

TOM SWIFT ON THE PHANTOM SATELLITE

VICTOR APPLETON II

No. 9 in the Tom Swift Jr. series.

(1956)

From the inside cover:

Consternation and panic grip the world as a strange new moon shoots earthward. Millions of people are relieved when the weird, glowing runaway moon in the sky finally goes into orbit 50,000 miles from earth.

Tom Swift Jr., who has developed a machine which will produce artificial earth-type gravity in the airless void of space, makes plans to explore this new satellite. In the gigantic, atomic spaceship Titan, Tom and his associates land on the mysterious moonlet and claim the bleak but fabulously rich possession for the United States.

While exploring the satellite to pinpoint the best location for setting up the young inventor's atmosphere-making machine, Swift expedition scouts discover a spaceship belonging to a hostile nation. Claiming first right to the moon because of prior landing, the foreign scientists try every means to annihilate Tom and his group.

How Tom succeeds in proving the Brungarian claim invalid, and saves his associates from being set adrift in outer space, will keep the reader spellbound to the very last page of this spine-tingling adventure.

The Tom Swift Jr. series:

- 1 Tom Swift and his Flying Lab (1954)
- 2 Tom Swift and his Jetmarine (1954)

- 3 Tom Swift and his Rocket Ship (1954)
- 4 Tom Swift and his Giant Robot (1954)
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THE NEW TOM SWIFT JR. ADVENTURES

TOM SWIFT ON THE PHANTOM SATELLITE

BY VICTOR APPLETON II

ILLUSTRATED BY GRAHAM KAYE

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TOM SWIFT ON THE PHANTOM SATELLITE

CHAPTER 1

THE AWESOME SPECTACLE

“Tom! That runaway planet, or whatever it is, will-it collide with earth?” White-faced with fear, Bud Barclay stared at his friend, Tom Swift.

For a moment the young inventor continued to peer through a powerful telescope in the silent, glass-domed observatory. Then, turning to Bud, he said grimly:

“If it keeps on course and maintains the same speed, I don’t see how it can miss us!”

Both eighteen-year-olds glanced out the window at the strange, brilliant object in the western sky. First sighted an hour before, the mysterious body had been growing larger every moment and now looked to be the size of a baseball.

“Jumpin’ jets!” Bud cried out. “Tom, how big is this thing and how much longer do we have before it hits us?”

“Dad’s checking the computations on that now,” the rangy, blond scientist replied. Turning once more to the telescope, he added, “Bud, this must be the phenomenon our space friends were trying to tell us about in that message yesterday.”

For months, the Swifts had been in communication with friendly beings on another planet. “The first message had arrived on a meteorlike missile from outer space, which landed on Enterprises grounds. Later, more messages had been picked up by oscilloscope in the form of strange-looking mathematical symbols. Tom and his father had decoded these, and replied with messages of their own beamed into deep space by a powerful transmitter.

“But why didn’t they warn us it would collide?” Bud demanded. “They just said something about a phenomenon that would be clearly visible from earth.”

“The message was incomplete, Bud. Besides, Dad and I weren’t sure of our translation on some of the symbols. We still have no idea what the object is or where it came from!”

At that moment Mr. Swift entered the tower room. His expression bleak, he handed a sheaf of scribbled notes and computer tapes to his son.

“The object is definitely on a collision course with earth,” he summarized for the boys, “and at its present speed-well, we have perhaps two hours.”

“Two hours!” Bud repeated in a hoarse whisper.

Tom exchanged meaningful glances with his famous father, whose scientific genius he had inherited. "There's no possibility of an error?" he asked.

"I'm afraid not." Mr. Swift put his hand on Tom's shoulder, adding, "I must call home and talk to your mother. Perhaps we both should go"

"Listen!" Bud interrupted. He ran to the rim of the observatory tower and looked down. From far below came the frightened babble of Swift Enterprises workers who were milling around the low buildings. Every face was turned toward the brilliant disk in the heavens.

"The men are panicking," Bud said. "Is there anything we can tell them, Mr. Swift?"

As Tom turned back to the telescope, his father pondered the question. What statement could he possibly make at such a time?

Finally, Mr. Swift said quietly, "Tell them the truth-that unless something happens--"

"Wait, Dad!" Tom exclaimed. "Something has happened! The object is not coming any closer!"

"What!" Mr. Swift cried out.

"It has changed course!" Tom added excitedly. "Dad, I think it's going into orbit around the earth! Take a look."

Mr. Swift hurried to the telescope. In a moment he said, "You're right, son! It won't collide with earth!"

Bud heaved a sigh of relief. "That Little Luna up there sure looked like the third strike!"

The tension over, Tom and his father grinned at Bud's nickname for the moonlet. The young inventor picked up a microphone connected to the plant's public-address system.

"Tom Swift Jr. speaking. The danger is over. Everyone return to work. There is no present cause for alarm. The moonlet has gone into orbit. Repeat-there is no cause for alarm."

At once the men began streaming back to the flat-roofed, modern laboratory and workshop buildings scattered about the four-mile-square enclosure of Swift Enterprises. Crisscrossed with wide airstrips, Enterprises was the experimental station where the Swifts developed their inventions.

Meanwhile, Tom turned the telescope over to a young astronomer, to plot the course of the satellite and compile as much data on it as possible. Then he started for the main building, in which he shared an office with his father. Dropping into a deep leather chair, the young scientist waited for Mr. Swift to finish a telephone call to their home. With crew-cut blond hair and keen blue eyes, Tom was a taller, slimmer edition of his father.

"What do you make of it, Dad?" he asked when Mr. Swift put down the phone.

