

Rock judged it to be a few hundred miles away. “It seems to be the *Northern Cross*,” he announced.

“Let me see that thing!” Kalmus blurted and pushed up to the telescope. “There’s our dream ship!” he purred, like a miser over his gold sacks. “I can almost see a dollar sign on that baby!”

A few gentle manual corrections later brought the *Dog Star* alongside the ghost ship. The smaller ship’s crew clustered at the broad port. Only a few thousand yards away, the ship was a giant thing, gray and meteor-scarred from the years that it had wheeled about in space, alternately feeling the torrid heat of the naked sun and the bitter cold when the sun was eclipsed behind the big planet.

As Rock stared, his heart beat faster. Here was the graveyard of his valiant father and his crew who had battled nature for a share of her wealth and had lost. Rock felt a mixture of feelings—of repulsion and of being drawn to the scene. He was attracted by thoughts of the treasure ore that might fulfill his father’s dream of a satellite hospital, but he was repelled by thoughts of what he might find in that space tomb.

Although circling the planet Venus at high velocity, both ships were as if stationary in space and in relation to each other. Rock, Shep, Hugh, Kalmus, and Judas suited up in preparation to going outside and across to the other ship.

With an extended safety line securing himself to the exit door of the *Dog Star*, Rock was the first to launch himself into the gulf between the ships. He carried a length of electrical cable which he would attach by magnetic force to the side of the *Northern Cross*. Then his companions could hook onto the cable with their own safety lines and cross the gulf without risk of drifting off. They had done some repair work on the unsafe lines that had given them trouble before. They felt more secure with them now.

After the cable was set up, Shep pushed off from the doorstep of the *Dog Star*, and his momentum carried him through the vacuum toward Rock on the other side, his safety line slipping along the cable for security. Behind Shep, the others followed.

Shep had brought two cutting torches for opening the door seams of the *Northern Cross*. He handed one to Rock and they both set to work, the brilliant flare of their tools lighting the blackness like twin novae. The sun was on the other side of the space ship, leaving this shadow side in absolute darkness.

Finally the door was cut all around. All that it appeared to need now was a good strong push. Rock and Shep tried it together, a little gingerly perhaps as they realized their weightlessness, and hence, helplessness. The door hung stubbornly in place. When Kalmus saw their ineffective efforts, he lifted his big booted feet and boldly slammed them hard against the door. The door section caved inward, but the reaction sent Kalmus scooting backward.

Kalmus gave a terrified yell as he went drifting all the way back to the other ship. Not knowing how to navigate in

weightlessness, he barged into the wall of the *Dog Star* with such force that it caused him to bounce back across the gulf again. His safety line kept him from being in any danger of caroming off into space.

Hugh, holding on to the ship, caught Kalmus' body as it came back to them. The big fellow was moaning from fright, and the boys got secret enjoyment out of Kalmus' comical and harmless experience.

Then Rock sobered quickly as he faced the grim task that was to follow. He sighed heavily and stepped through the opening into the air-lock tunnel of the ghost ship, followed by the others. His shoes clung to the floor, indicating that the magnetic floor current was still going after twenty years. Leaving the air lock, Rock and his companions found themselves in a lounge. Everything was in neat order, just as if it had been set to rights only today.

"It's in excellent preservation!" Rock marveled. "The reflector blinds must have kept the temperature in here pretty even through all the years."

They found other parts of the ship also in neat order. Rock had been told by his mother that his father had been a very orderly man. As yet there was no sign of what had made the vessel a ghost ship.

Rock dreaded every new room they entered. Which one would reveal to him the skeletons of the ghost crew—one of them his father's, a father he had never seen?

The searchers carried Geiger counters as a check on stray radioactivity from the atomic engines. But so far the only clicks the meters gave off were apparently from the ever-present cosmic rays out in space.

Since no bodies had yet been found, it was supposed that the four crewmen were together in one place. The searchers had entered the *Northern Cross* near the rear and had been working their way forward. Rock guessed that the bodies must be in the main control room.

In the galley, remains of a meal were still inside sealed plates. The bits were rock hard. An examination of wall pressure gauges showed that the entire ship was open to the vacuum of space.

“Where is the ore?” Kalmus growled. “I don’t like the looks of this!”

The search party moved down ghostly corridors that hadn’t felt the thump of space boots for two decades. Just before reaching the main control room, Rock came to a door-marked, “Stores.”

“This may be it!” he said hopefully and opened the door.

No one needed to tell anyone else that this was the goal they had been looking for. It was a vast, oblong cell, its metal bins piled nearly to the ceiling with gray lumps of rock. The rest of the room was crowded with mining equipment. However, the bigger stuff had evidently been left on Venus.

Kalmus gave a shout and flung himself into one of the bins. He fondled the stones, bathing himself in the wealth. “I’m rich! I’m rich!” he kept saying.

Rock turned away disgustedly, his young friends following. For some reason he almost wished their mission had been a failure. Sharing this treasure that his father had died to accumulate for unselfish motives made Rock feel sick for a moment.

“Want to go into the pilot’s room, Rock,” Shep asked in gentle consideration, “or shall we just pass it up?”

“No, Shep, I’ve got to see if Dad is in there,” Rock answered.

Leaving Kalmus and Judas to play in their wealth, the three youths left the room and moved farther down the corridor to the main control room, the door to which bulged outward. It took considerable ramming to force it open.

The disorder of the compartment was in shocking contrast to the neatness of the rest of the *Northern Cross*. Plastic seats were warped, and it looked as if a giant with a padded sledge hammer had gone about recklessly putting dents in the lightweight metal of the walls. An emergency air lock stood wide open, revealing the stars, its door hanging by one hinge. It was on the side away from the *Dog Star*. The huge console that housed the instruments and gauges also showed great depressions, and nearly all the glass dial covers were shattered.

“What do you think happened in here, Rock?” Shep asked.

“It looks like a high-pressure build-up of gas,” Rock answered. “Probably in the ventilating system. When the pressure got too high, either the air lock was the first to give way or somebody opened it in desperation. I imagine all the men were trapped in here and couldn’t get the door open.”

There were no bodies in the room. All four had evidently been swept through the air lock by the rapidly escaping gas. Rock’s companions could read the truth as easily as he had done himself, and they were considerate enough to remain silent. Rock stared about him for several moments. This was so unexpected, not finding his father. He didn’t quite know how to take it.

The boys went out to join the others. Kalmus and Judas were chattering over their success, already making plans for the future.

Kalmus was not concerned whether Rock had found his father or not. "Let's hurry up and get this stuff loaded on the *Dog Star*," was the first thing he said.

"Sure," Rock said absently.

As they went aft again, Rock's mind was full of what they had seen. He was rather disappointed in the way he felt. He had thought he would be jumping in elation when they found the alconite ore. Instead, he was almost sorry. It seemed like a violation of his father's honor to share his property with these men of greed.

The shock of not finding his father's body continued to disturb him. He had hoped to take it back and give it a decent burial. Yet, as he thought further, perhaps this was the way his dad would have wanted it, because he was first and last a spaceman. Also, his widow would not have to relive the pain of his loss again. Yes, it probably was best this way.

The five of them crossed over on the cable again and made preparations for transferring the ore to the *Dog Star*. They would carry it over in regular space transfer crates secured to the cable. An empty crate would be shoved across the gulf, filled up in the *Northern Cross*, and then sent back over to be emptied of its contents.

The crew was split into two parties, five remaining aboard the *Dog Star* to unload and the other six going over to the *Northern Cross* to load the treasure aboard the crates.

The work began and moved along smoothly, but it was going to be a drawn-out operation, if not a rigorous one. Carrying the containers of ore down the corridors of the *Northern*

Cross was a simple matter since they were perfectly weightless and so had only to be guided along by the touch of a hand.

The hours dragged along slowly as load after load was drifted down the corridors of the ghost ship and pushed across the vacuum to the *Dog Star*. The storage bins of the smaller ship bulged higher and higher with the valuable mineral.

As the transference neared completion, Rock took Shep aside, near one of the ports of the *Northern Cross*. Then he began speaking very softly so that none of Kalmus' men working in the ship could pick up the conversation by helmet radio.

"We're nearly through, Shep," he whispered, "and you know what that means for Kalmus."

"It means he's got what he came for and that he should be satisfied," Shep finished.

"To me it's more than that," Rock continued. "It means that he doesn't need any ex-cadets anymore. You heard him say that Judas could run the ship."

Rock could barely see the frown on Shep's face through the filtered facepiece of his helmet. "What are you getting at, Rock?"

"The fewer men who return to port with the treasure ore, the fewer there will be to share the profits," Rock said, his radio-altered voice carrying a sinister inflection.

"You mean you think that Kalmus is going to ditch us?" Shep asked in a fierce whisper. "Right out here in the middle of space?"

"I'm not saying I believe that definitely," Rock corrected, "but I do think we should start being on our guard for any

funny moves Kalmus might make. You've seen yourself how greedy he is."

"What, exactly, do you think we should do?" Shep asked.

"I think that you, Johnny, Hugh, and myself should go on over to the *Dog Star* right now and tell Kalmus that we believe the ship has got as much ore as she should carry. That will prevent his stranding us over here. If he wants to, let him come over and get the rest of the ore himself."

"Since we're making wild guesses," Shep said, "maybe Kalmus has other plans for dealing with us, such as making us prisoners on the *Dog Star* as we head back."

"That's possible too," Rock agreed, "but he would need weapons for that, since we outnumber them. I took a quick look through their things before we left port to make sure he and his men had no weapons, and I don't think they brought any along."

"Maybe we're being unfair with the guy, suspecting him at all," Shep said.

As the words left his lips, he happened to glance out the port and saw Ben Spooner, who had been working on the *Northern Cross*, thrust out across the gulf empty-handed.

"Hey, look!" Shep cried. "Ben's in a big hurry and he's not carrying a crate across!" He seized Rock's space suit. "Now there goes Judas right behind him and he's empty-handed too!"

Rock felt his heart take a dive. "Shep, they must be going to do exactly what I feared!" He sprang into action. "Come on, we've got to get Hugh and Johnny!"

“They can’t maroon us in space!” Shep said, furious, as he tagged along behind Rock down the corridor. “It’s the same as murder!”

“They’re not even waiting to carry the rest of the ore across!” Rock said. “As soon as we find the fellows, we’ll get over to the *Dog Star* right away!”

Sparky, Ed, and Leo were already in the other ship. Rock and Shep quickly rounded up Johnny and Hugh and the four of them hustled toward the air lock, bumping into crates in their hurry. As they reached it, Johnny pointed out the open doorway.

“Look, Sparky’s coming over!” he said.

“Maybe he’s found out what’s going on,” Hugh spoke.