"The important thing right now is what the public will make of this," his father replied in a troubled voice.

"You mean widespread panic?" Tom asked.

“I’m afraid so. In the past, people have been scared out of their wits by comets. This is far more alarming!”

“Let’s see what the news flashes have to say.” Tom reached out and flicked on a wall transistor radio. Instantly a voice came crackling out of the set:

“-has just announced that all Civil Defense units are being alerted for possible action. So far no astronomer can offer any explanation for the strange object in the sky. But keep tuned to this station for any new developments.”

Tom twirled the dial to several other stations. Each one was broadcasting similar exciting news bulletins and a few fantastic theories.

“What it all amounts to is that no one has any explanation,” Tom commented dryly.

At that moment Bud Barclay walked into the office and perched on a corner of Tom’s huge desk. “Come on, genius boy,” he said, grinning at Tom, “you must have some idea about that blob of Stardust. Give us the inside story.”

Tom smiled. “It might be an asteroid that happened to stray into earth’s orbit. But I think Little Luna changed her direction and speed too suddenly to have been a wandering asteroid. On the other hand, the satellite could be artificial-• constructed by our space friends for their own purposes.”

The telephone rang and the young inventor scooped it up. “Tom Swift Jr. speaking.”

“This is Dan Perkins of the Shopton Evening Bulletin. How about a story on this fireball in the sky, or whatever it is? Are you and your father cooking up some new stunt?”

“Sorry, Dan, we can’t make a statement at this time.”

“Now look, Tom, you can’t brush off an old newspaperman like me that easily!”

“Sorry, but we have nothing to say yet!” Tom’s voice was polite but cool.

The inquiry from Dan Perkins seemed to be the signal for a flood of similar calls. Soon the phone was jangling every few seconds. Some of the callers sounded terrified, others were spluttering with rage. All of them clamored for an explanation of the strange sky phenomenon and wanted to know what dangers were in store for earth.

Exasperated, Tom buzzed the secretary, Miss Trent, on the intercom. “From now on, please shut off all calls!”

Meanwhile, Bud and Mr. Swift were tuning in the latest news flashes which now issued from the radio uninterruptedly. Panic was spreading across the globe. An excited announcer was saying:

“A bulletin just handed me states that crowds are rioting in Manila, Hong Kong, and other cities! More trouble is expected as the glowing object becomes visible in other parts of the world. To add to the confusion, freak high tides are reported at a number of coastal points. One Canadian town on the Bay of Fundy was almost swept away!”

The intercom buzzer sounded and Tom flipped the switch. “Sorry to disturb you,” Miss Trent

apologized, “but Mr. Perkins of the Bulletin is on the phone again. He says it’s urgent.”

“All right, put him on.”

“I’m not bothering you for a statement,” the editor said. “Just wanted to tell you that you’d better tune in your TV in exactly one minute, Tom. You and your dad are in for quite a surprise!”

With a sly chuckle, Perkins hung up.

Tom turned to his father and Bud. “Something’s coming up on TV. I’ll get it on the videophone.”

A private TV network, used to link the various offices and outposts of the Swift Construction Company, the videophone system could also be tuned to pick up regular commercial telecasts. Tom stepped over to the giant control board, pressed a switch, and tried the various channels.

On one channel a picture flashed on the screen showing a scowling man with bushy white hair being interviewed by a TV reporter. After introducing the former as John Voort, professor of astrophysics at nearby Grandyke University, the reporter asked:

“Can you offer any explanation of the strange glowing object in the sky, Professor?”

“It is definitely not a natural phenomenon. In my opinion, there is only one possible explanation.”

“What is that?”

“Tom Swift and his father are known to be in touch with beings in outer space. I believe that the Swifts and these creatures are now engaged in an experiment which could have tragic results!”

“Do you mean it could be dangerous to us here on earth?”

“Certainly it could be dangerous!” exclaimed the professor. “Tremendous forces may be unleashed—these high tides are only a sample! Even worse, a slight miscalculation could lead to a collision between the object and earth! You have asked my opinion and I have spoken bluntly.”

As the interview ended and Tom switched off the videophone, Bud exploded, “Are you going to let Voort get away with that?”

As usual when under fire, Mr. Swift controlled his emotions. His only comment was, “The man is entitled to his own opinion, Bud.”

“Maybe we’d better issue a statement after all, Dad,” suggested Tom.

His father agreed. Quickly Tom dashed off a few lines and handed the paper to Mr. Swift, who scanned it and nodded approval.

Picking up the phone, Tom called Dan Perkins at the Bulletin. He did not mention the broadcast but merely said, “Dan, you’ve asked for a statement. This is the only one we can make: We know absolutely nothing about the nature of the satellite. However, we plan to observe it carefully and will release our findings as soon as we have anything to report.”

Tom and Mr. Swift went back to their observatory. Hour after hour they studied the data which had

been recorded before the satellite had passed out of sight. It was nearly midnight when they finally stopped work.

“It looks to me,” said Tom, “as if the earth has a permanent, junior-size moon.”

“Right, son. But we’ll know more when we finish these calculations.”

After closing the observatory, the Swifts drove a company jeep across the experimental station to their private gate and parked. Tom beamed the gate open with his electronic key. Then, as was often their custom, father and son headed on foot down the little-used road which led to their home.

The Swift residence was just looming up ahead in the moonlight when Tom clutched his father’s arm. “Hold it, Dad!” he warned. “I think I heard something moving over in the-“

His words ended in a gasp as a shadowy figure leaped from the bushes beside the road, a long knife in his right hand.

“Murderers!” screamed the assailant. “You’re trying to destroy the world! But you’ll never live to do it!”

CHAPTER 2

AN INGENIOUS INVENTION

AS THE assailant’s arm arced viciously through the darkness, Mr. Swift dodged to avoid the knife thrust.

Instinctively, Tom hurled himself at the attacker and grabbed the man’s wrist. The stranger fought like a cornered rat, twisting, clawing, and kicking, as he tried to get his knife hand free.

But Tom, using his right fist, pommeled the attacker until the man’s knees buckled. Dropping the knife, he sagged limply and Tom’s next blow sent him sprawling to the ground in a knockout.

Instantly Tom turned to his father who was clutching a bloody shirt sleeve. “Dad! Are you all right?”

“Just a scratch, son. Let’s see who this fellow is.”

Whipping out a pocket flashlight, Tom beamed it at his fallen foe. The man’s face looked bony and hollow-cheeked. His clothes were shabby, his hair long and unkempt.

“Never saw him before,” murmured Tom.

“Some misguided crank, no doubt.” Mr. Swift’s voice was tinged with pity for the man who had attacked them. “We’d better take him to the house.”

The stranger revived enough to walk under his own power. Taking no chances, Tom used his

handkerchief to tie the man's wrists behind his back. The prisoner muttered incoherently all the way to the Swift home.

Tom's mother and his blond, blue-eyed sister, Sandra, a year younger than he, greeted the group at the front door. They cried out in alarm at sight of the bleary-eyed prisoner and at Mr. Swift's bloody sleeve.

Tom bound his prisoner more securely, then called Dr. Simpson, the plant physician. Next, Tom phoned Harlan Ames, in charge of the security division at Swift Enterprises.

Minutes later, a car screeched to a halt on the gravel driveway outside the house. Harlan Ames, slender and dark-eyed, was accompanied by Phil Radnor, blond-haired and stocky, head of the plant police. At once they began to question the prisoner.

"All right, let's have the whole story! Who put you up to this?" barked Ames.

The man stared back sullenly, his eyes gleaming with a fanatical light. "I'm trying to save the world from destruction! Can't you understand? Tom Swift and his father are the real criminals!"

While the questioning went on, young Doc Simpson arrived and examined Mr. Swift's arm. Fortunately, the knife slash proved to be only a flesh wound. After using an antiseptic, the doctor applied a bandage. A quick examination of the prisoner showed only superficial bruises.

When Ames and Radnor were through searching and grilling the stranger, who refused to give his name, Ames announced, "Our prisoner's got only thirty-two cents in his pocket and no identification. Guess he just got worked up by all those radio broadcasts and blew his top. We'll turn him over to the Shopton police."

Early the next morning as Tom and his father were eating in the sun-filled breakfast nook of the Swift home, a broadcast came over the radio which startled them both.

"World capitals are buzzing with excitement," said the newscaster. "There is a rumor that Brungaria—" Instantly the Swifts were alerted at mention of a country which had long been unfriendly to the United States—"has something to do with the strange new sky satellite," the announcer went on. "So far, the Brungarian government has neither confirmed nor denied this rumor. Many experts take this as proof that the Brungarians are responsible!"

Tom and Mr. Swift exchanged worried glances. "Dad, this could cause even more panic!"

"Yes, son. We'd better get back to work on those observations immediately!"

With Tom at the wheel of his low-slung sports car, they sped to the experimental station, and by eleven o'clock they had finished their calculations. These showed that the new body was orbiting around the earth like a second moon. Tom had plotted the orbit and found it was approximately 50,000 miles from earth. The moonlet's rate of revolution was calculated to be the same as earth's—once every twenty-four hours.

"Well, one thing seems certain," remarked Mr. Swift. "The new satellite is a natural body—probably an asteroid."

"Which means it wasn't constructed by either our space friends or the Brungarians," added Tom.

Mr. Swift nodded thoughtfully as he mulled over their other findings. Apparently the satellite had no atmosphere and possessed a heavy charge of static electricity.

“Here’s something else that may interest you, Dad,” said Tom, shoving over a paper filled with formulas and equations that he had worked out.

Mr. Swift studied Tom’s figures with a puzzled look. “You mean its gravitational pull is one-twentieth that of earth’s?”

“Right, Dad.”

“But that isn’t natural! The satellite’s only thirty miles in diameter-it’s not big enough to exert that much attraction!”

“Exactly.” Tom’s eyes glinted with excitement. “The gravity must be artificial!”

“In other words, the work of intelligent beings!”

Again, father and son stared at each other, the same thought running through their minds.

Was this part of some plan by their space friends after all?

Mr. Swift shoved back his chair and stood up abruptly. “Tom, I think we’d better call a press conference as soon as possible and give out our findings. It may help to calm the public’s fears.”

Tom nodded. “I’ll get on the phone right away and make the arrangements.”

Just before lunch hour, reporters and news photographers filed into a reception room in a building near the main gate. At one o’clock Mr. Swift walked in, flanked by Tom and Bud. The crowd of newsmen buzzed expectantly. The two Swifts mounted a platform facing the audience and began to explain their findings.

At one point a young, red-haired reporter in a vivid green sports jacket burst out in a nasty manner, “All right so far. But when are you going to cut out the double talk and get down to what you really know?”

“What do you mean?” asked Tom.

“I mean we want the real story! What are you Swifts up to? We all know you and your space pals are cooking up some experiment, just like Professor Voort said yesterday! So you can’t make us swallow the bunk you’ve been handing out so far!”

Bud’s fists clenched at the newsman’s insulting manner. Striding up to him before Tom could reply, he said, “Look, wise guy, you’re a guest here. If you don’t like the way things are being run, leave!”

“Try and make me, sonny boy!”