They gave Sparky a hand into the ship.

“What’s up, Sparky?” Rock asked.

“Jack Judas told me you wanted help in finishing up over here and for me to come over,” Sparky replied.

“We didn’t send for you,” Rock told Sparky. “It must be a trick to get the most of us over here. Come on, you guys! We’ll go over and have a show-down with Kalmus right away!”

But before they could launch themselves, Kalmus had already begun his act of treachery.

“Look what those crooks are doing!” Shep exclaimed.

The boys could hardly believe what they saw. It was more like a bad dream. The cable had jerked away from the side of the *Northern Cross* as its magnetic attraction was broken. Then the five saw Kalmus lean out and pull it into the *Dog Star*.

“We’re too late!” Rock groaned.

The ex-cadets shouted in frustration and anger at the cold-blooded act. Over their suit radios, they warned their former partners of the consequences of abandoning men in space. But even as they yelled themselves hoarse, Rock knew it wasn’t going to do any good. Kalmus had simply gotten the jump on them, something that had probably been planned at the very beginning of the voyage.

The outer door of the *Dog Star* closed. A feeling of utter desperation took possession of Rock. Here they were, five of them, marooned on a ghost ship in space, without any foreseeable chance of returning alive to Earth.

An hour had passed since the five ex-cadets had been cut off from the mother ship. The *Dog Star* had blasted off and was now out of sight. Rock guessed that Kalmus and his rebel crew had compelled Leo and Ed to assist Jack Judas in running the ship.

During this time, the castaways had been taking stock of their situation. Any hopes of sending an SOS were virtually gone. The radio antenna had been badly damaged at its base when loosened by the bulging wall. The radio's present range could not be over a few thousand miles.

However, things did not look nearly so dark now as they had earlier. The boys found air tanks that would sustain them for quite a while, if not indefinitely. Upon refilling their suits with the aged gas, they found it breathable but carrying a metallic odor.

There was a fair abundance of irradiated food such as all space craft carried. By receiving special treatment in an electronic oven, such food could be preserved for years. Although hard and rather tasteless, the present supply would at least keep them alive. The water-making machine was still in good order, and a drink from it was as fresh as if just drawn from a spring.

However satisfactory these three main essentials were, though, they would all run out some day. That meant that the *Northern Cross* would have to move out of her stagnant orbit if there was any chance for survival.

Rock was hopefully expectant that the ship would run again. Save for temperature changes, there had been no weather erosion to damage the craft and its fittings. Since the ship's electrical power came from sunlight and the big solar mirror had continued to gather light over all these years, the electric system worked, and the batteries were still charged. A long-range inspection of the atomic-engine unit showed no radiation leakage. The unit had been shut down ever since the accident to the *Northern Cross*; the boys found the hafnium safety rods plunged well home into the atomic pile to prevent chain reaction. The automatic oil and grease feeds in the ship's motors had given out by now, and many bearings were squeaky dry, so they replenished these.

The boys were now in the pilot's room ready to try out the ship under its own power. The console had pretty well resisted the crush of air pressure that had caused the explosion, for the gauges were working. But of course working gauges did not necessarily mean working jets. The boys had made minor repairs in the main control room. They had reconciled themselves to living inside space suits for the rest of the way home since the *Northern Cross* was open to the vacuum of space, and the air lock was too badly damaged to close again.

When everything was in readiness for a test blast, Rock sat at the console with the others crowding around him to keep their eyes on the many dials. The electronic brain and autopilot were in satisfactory order and would be called upon later if the ship were able to move under its own thrust.

Rock pressed colored buttons and shoved knife switches and floor levers.

"Jet chamber pressures are up!" Johnny said happily.

"The fuel flow gauge is right!" Sparky called.

"The coolant is circulating!" Hugh reported.

The boys felt a vibration and heard a muted hum. Then they felt a slight tug. They had already been traveling at substantial speed under orbital velocity, but the slight increase was unmistakable. A check of the dynamometer, that recorded thrust, indicated that the jets were operating properly. Rock cut off so that they could make plans.

“We could reduce speed and try for landing on Venus,” Rock proposed, looking out the port at the big planet that was buried within its dense veil, “but we’d have to be awfully lucky to land within radio range of any of the research settlements. Besides our radio being weak, there’s a lot of static on Venus from sunspots.”

“I’m in favor of trying to get back home,” Shep declared. “Even if we get off course we may be close enough to radio Luna or some of the space stations for help.”

“As a matter of fact, Luna will be right in our path on the way back,” Rock said.

Shep’s suggestion seemed to be the best idea and was voted for unanimously. After all had helped in figuring out the mathematics of their course, Rock fed the tape into the autopilot. Next everyone took to shock couches.

The *Northern Cross* was in the fortunate position of being headed Earthward, meaning that its orbital speed could be added to their required velocity. In a manner of speaking, it was as if Venus were a slingshot hurling the pebble of the *Northern Cross* into space.

Under the crushing pressure of their mounting acceleration, Rock watched the rising space speed in his overhead prism with concern. Would the engines of the ship, inactive for so long, respond at maximum efficiency? If they did, would the old vessel hold together under the strain?

The jets responded, at any rate. Rock's body seemed to be squeezed flat, his eyeballs pressed deeply into their sockets, his vision blurred.

Then the ship began leveling off, and the pressure lifted from Rock's body. Before long it was gone entirely, and he knew they could unstrap. The first thing the boys did when they were up was to check the dials on the console. Everything appeared to be satisfactory enough; the *Northern Cross* should be able to carry them all the way. The radio was set on automatic SOS. Although extremely remote, there was the distant possibility that some ship might be within range.

Later the same day, when Rock had a moment of relaxation, he located his father's private cabin. Being among his father's things was almost like being in his presence and seeing him for the first time. There were the few neat clothes still hanging in the closet and the polished black boots in an orderly row.

On a wall desk he saw a picture of his mother and a fountain pen lying with the cap off. On the floor he found a sheet of radiogram paper on which his father had evidently been writing before the disaster.

Rock read the letter that his father had intended to radio to his wife on Earth. The boy's eyes grew misty and there was a thickening in his throat.

The twenty-year-old message carried a tone of foreboding. It was as though Dr. Merrill felt that the four remaining less-experienced men of his original crew of nineteen could not successfully bring the ship back to port. "So close to my dream of a satellite hospital and yet so far," were his unhappy words. "And yet we shall try with all our might, my dear, to come home. This treasure of ours *must* not go to waste. There is so much good that it can do."

The letter ended abruptly as Dr. Merrill wrote, “Fox has just called me forward. I think they may be having trouble. I’ll tell you all about it when I get back.”

But of course neither Dr. Merrill nor anyone else ever told what had happened.

Rock tenderly folded the brittle paper and tucked it away safely. His mother would cherish this last word from her husband.

Rock knew now why his mother had scrimped and saved, working at the algae canning plant, to make him eligible for cadet school. But he didn’t know how hurt she must have been when he washed out. She hadn’t told him that.

The days dragged by slowly. With only a backdrop of star smudges to look at and unpalatable meals of hard, ancient food to eat, it was not exactly an enjoyable trip. Added to this of course were the youths’ additional worries about the welfare of their two buddies and whether the *Northern Cross* would hold together until the beloved sphere of Earth swam into view.

When the ship moved into the environs of Luna, the weary five knew that Earth could not be far off. Ninety-nine per cent of their journey was already over.

Rock studied the enlarging globe of Earth’s satellite. Its wrinkled, gray face shone dazzlingly bright under the full glare of the sun. The filtering glass was lowered over the forward port to cut down the brilliance.

It was on the space day following that there occurred an incident that filled the boys with exuberant hope. They were almost at their closest approach to Luna. The gray desolate lands were right “below.”

A crackling was heard over the automatically set radio.

“Somebody must have picked up our signal and is trying to make contact!” Shep cried out.

Rock moved to the console to begin cutting speed. Then all gathered around the radio.

Hugh was the radio expert. He scooped up the mike and slid into the chair in front of the bank of knobs.

“*SS Northern Cross*,” he said eagerly. “*SS Northern Cross*. Come in, whoever you are! Please come in!”

The crackling continued. Then there was a fragment of voice that was quickly lost in a babble of sound.

Hugh kept talking into the mike.

“It’s that faulty antenna!” Rock groaned.

The crackling continued. Just as Hugh was about to give up, a voice came in weakly again. It was a voice the boys had to strain to hear, but they caught the vital message: “Hugh—Rock!” it said. “We picked up your SOS. We’ve had to make an emergency landing on Luna.”

“Leo!” Shep said. “It’s Leo!”

“Ask him quickly if Ed is all right and what their position is,” Rock said to Hugh.

“Yeah, we’re both all right,” came Leo’s reply. “Our position —”

A rattle of static cut him off. The boys groaned. It would be impossible to search the moon for a space ship. They had to get the exact location from Leo.

They listened hopefully. Hugh kept talking, saying that they weren't getting clear reception.

Then Leo's distorted voice came through again briefly. This time he got out the latitude and longitude of the *Dog Star*. Rock eagerly wrote it down.

"Here comes Kalmus!" they heard Leo say next in a frenzied voice.

That was the last they heard. There followed a garbled sound and then complete silence.

"Kalmus must have destroyed the set," Rock said gravely.

"We know where to find them now, though," Shep said with satisfaction.

Rock went to the chart files and dug through the celestial maps for one of Luna. He checked the position as given them by Leo.

"The place is near Archimedes in Mare Nubium," Rock pointed out. "Get out your pencils and take a seat at the calculators, boys; we've got some navigation figuring to do!"

The velocity and orbital figures were worked out. Then the directions were computed in the mechanical brain and fed into the autopilot. The chemical braking rockets were switched in after the ship had turned about-face. No terrestrial landing was ever made with atomic rockets because of radioactive contamination of the ground.

The boys strapped down and braced for the agony of deceleration. It was a cumbersome job, clad as they were in space gear.

As the ship decelerated, Rock focused his hurting eyes on the prism overhead. The filter cut out the over-all glare of reflected sunlight from Luna's boiling-hot surface, but the harsh blacks of dead shadow and the whites of naked sunlight were still painfully vivid. He watched the shimmering heat vapors, the miles and miles of gray pumice, heaped in waves in some places so that it resembled a gigantic sea whose motion has been suddenly stilled. Finally the great curving mouth of Archimedes began to enlarge and grow in prominence. The crater's high, rugged walls filled the square of Rock's prism.

Later he felt that easy, reassuring bump of the tripod fins that told him they had landed safely.

"Everybody O.K.?" Rock asked, looking around.