“Okay! You asked for it!” Grabbing the lapel of the man’s jacket, Bud swung the reporter around and took him by the seat of his pants. Before the surprised newsman could do more than squawk helplessly, Bud marched him out of the building and through the main gate!

“And don’t come back till you’ve learned some manners!” he called after the sputtering reporter.

The rest of the conference went smoothly.

After lunch Tom, his father, and Bud went to the Swifts' private office. Bud noticed a gleam in Tom's eyes. "What's cooking now?" he asked.

"I think we should send an expedition to explore that satellite!" Tom answered. "How about it, Dad?"

Mr. Swift grinned. "I decided the same thing this morning."

"Do you mean it?"

"Never was more serious."

Bud let out a whoop of excitement. "Hot rockets! Another space voyage!"

The two Swifts immediately began making plans. Calling in Miss Trent to take notes, they roughed out an estimate of the equipment, men, and supplies needed for a short private expedition.

Then Tom went to continue work in his laboratory on an invention which he had recently started. "I might need this for the trip," he said to Bud who was looking on.

Suddenly a voice boomed from the doorway, "Is this a private shindig, or kin anyone git in the game?"

As the boys looked up, a grinning, bowlegged figure ambled into the lab. Chow Winkler, a former Texas chuck-wagon cook, who now worked for the Swifts as chef on expeditions, was fat and bald-headed, with a face burnt brown as leather by desert sunshine. As usual, he wore a flashy cowboy shirt, tucked into his faded jeans.

"Hi, Chow!" Tom greeted him. "Come on in."

"Now what in tarnation would that be?" Chow asked, staring at an object on Tom's workbench. "It looks like one o' them merry-go-round lawn sprinklers-or a silver spider, mebber."

Tom laughed. "It's a model of an atmosphere-making machine, Chow."

"You mean, a contraption fer makin' air?" A frown wrinkled the cook's forehead. "But brand my spurs, why bother makin' air? Ain't we got plenty to breathe already?"

"Here on earth we do. But on the moon and some planets, space travelers won't find any, so they'll have to make their own."

"Well, brand my ox-eegen mask!"

"Speaking of oxygen," Tom said with a grin, "my machine will not only shoot out a mixture of oxygen and nitrogen-it will also make the stuff cling together, so that it can't drift away when there's not enough gravity to hold it in place."

Chow scowled at Tom suspiciously. "An' just how do you make gases stick together? Add a little glue mebber?"

Tom chuckled. "By using Inertite." This was a special paint which Tom had concocted from rocks taken from the Caves of Nuclear Fire in Africa. "You see, when Inertite is exposed to radioactivity, it generates a field of high-energy waves. And the waves, in turn, make the molecules of gas attract one another."

Chow's face creased into a cheerful grin. "I don't savvy a word of it, son, but if you say so, I reckon it must be true!"

"Same here!" Bud groaned. "It's way over my head!"

"It'll be way over all our heads," said Tom, pointing to a blueprint of his machine. "The 'spider' will be suspended about five hundred feet in the air."

Bud looked mystified. "But what holds it up?"

"Radib-that's short for Radioactivated Directional Ionic Beam. The pressure of this stream of charged particles supports the machine just like a ping-pong ball on a water spout. And of course the beam also irradiates the Inertite."

"Simple as that, eh?" quipped Bud dryly. Then, changing the subject, he asked, "How many cargo rockets will it take to haul everything for the expedition?"

"We'll transport everything in one ship," announced the young inventor. "I'm figuring on you, me, Chow, and a small, hand-picked crew of Enterprises employees to man the Titan."

Tom was referring to a giant new atomic-powered spaceship nearing completion at the Swifts' rocket base on Fearing Island. "If we speed things along and don't have any trouble clearing with the United States government," he added, "we can be the first to reach Little Luna!"

The excitement Tom felt over the project lasted until dinnertime. Then, reaching home, Mr. Swift greeted him with disturbing news. "Son, you and I have been summoned to Washington tomorrow morning. The official who called refused to give any reason, but I'm afraid it is an inquiry about our being responsible for the terror the satellite caused."

CHAPTER 3

TOP-SECRET PROJECT

TAKING OFF the next morning in a company-owned jet plane, Tom and Mr. Swift soon landed at the Washington airport. A government limousine whisked them to the Pentagon Building.

In one of the large conference rooms, they were greeted by Mr. Luther Helm, a balding official in the Defense Department. "Delighted you could come," he told the Swifts. "We need your help. The matter is urgent."

Helm introduced them to the other members of the group. These included high-ranking officers of the

Army, Navy, and Air Force, and various government scientists.

“Gentlemen,” Helm began, “here’s the situation. This new satellite could become a prize military objective. Any country that gains possession of it could conceivably dominate the earth. What’s more, that country would have an excellent way station for future exploration of space.”

Murmurs of agreement echoed around the table. Tom and his father glanced at each other. They had not been reprimanded. Why had they been called to Washington?

“Therefore,” Helm continued, “we have decided to send an expeditionary force to land on the satellite and claim it for the United States. Mr. Swift, we feel that you and Tom Jr. are the obvious choice to head such an expedition. What do you say?”

Tom and his father were amazed as well as pleased. This outcome to their summons was far different from what they had expected!

“This is a great honor,” said Mr. Swift. “It will mean a tremendous responsibility. But,” he added, “Tom and I are ready to serve our country any way we can. Naturally we accept.”

“Excellent! And you, Tom, how do you feel about it?”

The young scientist grinned. “I had hoped to make a quick, simple, private expedition to Little Luna, as we’ve nicknamed the moonlet. Now we’ll have an added and worthy incentive.”

Mr. Helm smiled and thanked the Swifts. Then he asked their opinion on the chances of survival on Little Luna.

“None, outside of a space suit,” Mr. Swift answered, “unless my son’s latest invention could be put to practical use there.” He mentioned the atmosphere-making machine.

His listeners were very much interested and one of the scientists asked, “Do you intend to use compressed gases?”

“For my first experiments, yes,” Tom replied. “But I’m hoping we’ll find the necessary elements on the satellite to make all the gases we’ll need for a permanent atmosphere.”

The conferees now got down to details of planning. Since the Swifts had already estimated the amount of necessary equipment and the cost of an expedition, they were able to quote definite figures.

“Here’s something you Swifts should know,” a member of the Central Intelligence Agency declared. “We have reliable information that the Brungarians are making feverish plans for an expedition of their own. They’re hoping to reach the satellite first, and establish a military base! I don’t need to tell you what that would mean to the whole world.”

“The United States must reach there first,” an Air Force general stated grimly.

“We’ll rush the project at top speed,” promised Mr. Swift.

Helm nodded. “Incidentally, we would prefer to let your own staff at Swift Enterprises handle the security angle on this, although government officials will be on hand for any emergency.”

“Now, then,” Helm proceeded, “here’s a list of the government’s scientific team that we’ve picked to accompany the expedition.” He handed the Swifts a typewritten paper with data on each man.

Tom and his father studied the list. Some of the names were known to them by reputation.

“Any objection?” asked Helm.

Mr. Swift shook his head. “So far as I know, they’re all good men. Do you agree, Tom?”

“Absolutely, Dad.”

“In that case,” said Helm, “I’ll notify the men to report to Swift Enterprises as soon as possible and work with you.”

A few minutes later the conference broke up and the Swifts were soon winging back to Shopton. The elder inventor put an arm on his son’s shoulder. “Tom, you are to be in charge of this expedition. I’ll help in every way I can, but you’ll be Number One man.”

“Thanks, Dad. I’ll try to live up to your faith in me.”

Swift Enterprises soon bustled with feverish activity. Crews worked around the clock, readying supplies and equipment for the journey into space.

Two days after the Swifts returned from Washington, an Air Force jet touched down on one of the Enterprises airstrips. Aboard were the first three members of the government team to report for duty.

Tom and Bud drove out on the field to meet them. A big man in a well-tailored suit bounded forward. Robust and bareheaded, with graying temples, he looked like a high-powered business executive.

“I suppose you’ve come to give us a lift, eh boys?” he boomed. “Well, let’s get going! Take us to the man in charge!”

“As a matter of fact, I’m in charge,” Tom said, smiling.

“What!” The man’s jaw dropped.

“I’m Tom Swift Jr. And I imagine you’re Mr. Jason Graves.” Tom had been prepared for his arrival by telegram. He knew that Graves was the dynamic owner of a large metallurgical research plant—a man who had won a reputation for quick fulfillment of defense contracts.

Graves shook hands, chuckling. “Almost had me fooled there for a minute, sonny. Your father’s the man I’ll deal with.”

“Sorry, but Dad’s on Fearing Island at our rocket base,” Tom replied. “He’s getting the cargo rockets in shape that will carry supplies to our space station where we’ll stop on our trip to Little Luna. So you’ll be working with me, Mr. Graves. I’ll be skipper on the flight, too.”

Graves’s face turned a ripe plum color. “You mean, I’m supposed to take orders from an eighteen-year-old kid?”

As Bud bristled, Tom said calmly, “Sorry if it seems a little unusual, Mr. Graves. I’m sure that we’ll get

along all right when we know each other better.”

While Graves struggled to accept the idea of taking orders from someone so much younger than himself, introductions to the other two arrivals followed. One was a blond, husky, likable metallurgical engineer named Kent Rockland. The other was Dr. Hendrik Jatzak, one of the world’s foremost astronomers. A small, shy, wiry man, Dr. Jatzak had a shock of black hair and twinkling blue eyes behind thick-lensed glasses.

“It’ll be a privilege to work with you, sir,” said Tom as they shook hands. “I’ve been an admirer of yours ever since I can remember.”

“And I, too, am an admirer of yours, young man,” said Dr. Jatzak in a quiet voice. “I consider Swift the greatest name in modern science.” With a twinkle in his eyes, he added, “And I, for one, shall be honored to take orders from either Tom Sr. or Tom Jr.”

Bud could not help smiling at this quiet rebuke to Jason Graves, who responded with a sour look. Tom took his guests on a quick tour of the experimental station by jeep, then assigned each one certain duties.

During the next few days, other top-level scientists and engineers arrived and quickly began work. Among them were Jim Stevens and Ron Corey, two young specialists in forced plant growth from the United States Department of Agriculture.

“Didn’t know they’d be sending along a couple of farmers!” joked Bud, as he and Tom lunched with their new guests in the Enterprises cafeteria.

Stevens replied with a smile. “Our jobs will be to cultivate crops for a permanent food supply on the satellite.”

“Have you set a date for take-off?” Corey asked Tom.

“We have, but for security reasons, Dad and I are the only ones who know what it is,” replied the young inventor.

Bud gave a mock groan. “Everything’s so hush-hush around here that even the mice are starting to complain!”

A week before take-off, Tom was busy one afternoon in his laboratory with Hank Sterling, the blond, square-jawed chief engineer of Swift’s patternmaking division. They were testing a scale model of Tom’s atmosphere machine.

Suddenly Bud Barclay rushed in, yelling, “Hey, skipper! Take a look at this!”