Johnny was pale and the others were a little groggy (they'd had to hit a deceleration of 7 G's in order to stop the ship in time), but all attested to being alive, if shaky. Rock went over to the port to study their surroundings.

"We didn't get off course very much," he announced. "I can make out the *Dog Star* about a quarter of a mile away."

In their elevated position, the boys had an extensive view of the landscape. For miles around, the ground was dead black. Only in the distance did the razor-sharp line of sunlight begin. The *Northern Cross* was in the broad shadow of Archimedes and the distant *Dog Star* was also. Between the ships lay irregular rock shapes and uneven ground. A rift sliced across the area, appearing to make contact between the ships impossible.

"I wonder if Kalmus knows we've landed?" Shep said.

"Even if they don't know we're here," Johnny put in, "they are protected by that big ditch. Not to mention being safely

inside the ship.”

“I’ll admit we’ve got our job cut out for us,” Rock said, “but I don’t think we should try going back to Earth for help and count on the *Dog Star* remaining here to be captured. We might never see Ed and Leo again.”

“Rock is right,” Hugh said. “We’ll have to figure out how to get over to the *Dog Star* and free the boys from those crooks as soon as possible.”

Rock got out the pair of binoculars he had found among the things belonging to the ill-fated crewmen before them. Then he looked through them at the distant globe of the *Dog Star*. The ship had barely missed a high wall of dark-colored lunabase rock. The wall was jagged and spongy, like most formations on Luna, which had so little atmospheric erosion to wear them down. As he examined the wall, a sudden idea came to him.

“Why don’t a couple of us try to get over to that rock wall next to the *Dog Star*?” he proposed. “We can climb it and look through some of the ports. That way we may be able to see what the others are up to and make our plans accordingly.”

“Why just two?” Sparky wanted to know.

“Less chance of being seen by Kalmus,” Rock answered. “Also, if the two get caught, that still leaves three to think of something to do.”

“We haven’t yet figured how to cross that big ditch,” Hugh pointed out.

“I’ve thought of that too,” Rock said. “We can carry along a bunk ladder out of one of the dorms. From here it looks as if the ladder will span the ditch.”

“It sounds risky,” Johnny remarked.

“We’ve got to do something,” Shep countered. “I agree with Rock. How about you and me trying it, Rock?”

The matter was settled. But before anyone could go outside, the area had to be given time to clear of residual radioactivity around the atomic rocket nozzles. After waiting an hour, Rock and Shep got the ladder and carried it downstairs several flights to the air lock.

The ladder was tossed through the air lock to the ground. It floated feather-light. The former cadets descended by way of the ship’s ladder. They carried a Geiger counter for checking contamination. Besides the portable ladder, they had with them binoculars, a safety rope, and a walkie-talkie radio for communicating with the *Northern Cross*.

The area was free of contamination. The boys found walking quite awkward at first and laughed at their own clumsy efforts as they fairly danced along through the volcanic and meteoric dust. There was quite a difference between being absolutely weightless in magnetic-soled shoes and being of one-sixth Earth weight without such shoes. They finally got the hang of it and found they could take gliding steps of about five feet at a time.

They kept behind rocks and ground rises to minimize the chance of their being seen. They still could not be certain Kalmus had not seen the *Northern Cross* come down.

The rocks and ground were covered with a down of hoarfrost. This was due to Luna’s scant moisture content condensing in the exceedingly rare atmosphere which was made up principally of carbon dioxide. As they moved along, Rock saw that Shep was beginning to grow a whitish fuzz of dry ice on his suit.

It was hard for Rock to realize that the temperature around them was several hundred degrees below zero, while only a scant mile or two farther out it was hotter than boiling water under the full rays of the sun. This was only one of Luna's many strange features that fascinated him. He wished this had been a trip of exploration and fun instead of the grim battle that it was.

As they approached the great rift in the ground, Rock began to get a queasy feeling.

"Wide, isn't it?" he asked Shep over his suit radio.

"And deep," Shep replied, after a look over the brink that had showed no bottom.

They brought the ladder over to the edge and carefully spanned the gulf with it.

"It just does make it!" Rock gasped. "There's only about a foot to spare on each end."

They found a wedge of rock like a dinosaur's tooth deeply embedded in the ground not far from the crack. Around this they tied one end of their safety rope. Then Rock tied the other end around his waist.

"Hold on to the ladder to make sure it doesn't slip," Rock told his friend, and slowly he started out over the plunging abyss.

Rock looked down through the rungs at the black emptiness below. Although he wore the safety line, a fall could be dangerous. He looked ahead as he kept moving forward. The other end of the ladder was wobbling back and forth. When he reached the opposite side of the brink and climbed onto firm ground, he was aware only of the perspiration trickling down his face. It made him turn down his suit heat a couple of degrees.

He untied the safety line and threw it back to Shep. Then his friend started over the perilous bridge, with Rock holding his side of the ladder as firm as he was able. Shep made it safely too, so they were both vastly relieved.

“We’ll just leave the ladder in place,” Rock suggested, then added gravely, “That’s in case we have to cross it in a hurry.”

Without the ladder to hamper them they could be more furtive in their movements. They dodged lithely around towering chunks of light-colored lunarite and darker lunabase. The rock formations looked like petrified sponges jutting up out of a dried-up sea bottom. When the two had to go out in the open, they sprinted toward the next place of cover. Since hoarfrost continued to gather on their suits, they constantly brushed it off. A moving white figure even in the deep shadows might be noticed by anyone in the *Dog Star*.

Now only a few hundred feet separated Rock and Shep from the space ship. They began swinging inward nearer the *glacis* or outer slope of the crater, heading toward the wall of lunabase.

“If they’ve seen us, they haven’t given any sign,” Rock said with some measure of satisfaction when they had reached the foot of the wall and were watching the dumbbell shape of the *Dog Star* just a short distance away. Standing on its tripod base, it looked like a huge kettle.

Rock and Shep started up the rugged slope. Although precipitous and craggy, it did not look to be too difficult to climb since there were natural footholds at almost every step. Nevertheless a slip would be perilous, if not fatal. The boys had been well drilled in the dire effects of having one’s space suit ripped open. In such case the suit collapsed like a burst balloon, admitting the killing cold or heat, whichever it might be, causing death.

When Rock and Shep were at a height level with the ports of the *Dog Star*, they began crawling laterally toward the ship. Rime covered the corallike edges, making them slippery as the comparative warmth of their space suits melted the ice particles. They were about fifty feet from the ship at this point. Rock checked the counter. There was no gamma-ray contamination from the *Dog Star*. It was safe to approach closer.

They got as close as they dared to the port that looked in on the main control room. They could see Leo and Ed working intently on an opened gear-box beside the instrument console. Across the room sat Jack Judas, a grim look on his beetle-browed face. And in his hand the boys could see a blaster.

“They did smuggle weapons aboard, Rock!” Shep said. “They must have hidden them carefully.”

“That proves they planned the scheme from the very beginning,” Rock said.

“And it’s going to make it harder for us, because we’re unarmed,” Shep remarked.

“I believe the boys are stalling them,” Rock said. “They probably doctored the controls and brought the ship down just to give us time to catch up with them.”

“I wish there were some way to let them know we’ve landed,” Shep said. “That is, if Kalmus hasn’t found out already.”

Shep started to move into a better position to see when suddenly his foothold gave away beneath him. His cry blasted loudly over Rock’s receiver. Rock made an instinctive grab for his friend. He barely caught hold of an anchor ring on the other’s space belt in time to keep him from tumbling all the way to the ground. Rock steadied him as Shep thrust about with his feet for a new foothold.

“I thought I was a goner!” Shep said tremulously.

During the boys’ struggles they had evidently released loose material, for they saw a quantity of the porous stone cascade down the wall and strike the side of the ship.

“We’ve got to scram!” Rock said urgently. “They’re bound to have heard that inside! Now they’ll know we’re on Luna!”

They scrambled downward as fast as possible, without being reckless. It seemed as if the lunabase were more slippery than ever. Twice the boys’ feet slipped, and only timely bracing by the other prevented disaster.

When they were about halfway down, Shep’s foot wedged into a crevice.

“Look what I had to do with my big feet!” Shep groaned.

“Don’t worry,” Rock said. “It’ll take them a few minutes to get space suits on if they have decided to come out and investigate.”

Rock gently but firmly began working on his friend’s imprisoned foot. He moved it back and forth, tugging and pushing. But it held fast. Even after several minutes, Shep was still a prisoner.

Then suddenly the thing that the boys had feared happened. The air lock of the *Dog Star* opened and a ladder was thrust out until it reached the ground. Kalmus and two of his companions began descending. They all carried blasters.

“Now we’re done—” Shep blurted, only to be shushed abruptly by his friend. Shep had forgotten that all the suit radios were on the same wave length.

“I think we’re barking up the wrong tree!” the boys heard Ben Spooner say when they were on the ground. “That wasn’t anything but some loose rock that fell off that hill up there.”

“Rocks don’t just fall on Luna!” Kalmus retorted. “Something has to move them! I still believe those guys have traced us here! Leo must have been able to contact them by radio before I could break up the set!”

“I don’t see anybody around,” Mumbly Pegg remarked.

“’Course you don’t see ’em!” Kalmus growled. “You dead brain! You don’t think they’re standing around waiting to be caught, do you? Start climbing up that hill, both of you!”

Rock eased down as flat as he could get and motioned Shep to do the same. Through his helmet, Rock could see the grimace of pain on Shep’s face as his movement put pressure on the trapped foot. Rock cautioned him not to groan or speak a word.

Over his radio Rock heard Spooner and Pegg breathing hard as they began scrambling up the formation, followed by Kalmus. Rock kept perfectly still, hoping with all his might that the men would not discover them.

“I still think we’re barking up the wrong tree!” stocky Ben Spooner repeated as his breathing grew harder at every upward step.

“Shut up and keep climbing!” came Kalmus’ voice. “They’re bound to be up there!”

Shep was trying manfully to be silent, but every now and then an involuntary sob of pain escaped his lips. They could hear Mumbly Pegg murmuring to himself, in his own peculiar incessant manner.

Now Spooner was getting closer. He was only about fifteen feet away, and, as if following some telepathic message, he continued approaching the youths.

“We’re done for,” Rock thought, with despair. “There’s nothing to keep him from finding us.”

Rock lowered himself still flatter, until the sharp edges of lunar stone pressed dangerously into his inflated suit. Spooner still climbed. Another couple of feet and he would be looking right down on them. They heard the sucking of his tired breath and choking wheezes as if he couldn’t take another step.

“Tony!” Rock heard him call weakly. “I can’t go any higher! Besides, I can see the top and nobody’s up here! I’ve got to come down!”

“Come on down then, you weakling!” Kalmus grated. “What a bunch of saps I brought along with me!”

“I can see the top too,” came Pegg’s voice from another part of the formation. “There’s nobody up here, Tony.”

“I guess you guys were right after all,” Kalmus finally conceded.

It seemed a terribly long time before the men got to the ground and disappeared into the ship. Rock gave them time to remove their space gear before daring to speak over his radio.

“Boy, that’s the closest call we’ll ever have!” Shep said.

“We’re still not out of the woods,” Rock reminded him. “We’ve got to get you free.”

He went after the trapped foot with a more determined vengeance. Shep howled, but Rock finally jerked it free of the

stubborn crevice.

When they reached the bottom, Shep was limping and said his ankle hurt. Rock supported him and they headed back toward the *Northern Cross*. They continued with caution, keeping out of the open as much as possible.

“I don’t see that we accomplished much,” Shep said wearily.

“It’s given me another plan, at least,” Rock replied, brushing at a new growth of ice crystals.

“Oh, oh, here we go again!” Shep sighed, then winced as his ankle hurt him again.

“All of us,” Rock began, “except you—if you’re not up to it—will come back over here. We’ve already proved that the trip can be made without their seeing us. We’ll station ourselves around the air lock, except for one who will climb the formation and kick rocks down again on the ship. This time Kalmus will be sure it’s us, and they’ll come out to investigate again. When they come out, our bunch will slip inside. If Judas has been left to watch Leo and Ed, he shouldn’t give us much trouble by himself if we slip up on him and catch him unawares. Once we’ve locked out the other three they’ll give in willingly just to get back inside.”

“That’s pretty daring,” Shep said doubtfully, “but I guess we’ve got to be daring if we’re going to save the boys.”

As they walked, Rock radioed the *Northern Cross* with the walkie-talkie he’d been carrying on his back, telling the boys of their close call.

When the two reached the ladder bridge across the rift, Shep had difficulty crossing with his injured foot. He went first, and as Rock steadied the frail bridge, he held his breath tensely for fear Shep would slip. They had used the safety

rope again, but, if one of them should fall, he could easily rip open his suit as he thudded against the jagged side of the chasm.

Once more, however, they got across without mishap and were soon back at the ship. The boys helped them in eagerly.

“Are you fellows ready to go back with me?” Rock asked them.

They looked at him in amazement. He explained his new plan to them. All considered it taking a big chance, but, not being able to think of anything better, they agreed that they might as well try it.

“Kalmus is getting mean and nasty,” Shep told them. “This thing seems to be getting on his nerves. There’s no telling what he’ll do to the boys before this is all over. He and his men have blasters, and they mean business.”

The boys prepared a snack for themselves, then began to dress, trying to choose the best of the antiquated suits.

Shep did not suit up. He said that he wouldn’t be able to help any because of his ankle, which was noticeably swollen now. He wouldn’t let any of the others stay behind with him, however.

When all were dressed and ready to go, they said good-by to their crippled buddy.

“What’ll I do if you don’t come back?” Shep asked Rock.

“I guess you’ll just have to come over and join us,” Rock replied, half-jokingly. “Two could possibly get the ship back to port in a pinch but not one man alone.”

“I think I’ll prefer your coming back,” Shep said, with a broad grin. “Good luck, you guys.”

The four of them started out. Rock showed his friends the route he and Shep had taken before, one that appeared safe from possible inquiring eyes aboard the *Dog Star*. It took them some time to cross the chasm, since each fellow had to tie on the safety rope as he went over.

“I’ll climb the lunabase formation,” Rock told them, “because I was up there before and know the way. The rest of you keep away from the ports and sneak up to the air lock over there. When I see that you’re ready, I’ll kick some stone down onto the ship. That should bring them outside in a few minutes. We’ve already made our plans from then on.”

Rock watched Hugh, Sparky, and Johnny slip agilely into the open and bound like gazelles over to the air lock. Then he started to climb the wall as he and Shep had done before.

It was then that the shocking collapse of Rock’s bold plan came about.

Kalmus and all three of his men darted swiftly from behind the ship, two on each side. They leveled their blasters at the boys, warning them to stay in their tracks.

“Keep them covered, Ben,” Kalmus ordered. “Come on, Jack and Mumbly. There’s another one around here somewhere. I saw four of them.”

The shocking suddenness of the countermove had left Rock numb and immobile for a few seconds. But he quickly regained his composure and sprang into action. He leaped to the ground and scrambled madly to safety behind the lunabase formation.

He had barely ducked behind a monolith before two helmeted heads loomed some twenty feet away. A glance in the other direction showed him the third. He had to get out of there quickly.

He dashed into the open and with great leaps tried to put as much distance between himself and his pursuers as he could. He got a good start on them before they caught sight of him and gave chase.

“Stop!” Kalmus roared. “We’ll shoot if you don’t!”

Rock kept running, heading for the chasm. If the three were shooting at him, he had no way of telling in the near airlessness of the planet. He wouldn’t know unless he felt the hot stab of a heat ray and the explosive loss of air from his suit.

Reaching the rift, he cast a hurried glance behind and saw the three still following. Not having time to tie on the safety rope, Rock started across the chasm.

Over his radio he continued to hear Kalmus’ threats. The voice grew louder as the pursuers drew close. Being able to move ten feet or so at a jump, it wouldn’t take them many seconds to reach the chasm.

Rock clutched at the far bank and hauled himself onto safe ground. As he exhaustedly pulled the ladder across out of reach of the others, he looked up to see them almost at the edge. But without the ladder, they were helpless to advance any farther.

Fearing a well-placed shot, Rock scrambled for cover behind a protective clump of boulders not far off. Only then did he feel that he could dare take a deep breath since the terrible ordeal had begun. Kalmus and his two companions seemed

reluctant to attempt a jump of the chasm and headed back to the *Dog Star*.

Almost exhausted, he pulled the ladder across and out of their reach.

Rock continued on to the *Northern Cross*.

When Shep admitted him into the ship, Rock related the unhappy story with bitter tears in his eyes.

“You guys should have set me adrift long ago!” Rock burst out. “I’ve been giving orders ever since we started, and every plan has backfired! Now there are only the two of us left!”

“We had to have a leader,” Shep said more calmly. “We chose you because we thought you were the best. We still do. Now quit feeling sorry for yourself!”

“I don’t know what could have happened!” Rock sighed, shaking his head.

“I know,” Shep said. “Kalmus just happened to see you fellows coming, that’s all.”

Rock sat down wearily. “You take over from here, Shep. I’m licked.”

Shep could see that his friend was genuinely distressed. He concealed the harrowing pain he felt in his ankle and tried to think of their next move. Minutes passed without Rock speaking. He merely stared out the port at the star-jeweled sky and the shimmering ball of Earth that could look so close to a person in space and yet be so far away.

“You said that two could run this ship in a pinch,” Shep spoke to break the silence. “We’ll just have to take the *Northern Cross* back to port ourselves and get help from the Space

Guard. The boys will probably try to stall longer and keep the *Dog Star* on the ground.”

“I guess that is the only way,” Rock admitted, then added dismally, “If the ship isn’t here when the Guard comes back, we probably won’t see the fellows anymore, that’s all.”

“What you need is a good rest, Rock,” Shep told him. “None of us has had one since we came here. Let’s get a few hours of sleep, one at a time, and then get back to the problem when we’re more refreshed. I’ll stand first watch to see if the *Dog Star* takes off.”

“I am pretty tired,” Rock said. “This time we’ll do what you say, Shep,” he smiled feebly. “You be sure to wake me to relieve you.”

Rock stretched out in a chair and fell asleep almost immediately.

The next thing he remembered was his friend shaking him. Rock stirred sleepily.

“I guess I’ll be shot for going to sleep on guard duty,” Shep confessed. “I just couldn’t help it, though.”

Rock had no reason to doubt that the *Dog Star* would not still be in its same spot, but some impulse prompted him to look out the port just the same. His heart suddenly seemed to go dead inside of him.

“The ship is gone, Shep!”

“Oh, no!”

The glasses revealed indisputably that the ship had blasted off. There was only a blackened ring and a depression where the *Dog Star* had been before.

“They’ve gotten the jump on us again!” Rock said brokenly.

“Kalmus must have threatened the boys, or else Judas got the ship off,” Shep said.

“Whatever it was, they’re gone now,” Rock said hopelessly. “They can be heading for almost any place in the solar system.”

“What do you think we should do now?” Shep asked.

“Go ahead with our same plan to notify the Guard, I guess,” Rock replied tonelessly. “They’ll probably send out some cruisers to look for the *Dog Star*.”

Rock stared solemnly out the port. “It’s my fault all this has happened. My fault that we ever started out on this crazy treasure hunt and my fault that the boys are in the hands of these space pirates!”

“Don’t blame yourself, Rock. The fellows knew very well what they were getting into. It’s not your fault that things haven’t worked out.”

Rock tried to shake off the pall of despair that had dogged him for the past few hours and got busily to work. “Well, no use just sitting here on Luna talking about it,” he murmured. “Let’s get that ankle of yours bandaged and then we’ll start up the engines.”

It was going to be a tricky undertaking to manage all the complicated controls between the two of them. Shep was further hindered by his ankle that had stiffened while he had slept. Rock had remembered seeing a first-aid kit and he went for it. He wrapped the ankle tightly so that Shep would be able to get about with a minimum of pain. They had to cut the sides of Shep’s magnetic-soled shoe so that there would be as little discomfort as possible. Shep could have done without

magnetic shoes altogether, being content to float about weightlessly in the ship when they were beyond Luna's gravity pull, but this would have interfered with running the ship, which required a certain amount of body leverage.

The two got their individual duties synchronized so that there would be no hitch, Rock taking the bulk of the work.

They calculated their figures and prepared the tape for the autopilot. Then they strapped down in the couch room for the take-off. Rock still did not trust the *Northern Cross* too far, and at this moment he was concerned lest the old ship might not respond to the lift of her jets. The next few moments would tell the story.

Rock felt the vibration of the ship as the fuel pumps went to work. The overhead prism showed the flow meter registering properly, but the big question was still whether the ship would be able to lift itself into the heights. Then a sudden movement seemed to cut Rock's breath off in his throat. His body pressed deeply into his couch, aching, but Rock was glad. The ship was rising from the soil of Luna.

They pushed the *Northern Cross* along at the top speed they believed was reasonably safe. The ship creaked and groaned under the burden of maximum thrust. As yet she had given no indication of suffering worse than this, but it was clear that the space vessel had seen her best days.

When the *Northern Cross* was about two-thirds of the way home, a suspicious dot was seen on the radarscope, moving too slowly for a meteor.

"Shep!" Rock called. "Take a look at this, will you?"