He waved a copy of the Shopton Evening Bulletin on which large banner headlines proclaimed:

SWIFTS TO HEAD U. S. EXPEDITION TO SATELLITE!

The story that followed was loaded with details, including the exact time and date of departure, type of spaceship to be used, and the names of some of the personnel!

“A complete account!” gasped Hank Sterling as he read the story over Tom’s shoulder.

“But who tipped them off?” Bud exclaimed.

Sick with rage and dismay, Tom could hardly speak. “We’ll soon find out!” he declared, when he recovered his voice.

Snatching up the telephone, Tom called the Bulletin and asked for the editor. “Where did you get that story on the space expedition?” he demanded.

Dan Perkins sounded surprised. “Why, from you folks, naturally. Where else?”

“From us?”

“Sure.” Perkins explained that he had received a standard, dated news release on a Swift Enterprises letterhead, giving all the information. “You mean the story is phony?” he burst out, suddenly realizing that something was wrong.

“I mean it was top secret!” Tom exclaimed. “That information could involve the security of the whole free world!”

Perkins let out a long whistle and started to apologize, but Tom interrupted him. “It’s not your fault, Dan. You printed it in good faith. But from now on, check with me on all releases!”

In a matter of moments, Tom had alerted Harlan Ames, and the plant security force whirred into action. Ames hurried to the laboratory to confer with Tom.

“Where did you keep the records of the expedition personnel?” asked the security chief.

“In our office safe.”

“We’ll grill everyone who has access to your office. How about the date of take-off?”

“That was never written down. Someone must have eavesdropped on our radiotelephone when Dad and I were talking about it.” Frowning thoughtfully, Tom added, “The Swift Enterprises letterhead could have been stolen from the printer.”

All night long the investigation went on. Everyone on the staff and all others even remotely connected with the expedition were questioned and cross-questioned.

Early the next morning Tom sped to the plant with his father, who had flown back from Fearing Island. Their first caller was Ames, haggard and unshaven after his grueling all-night session.

“Any results?” Tom inquired anxiously.

Ames shook his head grimly. “Not a single lead.” Then, pulling an envelope from his pocket, he dropped it on Mr. Swift’s desk.

The inventor raised his eyebrows, puzzled. “What’s this?”

“My resignation,” Ames said glumly. “Effective immediately.”

CHAPTER 4

AN ATTACK IN SPACE

FOR A MOMENT Tom and his father were dumfounded. Mr. Swift's keen blue eyes studied the security chief.

"Why are you doing this, Harlan?" he asked finally. "Do you really want to resign?"

Ames shrugged unhappily. "What else can I do? I've failed to maintain proper security, and now I can't even find out where the leak occurred."

"Nonsense!" retorted Mr. Swift. "You took every precaution, but we're up against a diabolically clever enemy. In my opinion, there's no way you could have forestalled the leak."

From his pocket Ames pulled a rumpled telegram. "This is from the FBI. Their agents are coming here to investigate. I'm sure it's because the officials who asked you to make the expedition think I've bungled the security job."

"Well I don't," said Mr. Swift. "I want you to stay."

Tom joined his father in urging Ames to reconsider. "You can't quit now, Harlan. We need your help to see the project through!"

To clinch the matter, Tom tore up the letter of resignation and dropped it into the waste-basket. "There-that settles it. You're still working for Enterprises!"

Flushed but grinning, Ames agreed and hurried off to resume his work.

Tom's face was serious as he turned back to his father. "Dad, there's only one thing we can do now to beat the Brungarians or any other country that wants to claim Little Luna. Speed up everything and beat our original deadline!"

The elder scientist nodded. "You're right, Tom. With a little luck, I believe I can have the first cargo rockets ready for blast-off by midnight."

"Great, Dad! We tested the model of the atmosphere-making machine yesterday afternoon. It worked perfectly! The main casting was poured last night. If Hank prods the workers, they should have the whole assembly ready by the end of the day."

With a quick handshake, the Swifts parted. Mr. Swift flew back immediately to Fearing Island. Two hours later a big cargo plane followed, loaded with heavy equipment for the expedition. At the same time, other planes were being rolled out on the Enterprises airfield, while mechanics scurried about, fueling and tuning them up for shuttle flights to the rocket base.

As Tom watched the first ship wing off, Bud walked over. "Skipper, how come you're planning to use

cargo rockets? I thought you said everything would go with us in the Titan.”

Tom grinned. “It will, eventually. The cargo rockets will ferry the heavy stuff up to our space station,” he explained. “The Titan will load up there for the actual trip to the satellite.”

Several months before, Tom had built his outpost in space 22,300 miles above the earth, as a place in which to manufacture solar batteries—a revolutionary new form of portable power.

Bud looked puzzled. “Why can’t the Titan be loaded right here on earth?” he asked.

“It would need too much fuel to attain escape velocity if fully loaded,” Tom replied. “This way, we do the operation in two easy steps—boost the Titan to the space station, then pick up its pay load for the next half of the flight.”

Throughout the morning, Tom, with Bud’s help, worked at high speed, checking equipment, issuing orders, supervising plane loadings. At four o’clock Tom called a briefing session for all flight personnel. Standing at a blackboard, Tom told the men:

“Chances are that foreign agents will be monitoring our radio signals at all times. To keep our operations secret, we’ll use a special code. The code will be made up of ordinary, everyday words for names of ships, parts, personnel, and so on. For example, lightning will mean Titan.”

Tom wrote down several sample messages in code, then translated them. “And,” he went on, “in place of the international distress signal Mayday, we’ll use the word Stardust in case of serious trouble. I’m having the code mimeographed and you’ll all get copies.”