Shep limped over as Rock got out his binoculars.

"I can't believe it!" Rock blurted. "It's the *Dog Star*!"

“What!” Shep cried, and grabbed the binoculars from Rock. “It *is* the *Dog Star*!”

“Kalmus has got more nerve than I thought he had!” Rock said. “I didn’t think he’d risk heading straight for Earth!”

“Whatever the reason, we’ve got him in our sights,” Shep said. “What’ll we do?”

“Follow him in, I guess,” Rock answered. “Whatever station he heads for, we’ll put the Guard right on him and his cronies.”

“I’d advise our keeping our distance so we won’t scare him off,” Shep suggested.

Rock nodded. “When we get closer in, we may be able to radio a warning to the stations to be on the lookout for him.”

They followed the *Dog Star* for an entire space day, keeping the same distance between the ships. The craft was undoubtedly still heading for Earth and its company of artificial satellites. If her occupants had spotted the other ship, they did not seem alarmed. Kalmus appeared to be walking right into capture at a time when victory seemed to be completely his. It didn’t make sense.

Hours later, Rock was interrupted from study of a sky chart when Shep cried out in an anguished voice. Rock dashed over to the port where his friend was looking out.

“There’s been an explosion aboard the *Dog Star*!” Shep blurted. “A big burst of flame poured out of it!”

“We’ve got to get to her right away!” Rock said hoarsely.

It took some time to change course and swing around in pursuit of the *Dog Star*’s new glide path. Rock fretted

impatiently. He had nightmare visions of what might have happened or might now be happening to his buddies aboard the stricken vessel.

As soon as the *Northern Cross* had matched flight paths with the other craft, Rock reduced their velocity so they could creep up on the *Dog Star* “overhead.” The maneuver was accomplished as quickly as possible. The *Northern Cross* now lay “above” the *Dog Star*, with a space of about a hundred feet between.

Rock set the controls on hold positions as Shep procured a long towline. The boys dressed hurriedly in space gear, then opened the air lock closest to the ragged topside hole they had seen in the other ship. They secured the safety line to an outside anchor ring, then Rock fastened the line to his own suit.

“Maybe you’d better stay out of this with that bad ankle of yours,” Rock told Shep.

“And let you go across on your own?” Shep retorted. “No, I’m sticking with you this time.”

Rock shoved off briskly from the ship’s hull and floated across the gulf of vacuum toward the *Dog Star*. He landed on the hull not far from the explosion hole that was amidships near a rocket-tube cluster. Shep pulled in the line and then launched himself across the emptiness. Rock steadied him as he landed.

The two scrambled immediately down through the gaping cavity, careful not to snag their suits on the sharp edges. The boys climbed down along the bulkheads of the corridor where smoke swirled like fog.

Reaching the floor, they were met by four running figures in space suits. The boys recognized Kalmus and his three companions in a desperate hurry.

Rock lashed out boldly at Kalmus who was rushing at him. He heard the big fellow groan over his suit radio as the blow landed. But then Rock was charged by Jack Judas. He was lifted off the floor and, because of his helplessness when not in contact with it, was sent crashing heavily against the wall of the corridor.

Rock scrambled down off the wall to resume the battle. Shep was courageously taking on all four of their attackers. Rock leaped into the middle of it all, swinging fiercely. Another blow sent him careening into the wall. Shep was flat on the floor now.

Expecting no mercy from the victors, Rock was amazed to see the four withdraw from the fight and run off down the

corridor in the direction they had been heading in before. Rock and Shep tiredly climbed to their feet.

“They weren’t after us!” Shep gasped. “They were just trying to get away!”

“They’re heading for the lifeboat rockets, I guess,” Rock panted. “They looked scared to death!”

“Let’s get to the fellows!” Shep said.

They hurried along to the main control room. It was empty, so they moved farther along to the navigation room. The door was locked and from inside there came the sound of beating fists. With their heavy space boots Rock and Shep began kicking the light metal door with passionate vigor. Finally they tore the lock loose and the twisted door swung inward.

Sparky, Ed, and Johnny were sagging against the far wall, their eyelids half-closed. Leo was giggling strangely and chattering as if enjoying himself. Sparky kept crying out, “I can’t hear!”

Only Hugh appeared normal. It was he who had been beating on the door. His face was red with fright and shiny with sweat.

“The air pressure is down!” Hugh gasped to Rock and Shep. “Give us air!”

Rock and Shep slammed the door to save as much remaining air as possible and hurried to the supply room. They gathered up all the oxygen bottles that they could carry and rushed back with them. They opened the petcocks on all, and the life-giving precious gas began flooding the room.

But the gauge on the wall still showed a subnormal air pressure. Shep and Rock found space suits in the supply room

and began helping their companions into them. The victims could help a little, but, except for Hugh, they were still in such a state of anoxia that their rescuers had to do most of the work.

Finally the five were safely encased in suits, with clean pressurized air filling their lungs.

When the others felt like it, they began to talk.

“Kalmus had us locked up in the navigation room while they went to eat,” Hugh explained. “Then when the explosion came, Kalmus and his men must have been in such a hurry that they forgot all about us.”

“You might know that the only thing that would have made Kalmus abandon the treasure would be the saving of his own neck,” Rock said contemptuously. “You fellows had better get a physical as soon as we get to port.”

Shep asked the fellows what had happened since their capture.

“Kalmus made us blast off soon after he caught us,” Hugh was the first to reply.

“Whatever made Kalmus head for Earth?” Rock asked. “We thought that would be the last place he’d want to carry all of you since you’d be able to incriminate him.”

“Kalmus didn’t intend to land at a space station!” Ed cut in. “He was going straight for Earth and touch down in the Arizona desert where he could unload the ore without being noticed. Then he and the others were going to sell it a little at a time over a long period.”

“Carry the *Dog Star* directly to Earth!” Shep exclaimed. “This ship isn’t made for atmospheric travel! It would have been turned into a meteor by skin friction!”

“That’s what we tried to tell that crazy man!” Sparky said. “But he thought we were trying to fool him and get him to dock at one of the space stations. Judas knew the danger too, but Kalmus wouldn’t listen to him either.”

“How did you keep the *Dog Star* at such slow velocity?” Rock asked.

“We shorted out the circuit to a couple of jets,” Johnny replied. “Told Kalmus it was an accident. We had Judas fooled too. We were trying to stall reaching Earth as long as possible.”

“We hoped we’d get a chance to jump the fellows,” Hugh put in. “We even had an outside hope that you might catch up with us.”

Rock went back to the earlier capture of Leo and Ed. Kalmus wanted only two of the boys to run the ship, Leo explained, so that they could be easily watched by the four. That was why they had sent Sparky back over after the transfer of the ore.

Ed said that he and Leo had made such an unsatisfactory job (intentionally) of running the ship that Kalmus had made Judas take over. But Judas was so rusty with his piloting that he botched up the controls, making a forced landing on Luna necessary. The boys then got the idea of trying to contact the *Northern Cross* by radio, which they had done in one of Kalmus’ unguarded moments. Kalmus had been so infuriated to discover this that he had destroyed the radio. He mistakenly thought he had done it before a message had been sent.

“Let’s hope we’ve seen the last of that Kalmus bunch,” Shep declared. “If everything turns out all right for us, I don’t care whether they are ever caught or not.”

“Do you suppose they got off in the lifeboats?” Hugh suddenly asked.

During their discussion of past events, they had almost forgotten about the present whereabouts of Kalmus and his men. They went to check the escape hatches and found one of four lifeboat rockets gone.

“I don’t see how they expect to reach any of the space stations with their limited knowledge of navigation,” Sparky said.

“Even Judas can find his way home from here,” Rock told him. “We’re only a few thousand miles from the outer radio relay satellite. The lifeboats have simple instructions printed on the walls that practically anybody can follow.”

Shep changed the subject. “Anybody know what caused the explosion?”

“Probably a valve lock somewhere in the chemical fuel system,” Hugh answered. “That’s what all of us think, judging from the sound of the blast. Our tinkering with the jets might have caused it.”

“The thing to do now,” Rock said, “is to get these ships back to port, that is, if the *Dog Star* has still got its power. I suggest we split into two groups, four on the *Northern Cross* and three on the *Dog Star*.”

It was discovered that the damage from the explosion would prevent the *Dog Star* from traveling at its best speed because one entire rocket section was out of order. But it would run.

They drew lots to see who would ride in which vessel. Rock, Hugh, Ed, and Shep drew the *Northern Cross* and Leo, Sparky, and Johnny the *Dog Star*.

Rock and his three companions who would return to the *Northern Cross* went back to the ship by way of the towline. The ghost ship still hovered overhead in the same position it

had occupied before, even though the two craft were traveling at a good pace through the deeps.

The space ships were brought back into their original Earthward paths, and in a few hours' time the braking rockets were ready to cut in.

Several futile attempts had been made to contact a space station by radio, and it wasn't until this point that the *Northern Cross* was able to establish its first contact over the crippled set. This was by way of a continuous signal beamed out through space by a rotating antenna atop the outermost artificial satellite, the radio relay station, 50,000 miles from Earth.

Hugh signaled for an operator and when he came in, Hugh gave the name of the ship and its position.

"Who did you say you were?" Rock heard the operator ask in amazement.

"The *Northern Cross*," Hugh answered, "serial number A45-J, World Spacecraft, manufacturer."

There was silence on the other end for several moments. Hugh winked at Rock. "We'll have some fun with them," he said.

"When did the ship go out?" the operator asked.

"Twenty years ago," Hugh replied.

"Is this a joke?" the other retorted.

"Not at all," Hugh assured him.

The radioman chose not to argue any further. "I'll give you approach instructions," he said.

“There are two ships,” Hugh told him. “We’re together.”

The operator sputtered again when Hugh told him that the *Dog Star*’s radio was completely out. “How do you expect me to bring a ship in without a radio?” he complained.

“If you give us both instructions,” Hugh answered, “we’ll relay those for the other ship to them by suit radio. We’re close enough for that.”

“I guess you know this is highly irregular,” the operator replied. “I still think you’re pulling my leg!”

As the approach instructions were given, Rock relayed them to the *Dog Star*. The connection was rather feeble because of the low power of Rock’s suit radio transmitter, but by hooking up his own suit radio to the ship’s antenna, damaged though it was, Leo, acting as radioman, could hear well enough.

As the ships moved in parallel to the spinning station, a final adjustment by the forward jets synchronized the ships’ motion with that of the rotating station.

“Pretty good approach,” the operator admitted grudgingly. “You two will come into adjoining Docks 5 and 6. Stand by.”

Presently two sets of long, flexible metal arms reached out from the space station like the arms of an octopus and attached themselves magnetically to the sides of the ships. Then slowly the *Northern Cross* and *Dog Star* were pulled into their docks.