When the meeting broke up, Tom hopped on a motor scooter and rode to the construction shed where his atmosphere machine was being assembled. Amid the clatter of riveting hammers and the blue-white flashes of welding torches, workmen were finishing the big titanium tank.

“How goes it, Hank?” Tom asked.

“Be ready for testing by eight o’clock,” the engineer reported.

Tom clapped him on the back. “Keep up the good work! I’ll go finish the checkup.”

Speeding to the electronics laboratory, Tom found the radib generator nearing completion. By ten that night the entire atmosphere machine had been assembled, tested, and torn down again. An hour later the parts were en route by plane to Fearing Island.

It was well after midnight when Tom reached home, weary from his day of whirlwind activity. Yawning, he was about to drop into bed when the signal for the videophone buzzed. Instantly wide awake, Tom ran down to the first floor and turned it on.

“Dad!” he exclaimed, as Mr. Swift’s face appeared on the screen.

“I just wanted to let you know that the first cargo rocket blasted off at 12:37.”

“That’s great, Dad! The job’s finished at this end. We’ll join you on the island tomorrow.”

Early the next morning all personnel for the expedition were flown out to the rocket base. Tom and Bud

took off by heliplane just before noon. The sleek jet craft streaked through the sky and soon the boys came in sight of Fearing Island.

A thumb-shaped stretch of sand dunes and scrubgrass off the Atlantic coast, the island was a government restricted area. Tom radioed the control tower to neutralize the drone planes guarding the base. Then he cut his jet speed, extended the ship's rotors, and hovered before landing.

The three-mile-long island lay spread out below them. At the north docks, tankers were unloading fuel. Inland, at the launching site, a number of huge silvery rockets pointed their noses skyward. Antlike figures bustled around them.

"There's the Titan!" Bud said excitedly, looking down at an enormous spaceship, dwarfing all the others.

Tom nodded. "It's almost finished, but a special launching pad will have to be built. Want to go aboard for an inspection?"

"Lead the way, sky boy!"

After landing on the island airfield and checking in, the boys drove across the base to inspect the Titan.

"Wow!" gasped Bud, tilting his head back. "She's as tall as a skyscraper!"

"Let's take the elevator," Tom suggested.

Stepping into a small cage, the boys rode up the ship's side. On the way, Tom pointed out that the entire hull was coated with a layer of Inertite one-thousandth of an inch thick.

"That layer will protect her from the strongest cosmic rays," he told Bud.

Like the cargo rockets, the Titan had two lower stages powered by liquid fuels. Above these was the atom-powered rocket motor for use once the ship had cleared earth's atmosphere.

Reaching the escape hatch, the boys climbed inside the spaceship. Bud gasped in amazement. "Jumpin' jets! What is this-a luxury liner?"

Tom looked around proudly at the crew's living quarters. "Quite different from our earlier rockets, eh?"

Comfortable bunks lined the wall. There were private lockers for each man, a well-stocked library, and a small recreation lounge.

Tom went on, "Below this deck is the cargo hold, and that door over there leads to Chow's galley."

Ascending through a hatchway to the next level, Tom showed Bud a machine shop for emergency repairs. It was equipped with power tools, workbenches, gauges, and racks of technical gadgets.

"Now take a peek at the lab setup," Tom said.

Bud's eyes grew wide as Tom slid back a door and pressed a master light switch. The compartment beyond was divided into cubicles, each one equipped for a different type of scientific research.

One area contained retorts, test tubes, and shelves crowded with chemicals. Another housed a maze of

gleaming electronic test gear. Still another contained optical devices and lens-grinding equipment.

In the nose of the spaceship, the boys inspected the flight compartment. Twin rows of acceleration couches were surrounded by an array of dials, scopes, and control levers.

“Sure hope you can show me how to work all these gadgets!” Bud said, grinning.

“It’s basically the same setup as the Star Spear. You’ll catch on to it in no time,” Tom assured him.

The rocket stages in Tom’s first famous ship used a combination of alcohol and liquid oxygen for fuel. His invention of a rocket-fuel energizer, the kicker, which used solar energy, changed the liquid oxygen into blue liquid ozone.

“But what about the atomic drive?” Bud asked.

“I’ll check you out on the controls soon,” Tom promised.

Retracing their steps, the boys emerged through the escape hatch and rode down in the elevator cage. As they stepped out, a voice boomed over the public-address system:

“Tom Swift, please report immediately to the communications office.”

Exchanging worried glances, the boys sped to the concrete shelter which housed the radio and the radar-tracking gear. George Billing, lanky and dark-haired, who was in charge, said tensely, “Boys, I’m afraid Hank Sterling’s cargo rocket is lost! We’ve had no radio signal from it since 10,-000 miles up.”

Tom’s face blanched. “Did Hank report any trouble on his last contact?”

“No. His instrument reports all checked on the button.”

“Call him again and keep trying!” Tom ordered grimly.

Anxiously the boys hovered over the control board as Billing paged the ship by its code name. “Base calling Rosie. Come in, please! . . . Base calling Rosie. Come in, please!”

Tense minutes of silence passed. Then, suddenly, the receiver crackled into life. Hank Sterling, in a strained voice and speaking in code, reported that his ship had been attacked by an unidentified rocket craft firing rocket-propelled missiles.

Unarmed, Hank had managed to outmaneuver and outrun his attacker. To avoid being spotted, he had maintained radio silence, but now his fuel was practically gone—there was not even enough left for a landing!

The terse broadcast ended with an agonized, “Stardust! Stardust!”

Tom grabbed the mike. Using the new code, he instructed Hank to use his remaining fuel to get into orbit, then report his position.