Word of arrival of the derelict space ship had been spreading all over the station apparently, for Rock and his friends found the entire high brass there to meet them as they crossed through the coupling tubes into the satellite.

The boys were conducted to the official quarters of the commanding officer where he was gathered with the other members of his staff. There Rock related the entire story of their trip. At first mention of Kalmus' name, Colonel George had spoken to one of his officers and sent him out.

When Rock was through with his story, Colonel George shook his balding gray head, although it was a gesture not without humor.

"It sounds like a fiction piece, Merrill," the officer said, his eyes glowing with an excitement that suggested he might have enjoyed sharing such an adventure himself.

"Not that I disbelieve you! I don't mean that. It's just so incredible what a group of young fellows have done!" He looked at his spellbound officers and they nodded approvingly.

"I've sent one of my men to see if Kalmus had docked here," Colonel George went on. "He's probably a scoundrel with a bad record. That must have been why he was in such a hurry to get started from the servicing station, before his references could be checked at central identification on Earth. You mentioned, Merrill, that he appeared very generous in extending credit to you. I suppose you realize now that he must have planned to take over the ship from the very beginning and therefore his original so-called credit would be only a fraction of the wealth he expected to bring back."

"Yes, we finally guessed that, sir," Rock said.

There was a wait until the officer returned with the facts on Kalmus. He handed a yellow sheet to the commanding officer who read it with a show of regret.

"Kalmus and his men docked here about two hours ago," Colonel George said. "As soon as they docked, they

immediately jumped on a ferry going Earthward. The ferry landed some time ago and they can be anywhere on Earth. I'm afraid Kalmus and party have given us the slip. We've already notified the authorities to initiate a search for them. Too bad you men were unable to get in touch with us by radio so that we could have been ready for them."

"He may have escaped, sir," Rock reminded him, "but not with the ore treasure, not even his own half."

Colonel George chuckled. "That's right. And if he should turn up to claim it, we'll charge him with a crime that is quite serious."

"If he and his men are ever captured, sir," Rock said, "we'll make a settlement with him then. He may need the money for some good lawyers."

The colonel smiled. "I see you fellows want to do the right thing even if he hasn't. Let me say here that I consider what you men have done, bringing into port two crippled ships, the most remarkable space performance I have ever heard about in my career. I'd have given anything to be thirty years younger and one of you!" He sighed regretfully. "In view of all this, I believe it would be embarrassing to the Space Academy not to reconsider you seven for cadet school. I'll personally make a strong recommendation for you."

The boys, except for their leader, were profuse in their thanks. Rock was quietly grateful and filled with a heart-warming satisfaction. For all these long weeks since their blast-off, he had suffered remorse for having brought his friends into such perils as they faced. Now it had all worked out for a purpose. Where they might never have come back, now they had not only returned without harm, but they would reclaim the opportunity for a space career that had appeared to end for them with their washout from the Space Academy.

As Rock happily thought over these things, an officer wearing the insigne of a metallurgist came into the room.

“I’ve made an assay of the ore cargo on the *Northern Cross*, Colonel,” the man said. “It’s good alconite ore and is worth a fortune, and of course the ship is quite valuable too. It’ll tell us a lot about long-period effects of space conditions.”

“Now my success is complete,” Rock thought. “Dad did not lose his life for nothing. The satellite hospital will be a living memorial to his unselfish ambition. Even with all the things that happened to us, I’m glad we took the chance.”

He was sure his friends felt the same way.

SPACE STEWARD

“Carry your bags, sir?” The gentleman tourist in the space harbor looked at the youth who had stepped out of the night. Although the boy’s clothes weren’t as fine, perhaps, as those of the other baggage carriers, there was something about him which appealed to the man. The boy had a wiry, athletic build, and his gray, sincere eyes shone with spirit and good nature.

“Sure, son,” the big, white-thatched man said, smiling. “Suite 8, ‘B’ Deck.”

“‘B’ Deck!” Jim Vance echoed. “Thank you, sir!”

He hoisted the bags easily in his strong arms. Then, handing his patron one half of a baggage check, he headed briskly for the concrete pit where the throbbing space ship rested on torpedolike tail fins.

Jim was in a tingle of excitement. This was his first customer on ‘B’ Deck. He’d get a first-rate view of the *Hercules*’ luxury quarters! Jim always swallowed hard when he neared the astronaut. She was so incredibly big, so very much like the massiveness of the space which was her real home. Though the *Hercules* was carrying some space freight this trip, she was mainly a tourist vessel; and her destination was Venus.

“I’d give anything if I could make one trip into deep space,” he thought fervently as he stepped into the outside elevator and was carried far above the brightly lighted Miami spaceport. For an instant he seemed to share a kinship with the silent stars that encircled him like a speckled bowl.

Getting off on B Deck, Jim walked slowly along the polished corridor toward Suite 8. The finery of the deck fairly numbed his senses. While studying the turquoise carpet underfoot, his eyes shifted to his worn shoes, and then he felt out of place.

It took money to go into space. If not that, it at least took extensive training to be a crewman. He had neither money nor training, not even a family. Not that Jim Vance was ready to cry about it, though. He had long ago accepted his lot without complaint.

A senior-grade lieutenant stopped him outside of Suite 8. He wore a square red mustache, and he neatly filled a uniform of gray flannel with gold piping.

“We’re blasting off at 0800 sharp, son,” he said. “Better remind your patron to get aboard.”

“I will, sir,” Jim returned. For a moment he felt like a full-fledged crewman taking orders. He liked the feel of it, and he wished desperately that it were so.

He went into the suite and set down the bags. His eyes roved over the rich trimmings, the deep honeycomb rubber cushions. An oval port looked out on the winking night lights of the coast city. There were two other rooms to the luxury quarters.

The hideaway degravity cot in the main compartment had already been pulled down out of the wall by a steward, but its front clamps were not yet snapped to the floor. Jim closed the light beryllium door of the compartment and tried out the cot. He sank down into its cloudlike softness. As he lay there dreaming of worlds beyond Earth, suddenly the front end of the cot swung upward. In trying to scramble out before he was closed up in the wall, he was sent spinning into the air by the powerful spring action of the cot. His head cracked solidly

against the metal wall, and he saw more stars than there were in the night.

He lay in a daze for some time, stupefied, not realizing the passing of time. What finally roused him was the sensation of vibrating like a milk shake in a mixer. The floor beneath him throbbed like the surface of the Atlantic Ocean just beyond. Jim didn't have to be a spaceman to know that the *Hercules* was about to blast off.

Cold sweat flowed over him as he realized he could not leave the ship in time. The only thing he could do was prepare himself for the shock of the blast-off. He yanked down the degravity cot again, making certain this time that it was clamped to the floor. He guessed that all he had to do was recline on the cot as he had before and strap himself down with the black leather bands and plastic buckles.

He had scarcely done this before the pit of his stomach seemed to dive into his shoes, and he felt that exhilarating "first minute of acceleration" he had read so much about. When this was over, he knew the *Hercules* had climbed above the bulk of Earth's atmosphere and was leveling off on a horizontal curve from the planet's surface. The rotation of the Earth would give the spaceship a final boost into the deeps.

When Jim's stomach quieted, he unbuckled and attempted to get to his feet. The motion sent him flying up into the air! It then struck him that he had forgotten about the weightlessness of space. Some ships had artificial gravity in them; but because the *Hercules* was chiefly a pleasure ship, the tourists preferred to "rough it."

Jim became almost panicky in his efforts to right himself. His forehead grew hot although the cool atmosphere of the compartment was comfortable. He guessed that it wasn't entirely the shock of no gravity that was making him sweat. He was thinking about his unpaid passage on the *Hercules*.

“I’m a stowaway,” he thought. “I’ll be sent to jail for this.” He had read about the severe penalty for trying to hitch a ride on a space vessel. This was because weight was critical, and the addition of just a few extra pounds could prevent the rocket fuel from pushing the ship to its distant port, could even cause disaster.

Jim felt his head where he had taken the near knockout blow. There was only a small bump. Who would ever believe his story of what had really happened? Besides, he’d had no business trying out the degravity cot.

While he was pondering what he should do, there was a rap on the door of the suite. Jim slunk against the far wall, dreading to be found out.

“Are you all right, Mr. Bowers?” came a deep voice.

Jim opened his mouth to reply but only a wordless croak came out. The door swung open, and a husky steward with a young face “swam” in. At sight of Jim a surprised look crossed his features.

“What are you doing here?” he blurted. “Where’s Mr. Bowers?”

Jim felt as though he were in a crazy dream. The steward was floating toward him like a phantom in a nightmare, while he himself was like a desperate fish without fins in this strange sea of weightlessness.

“I don’t know Mr. Bowers,” Jim managed to reply, then went on to explain what had happened.

The steward looked at him skeptically, his round face attempting to judge him. “Is this the truth?” he asked.

Jim nodded and showed the bump on his head. Then he waited tensely for the verdict.

“Somehow I believe you,” the steward said sympathetically.

“Thanks,” Jim returned. He quickly decided that he liked the young steward with the surprisingly deep voice.

The steward looked thoughtful. “We’ve got to figure out a way to keep you from being discovered until we return to Earth. That way, you’ll have had time to help out and pay your way. It’ll go easier with you when you turn yourself in.” Then he frowned. “What about your family, though? They’ll surely be worried about you.”

“I don’t have a family,” Jim told him. “I’m an orphan, and I’ve been on my own for two years. Don’t you think I ought to make a clean breast of everything to the captain now and hope he’ll believe me?”

The steward shook his head emphatically. “Not *this* captain. Not Captain Coppard. He’s a stickler for regulations. He’d never believe your story. If he does find out, you’ll be on prison rations for the rest of the trip!”

“What’ll I do, then?” Jim asked, suddenly feeling very dependent on the young man he faced.

The steward’s forehead creased in a frown. “The captain doesn’t know the steward crew too well because there were some last-minute substitutions. I think you’d do best to become a steward and work out your passage that way.”

A steward on a space ship! The idea of it thrilled Jim so much that he almost forgot the seriousness of his situation. He wondered how he’d look in the neat starched white that the steward in front of him wore.

“First, I think we ought to get acquainted,” his new friend said. He extended a workingman’s strong grip, and Jim took it. “My name is Al Hogan. Everybody calls me ‘Babe’ because of my face.” He grinned boyishly.

“I’m Jim Vance,” Jim said.

“You’ll make a good steward, Jim,” Babe declared. “My job depends on being able to spot good men.”

“How’s that?” Jim asked.

“I’m chief steward in charge of personnel aboard the *Hercules*,” the other replied. “It’s lucky for you that I saw you first. I can hire you without your having to see anyone else.”

“That’s one thing in my favor,” Jim said with relief.

“I’m afraid there’s one more strike against you, though, Jim,” Babe said.

“What’s that?”

“You’ve ‘bumped’ the most important man in the space tourist business, and that isn’t good.”

“What do you mean?” Jim asked.

“I mean this suite was Mr. Bowers’, the owner of Venus Space Tours, Incorporated.”

“Why didn’t he come aboard in time for the blast-off?” Jim wanted to know.

“Mr. Bowers depends on the stewards to let him know just ahead of time because he usually has a lot of last-minute things to do.”

“I didn’t even know who he was!” Jim said. “Wow, what a mistake to make!”

“Lucky for the *Hercules*, though,” Babe remarked, “your weight has canceled out his. There’s another rub, though. Mr. Bowers may have the Miami port radio us that you’re aboard. That would expose you for sure.”

Jim had an idea that his career as a spaceman was going to be extremely brief.

Babe showed him how to navigate in the state of no gravity. By kicking out rearward, he could shoot himself along almost as smoothly as a fish in water.

“Come with me,” Babe said, “and let’s get you started as a steward. You can bunk in my extra cot. There was an odd number of men this trip, leaving the spare bed.”

Babe locked the door of Mr. Bowers’ suite so that no one would be curious about him. He told Jim that Mr. Bowers very rarely mixed with the passengers or crew. For this reason he would not likely be missed.

Babe kept Jim out of sight of the other crewmen and hurriedly got him fitted into a steward’s white uniform.

“Your job will be to show the tourists how to get along in the space ship,” Babe told him.

Jim went around with Babe to learn the ropes. Some of the steward’s friends looked at Jim curiously and asked about him. Babe satisfied them by saying that Jim was a last-minute addition.

The first jobs Jim and Babe had to take care of were several cases of space sickness. Lack of gravity did funny things to the balancing mechanism in the ear and often made amateur

space travelers feel as though they were coming apart. A dose of medicine usually fixed them up. Jim was glad that he himself did not suffer from this affliction.

Jim watched Babe instruct a gentleman how to take a nap without using a couch. The only thing the man needed was a short cord secured to his ankle and to a ring on the compartment wall to make sure that his breathing did not cause him to float off. For night sleeping, Jim was told, most people preferred using the standard sleeping-bag-type cots.

“How about some lunch?” Babe asked Jim when they had left the passenger relaxing in mid-air. “We’ll have to get ours before the tourists come in.”

“I’m all for it,” Jim replied.

As they “swam” toward the crewmen’s mess, Babe said, “This is your crucial meal, Jim. If you get by this one without anyone getting curious about you, I don’t believe you’ll have to worry about them anymore.”

“I have my fingers crossed.”

He was going to need all the luck he could get, he realized, as they navigated into the mess compartment. Across the room from them was the officer with the square red mustache who had spoken to him as he carried Mr. Bowers’ bags into Suite 8!

Jim whispered to Babe about the officer. Babe told him that there was a good chance of avoiding him, since the officers sat at one table and the stewards at another.

Jim was fascinated by his first meal in space. Everyone strapped himself to his seat so that he would stay put. Then the cooks brought in individual plates which adhered to the metallic table top by magnetism. Each bite of food was

impaled on a toothpick stuck into a sponge-rubber mat which was fastened to the plate.

As Jim ate with tongs and sucked his drink from a closed container, he was careful to avoid the roving eyes of the officer with the red mustache. Jim was glad that the other stewards weren't inquisitive about him. They appeared hungry and weren't talkative.

Having survived the crucial first day without discovery, Jim found the others that followed were much easier. When three weeks had passed and he still had not been discovered, he started believing that the tourist company owner he had "bumped" was not going to complain.

But one day late in the voyage Jim and Babe happened to run into a very important person in the corridor on the way to mess. Jim recognized the insigne of four platinum rockets that showed he was Captain Coppard. It was Jim's first face-to-face meeting with the officer.

After the stewards' salute Captain Coppard suddenly pulled up short, and Jim felt the trim, hawk-nosed man's steely gaze on him. It was a stare that appeared to look clear through him. Why was the officer suddenly so interested in him? It brought an anxious lump up into Jim's throat.

"Steward," the chief officer said, "just a minute."

Jim faced the officer in gray and gold, his heart pounding. Had Mr. Bowers radioed the ship about him? Or had Captain Coppard found out about him in some other way?

"Yes, sir?" Jim said.

Captain Coppard touched Jim's blouse. "You've got a button undone on your uniform. Don't let me see that again."

“Yes, sir,” Jim replied in relief, and lost no time tidying himself. The captain “swam” off down the corridor.

“That scared the life out of me!” Jim blurted to Babe. “I thought he had found me out for sure! I know now why you didn’t want me to turn myself in yet.”

“The captain’s an expert spaceman, but he’s as strict as they come, just as I told you,” Babe replied.

After lunch Jim and Babe had a little time on their hands and “hung” by the port in their compartment looking out into space. By now Earth had dwindled to an arc light, and the endless star patterns and dusty nebulae challenged his imagination tremendously. The planet they were heading for was an enlarging brilliant disk that stood out prominently among the sparkling diamonds of black space.

“How long have you been out of the orphanage, Jim?” Babe asked suddenly.

“Over two years,” Jim said. “I’ve been working as an assistant athletic coach at Oceanside Boys’ Home outside Miami since then.”

“How come you were doing redcap service at the space harbor?”

Jim grinned broadly. “Just because I loved it. I loved to go aboard space ships and pretend I was a real passenger. I’ve wanted to go into space ever since I knew there was such a thing. It seems now as though I’m in a wonderful dream and that all this is not really true at all!”

A pause followed, as Jim looked at Babe. “You’ve never told me anything about yourself.”

Babe shrugged. "There's not much to tell. I'm thirty-two, unmarried. Been going into space since I was seventeen. Like you, I have space in my blood, and I hope I'll be rocketing until I'm eighty."

Jim had a multitude of services to do for his patrons before the end of the trip. He had a half dozen mild cases of "collision," resulting from tourists' carelessly bumping into the walls of their compartments, not realizing their increased powers in "free fall." On another occasion a traveler had failed to hitch onto a wall ring during a nap and had floated down the corridor half the length of the ship. A child had a minor case of radiation burn when he wandered into a restricted compartment next to the atomic reactor.

The trip was nearly over in a few weeks' time, for the *Hercules* was traveling the way of the straight line and crossing the orbits of the other planets. The day of landing, Jim and Babe looked out of the port in their compartment at a pearly mist. The sensation of weight had returned with the cutting in of the rocket motors.

"How long before we touch down?" Jim asked.

"Several hours yet," Babe replied. "We've got to circle the planet several times to brake our speed. If we were to go straight down through this pea soup, the friction would turn us red hot."

Jim was glad when they were dropping at respectable speed directly down. The landing, moments later, in the colony space harbor was made safely.

After Jim and Babe had made their rounds readying the passengers for debarkation, a voice came over the wall microphone:

“Steward Al Hogan, report to Captain Coppard’s suite right away.”

Jim and Babe exchanged anxious glances but did not speak as Babe left the compartment. Jim wondered if his secret had been discovered at this last moment. His concern was more for Babe than for himself. It would be an awful thing for Babe to have to pay the penalty for helping him.

To take his mind off his concern, Jim went to the side port for his first sight of Venus. Although the upper layers of the atmosphere were impenetrably dense, the air at ground level was clear except for occasional wisps of vapor floating by. The intense rising heat gave a shimmering effect to the canyon landscape. When Babe returned, he eased Jim’s mind with a grin.

“How’d you like to make the cable-car tour with me, Jim?” he asked.

“I’m all for it!” Jim said, greatly relieved that Babe had nothing bad to report.

“One of the regular cable-car drivers is sick and can’t make the trip,” Babe went on. “Captain Coppard knew I’d had experience driving the car a few times before and asked me if I wanted to make some overtime pay.”

“When do we start?” Jim asked eagerly.

“In a few hours—after the tourists have had time to rest up from the landing.”

Five hours later, Jim and Babe were helping tourists into breathing outfits. There wasn’t enough oxygen in Venus’ atmosphere to support life from Earth, although the planet had animal life of its own. The apparatus was a light helmet with an attachment covering the nose of the wearer. The gadget

contained two slender tubes which fitted into the nostrils and supplied them with oxygen from shoulder tanks. Also attached to the helmet were dark lenses for protecting the eyes from the extreme brilliance.

As they left the ship, Jim saw that almost all of the many buildings of the settlement were clustered about the rim of the space harbor. Venus was still in the pioneer stage of development; the only persons living permanently on the planet were scientists, engineers, and tourist workers. The harbor lay on a broad, high plateau. On three sides of it, precipices dropped away sharply into deep canyons.

It took Jim a while to get used to the oppressive hotness of the atmosphere. It was like breathing fire each time he took a breath through his mouth. Babe instructed him and the others to breathe only through their noses in order to avoid the discomfort.

Babe led the party toward one of the edges of the plateau where the cable car rested, a hundred feet or so from the cliff. Its overhead cable extended out as far as Jim could see into the deep country.

When all were aboard, one of the tourists, weighted down with camera equipment, asked, "When are we leaving, Chief? Right away? I can't wait to get this terrific scenery down on film! Isn't this a fabulous place!"

The man was Mr. Benjamin, one of the more enthusiastic travelers.

"We're leaving just as soon as we get the rear jet firing," Babe told him. He led Jim into the foremost of two Plexiglas-enclosed drivers' quarters that were located at each end of the car.

Jim saw that only a single lever was used to control the cable car. There was a radio set for contact with the space harbor if this were necessary.

Babe turned on the ignition and shoved the lever. The car began gliding over the ground toward the edge of the precipice. "A child can run this," he said. "One jet behind to push us forward, one in front to slow us down."

Jim felt his knees go weak in tingling anticipation as the car swung out into empty space, with only its slender overhead cable as a support for forty people. Babe presently let Jim try the control lever. Jim could hear the hollow *swoosh* of the rear jet as it shot the car along, and he could hear the singing of the cable as the car rolled smoothly on its fine overhead bearings.

"We seem to be going uphill," Jim commented.

"We are," Babe said. "We're heading for Point Luna, which is a thousand feet higher than where we started."

"I don't see how they ever got this cable in place," Jim said.

"I've heard that it wasn't too much of a job, using helicopters," Babe explained. "It was worth the trouble because the tourist revenue from it has helped the building projects here."

Reaching Point Luna, the car was stopped and the tourists got out to look over the view. The space harbor was only a miniature tongue of land beyond the vast spread of canyon behind them. Babe pointed out the Great Crimson Desert in the distance, which looked to Jim like a sea of fire as the heat waves rose from it up into the white sky. Jim thought it odd, not seeing a sun up there. He knew the planet was forever shut off from any view of the outer magnificent solar system because of its dense atmosphere.

The car moved on again, and presently a flock of snow-white birds began circling about. Jim knew these to be the Venus albatrosses, which often accompanied the cable car. The next peak reached was Point Hastings, named for the man who had first set foot on Venus. The spot was a rugged mesa jutting up from the canyon floor. The excited party left the car and trooped down a slope which was thick with salmon-pink umbrella fern.

“Get ready to see Venus’ most interesting and bad-tempered animals,” Babe had told them just before.

Babe led them down to the bottom of the slope and through a dense thicket of gorgeous orange-colored blossoms. At this point the black rock slope dropped away to a sandy plain covered with a herd of giant unicorns. The animals were about the size of elephants, with glossy tan hides and slender antelope legs. Their huge heads carried swordlike horns just above the nose. The unicorns were browsing on patches of blue spider grass.

Mr. Benjamin piped excitedly, “I’ve got to get a picture of one of those babies!” He scrambled recklessly down the slope and took up a position behind a large rock.

“Better be careful, sir!” Babe warned. “It doesn’t take much to rile them.”

“It’s funny how the animals on Venus can get along without breathing oxygen,” Jim commented to Babe.

“They have a huge lung capacity,” Babe explained, “and also take in what little oxygen Venus has while they sleep. They store it up in a special air sac inside their bodies.”

Mr. Benjamin waved his hand to attract the attention of the beasts. Several in the herd raised their heads and peered at the man. One of them decided to investigate. He trotted over

toward the rock where Mr. Benjamin was clicking away with his camera, an ugly frown on its wrinkled features. The rock shifted unexpectedly, and the tourist slid around the edge of it. He lost his balance and tumbled down the slope, shouting wildly for help.

Jim's blood chilled, but he acted promptly, darting forward and scrambling down the incline after the helpless man. The unicorn rushed up the slope, his head lowered and his frightening ivory horn poised for attack.

Mr. Benjamin cried out and barely squirmed out of the way of the charging animal. The force of the unicorn's thrust caused him to bury his sharp horn to the ground. He withdrew it with a grunt of fury and shook black earth from the glossy white tip. Then he retreated for another charge.

The unicorn rushed up the slope, his head lowered and his frightening ivory horn poised for attack.

“Help me!” Mr. Benjamin cried desperately, scrambling madly to get a foothold in the slipping gravel.

By now Jim was within arm’s reach of the tourist. He braced himself against the boulder that had settled into a hollow and strained forward to grasp Mr. Benjamin’s hand. Just as the man was pulled to his feet, the unicorn struck again, burying his horn in the ground barely inches below the tourist’s boots. Jim shuddered as he hurried Mr. Benjamin up the slope to safety.

“My poor camera!” the tourist groaned. “It’s down there with that animal!”

“You’re lucky not to be down there with him yourself, Mr. Benjamin,” Babe said grimly and led the party back toward the car.

Next the car passed over the fascinating Lake of Steam. A mist, like the sheerest of veils, rose in a solid sheet from the depths to a height of half a mile, shot through with every imaginable color. Jim thought it an incredibly beautiful sight.

Jim took over running the car while Babe went back with the passengers to point out more of the picturesque wonders. Jim was surprised when suddenly the car began roller-coasting down a steep slope toward a forbidding dark opening in the cliff face. Quickly he realized that this was the famous Haunted Tunnel of Venus.

Jim switched on the headlights Babe had told him about and slowed the car with a burst of the forward jet. Slowly the car entered the enchanted cavern. The darkness seemed to make

Jim's ears keener. Presently there came to him the mysterious sighs and groans that had given the tunnel its name. Although he knew this was caused by wind whistling through the opening and the shifting of rock strata, it nevertheless caused chills to run up his spine.

All at once an unexpected loud buzz from the radio set shocked him into an involuntary cry. As his nerves calmed, he switched on the radio and spoke into the mike, "Yes?"

"Let me speak to Steward Hogan," came a brisk voice that Jim knew could belong only to Captain Coppard.

"Yes, sir," Jim replied.

He opened the door of the cabin and called Babe. Jim saw a flashlight advance toward him down the dark aisle.

"It's Captain Coppard," Jim whispered.

"Hogan speaking," Babe said into the mike.

"Steward," the chief officer of the *Hercules* said, "who is the young man with you?"

Jim's heart seemed to give a final quiver and go dead inside of him.

"Jim Vance, sir," Babe answered.

"I don't find him on my roster of personnel," snapped the officer.

"He isn't on it, sir," Babe admitted manfully.

"Then he's a stowaway?"

"Yes, sir," Babe said reluctantly.

“You realize the consequences of stowing away on a space ship, don’t you, Hogan?”

“Yes, sir,” Babe said.

“Remind your young friend of it, then, so that he will be prepared for what happens when the cable car gets back. The two of you will return immediately to the colony. That is all.”

There was a pall of silence for several seconds after the captain’s stern order. Jim could hear Babe’s tense breathing in the darkness.

“They finally caught us,” Jim murmured, “and you’ll have to pay for helping me.”

“I’d do it all over again, Jim,” Babe said firmly.

“You’re a real friend, Babe,” Jim told him.

Babe went out and explained to the tourists that they had to return at once to the space harbor. The stewards went back to the duplicate drivers’ quarters at the other end of the car, and Babe started the car out of the Haunted Tunnel.

As they drove back, both he and Babe gloomily silent, Jim was thinking that he had satisfied his lifelong ambition for a short while anyway. It had been great while it lasted.

After they passed Point Luna, a flock of albatrosses gathered around the car again. The birds’ curiosity made them bolder than usual, and some of them flew directly in front of the car. Jim heard sickening thumps as some of the careless birds were battered by the speeding car. Both he and Babe shook their heads regretfully.

Jim looked ahead where the space harbor was rapidly growing closer as they swept downhill. “Guess we’d better slow down,

or we'll go crashing into everything down there," Babe said.

He shoved the lever to brake the car, but nothing happened.

"Something's wrong!" Babe shouted hoarsely. "I can't stop this thing!"

In his imagination Jim could see them tearing loose from the cable when they reached land and hurtling down into the space port. The destruction would be staggering.

"Something's plugged up the forward rocket tube!" Babe exclaimed.

"One of the albatrosses must have been caught in it!" Jim burst out.

"It must be that!" Babe agreed. "There's only one thing to do—get the bird out of there double quick!"

"How're you going to do it?"

"Climb out the front of the car through the window!" Babe said, flinging up the pane in front of them. The hot air swept them back as though they had suddenly opened the door of a blast furnace.

"I can do it easier than you can," Jim said. "I'm lighter and slenderer." He was also thinking of the debt he owed Babe for helping him all this time.

"Nothing doing," Babe retorted. "I'm the responsible one on this tour."

Jim heard a battering at the door and saw some of their passengers trying to force themselves into the cabin. Babe opened the door a crack and pleaded with them for calmness. In those few seconds, Jim acted quickly.

First he shut off the forward jet completely. Then he began scrambling through the window out onto the front of the car. The wind cut him unmercifully. Projections across the front of the cable car gave him handholds, enabling him to crawl downward.

Suddenly the driving wind ripped Jim's nose-piece away and left it dangling from his helmet. He automatically gulped in a mouthful of searing, oxygenless air. It tore at his lungs and gagged him suffocatingly. He held his breath, grateful for the underwater swimming he had done at the Oceanside Boys' Home.

Jim stretched downward and reached the nozzle of the jet tube. He shoved his hand into it. The heat of the tube caused him to cry out in agony. Just as he was about to give up, his burned fingers felt something soft. Feathers. His hands plunged forward still deeper into the tube and closed around the mangled fowl. He tugged with all his might and finally withdrew the broken mass. His arm was beet red and paining fiercely.

He began the tortured climb back up into the car. His lungs were bursting for air. Every touch of his seared hand caused him to groan in pain. Just as he climbed free of the tube, a burst of red flame poured from the nozzle. With a shuddering jerk the car began slackening speed. Jim knew Babe had thrown on the jet's full power as soon as Jim had cleared the tube.

When Jim reached the window, Babe leaned out and pulled him into the car. Jim sagged in the extra seat, staring dumbly at the nearing spaceport plateau.

"Will we make it?" he gasped, feeling the sharp braking force of the forward rocket.

“We’ll make it all right—thanks to you,” Jim heard Babe say. Then everything whirled before his eyes and he blacked out from lack of air and the strain of his grueling experience.

When Jim recovered consciousness, he was in the colony clinic. The arm he had thrust into the jet tube was bandaged stiffly, and there was cooling salve on his wind-burned face.

Babe was standing by the bedside. “You’ll be all right,” he said. “The doc said you’d be uncomfortable for a while, but your arm burn isn’t too serious.”

Jim saw the tall erect figure of Captain Coppard come over. “So you’re the stowaway who so cleverly avoided me during the voyage?” he said.

Jim swallowed, his throat raw. “Yes, sir.”

The officer’s gaze still held that characteristic penetrating stare. “Steward Hogan told me how you came to be aboard,” he said. “I was ready to toss both of you into the brig when I first found out about you. Then since I talked to you in the cable car, I’ve been reviewing your record while aboard the *Hercules*. The other stewards tell me you did an extra fine job as a beginner without training. And of course there were these last things you did—risking your life to save one of the tourists from the unicorn and then preventing what could have been a terrible accident on the cable car. In a measure it changes things.”

“Yes, sir,” Jim murmured hopefully.

“Not that I condone breaking regulations!” the officer continued gruffly.

“Of course not, sir,” Jim said.

“You and Hogan had better thank your rockets that I’m in an expansive mood today,” the officer concluded. “Charges dismissed.” He then left the room. Babe and Jim were alone.

“You hear that, Babe?” Jim burst out. “He’s let us off!”

“Yeah, it sure surprised me!” Babe said. “I guess I misjudged the captain.”

“Mr. Bowers must have radioed the captain about me,” Jim mused. “That’s how he found out.”

Babe shook his head. “The captain found out on his own. He told me that Mr. Bowers wired him soon after blast-off that some urgent business had kept him from leaving on the *Hercules*. He didn’t even have time to get his bags off.”

“And to think that was the main thing we were afraid of!” Jim said wryly. He looked up at his friend anxiously. “Babe, do you think the captain will let me go back to Earth as a steward?”

“I think the captain knows a good spaceman when he sees one,” Babe replied earnestly. “I don’t think you have anything to worry about, Jim—not from now on.”

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