A few minutes later Hank radioed back the information. In code, Tom acknowledged his message. Then, heaving a sigh of relief, he switched to regular English, and said with a chuckle:

“We’re sending a taxi, Hank. Wouldn’t want you boys to walk all the way home!”

Turning the mike back to Billing, Tom snatched up the telephone. His rapid-fire commands soon had the base rocking with activity. Tank trucks rumbled up to the launching area, where alcohol and liquid oxygen were pumped into the Star Spear. Mechanics and technicians swarmed over the rocket craft, preparing it for take-off.

The flight plan for reaching Hank’s orbit was quickly calculated by an electronic computer. The results, punched in a pattern of holes on the flight tape, were fed into the automatic pilot.

An hour after Hank’s message had come, Tom and Bud, strapped to their cots in the pilot’s compartment, were set for blast-off. On the ground, the count-down reached X minus one.

With a blast of thunder, the rocket ship rose into the air and at blinding speed arrowed into the ionosphere. One by one, the rocket motor stages were cut away by the electric-timer gun, to parachute into the Atlantic far below.

As the acceleration eased off, the boys unstrapped their safety belts and swung the cots into sitting position.

When the Star Spear reached 10,000 feet, the cosmic-ray altimeter flashed a red warning signal. Tom fired the steering motors to tilt the ship into orbital flight, then switched on the search radar. Soon a blip of light appeared on the screen.

“Open the shutter!” Tom ordered.

Bud pressed a button and the metal lid of the pilot’s transparent canopy slid back.

“There’s Hank!” Tom cried out.

Ahead gleamed a silver rocket, which seemed to be floating motionless in space, though the cargo ship was racing along in orbital course at many thousands of miles an hour.

Tom maneuvered the Star Spear alongside. Then he locked the two ships together with the invisible force of his magnetic grapple. Quickly the boys donned space suits.

Tom’s heart began to pound. He knew the most dangerous part of the rescue lay ahead!

CHAPTER 5

TIME BOMB!

BEFORE clamping on his space helmet, Tom made radio contact with the cargo ship. “Everything okay?” he asked in code.

“It is, now that you’re here!” came Sterling’s joyful response. “What’s the drill, skipper?”

“Prepare to abandon ship. How’s your crew?”

Hank hesitated a moment before replying. “Not feeling well, Tom.”

“I was afraid of that.” Tom frowned. “Break out your space suits and stand by. I’m going to run a line to your air lock.”

A moment later the watchers on board the stranded rocket saw the Star Spear’s escape hatch open. Fully space-clad, with a transparent helmet over his head, Tom emerged, gripping a steel cable in one hand.

Cautiously he propelled himself into space by firing the portable reaction pistol attached to his suit. In a few moments he reached the cargo ship.

Hank opened the sealed hatch and Tom entered through the air lock after belaying the cable to a hatch fitting.

Inside the rocket, Tom doffed his helmet again and Hank Sterling clapped him warmly on the shoulder. “Boy, you’re a sight for sore eyes, skipper!”

“Ditto, Hank!”

Tom looked around and sized up the crew. Sterling and a young Enterprises mechanic, named Bob Jeffers, were the only veterans of previous space flights. The other three were government men. Pale and droopy-eyed, they clung to pipes and stanchions.

“A bit space happy. I guess they needed more time in your Zero-G chamber, Tom,” Hank explained, referring to a training device which Tom had invented to accustom space recruits to the effects of zero gravity.

Tom turned to the three wobbly-looking crewmen. “Think you can make it over to my ship okay?”

All three responded eagerly in the affirmative. “Anything to get off this crate!” replied one of them with a feeble grin.

Tom explained his rescue plan, ending with, “Do exactly as I do, and above all, don’t let go the cable. Otherwise, you’ll drift off into space and there’d be a slim chance of our getting to you.”

The men in the cargo rocket donned space suits, then Tom led the group through the ship’s air lock, watching carefully for signs of panic among the crew. How well he recalled the frightening sensation he had felt the first time he had stepped out into the awful emptiness of space!

Clinging to the steel cable, they worked their way, hand over hand, toward the Star Spear and in a few moments the harrowing trip was over. Bud helped them aboard and soon all were relaxing in the flight compartment.

“Good work!” Tom congratulated the crew. “You’ve already got your space legs!”

Leaving Bob Jeffers in charge of the Star Spear, Tom, Bud, and Hank headed back to the stranded

rocket. Then began the tedious job of transferring as much of the cargo as they could stow aboard the Star Spear. The gas tanks proved too massive for the rocketeers to push around, with only their suit pistols for motive power.

“Wow!” gasped Bud over his mike. “Never realized these babies weighed so much, Tom. How come?”

“They were built extra thick, so they wouldn’t blow up out here in space,” Tom explained. “Incidentally, it’s really mass, not weight, that you’re complaining about.”

Much of the construction equipment was also too bulky to handle without a winch, even if there had been room for it aboard the Star Spear, but the trio managed to salvage most of the atomic items.

“Good thing this stuff is shielded with Tomasite instead of lead!” Hank chuckled. “Otherwise, we’d never be able to move it!”

“That radiation proof plastic you invented, Tom, is the greatest,” Bud agreed. “You couldn’t have built the Sky Queen without it, and think what Tomasite has done for Enterprises’ products.”

When the last piece had been stowed aboard the Star Spear, Bud clamped the hatch shut. Then Tom threw a switch which released the magnetic grapples, leaving the cargo ship a derelict in space, perhaps forever.

“Stand by for descent maneuver!” the young inventor sang out.

Turning on the gyros, he eased the craft tail forward, then jerked open the throttle for a terrific blast on the rocket motors. The effect was like slamming on a gigantic set of dive brakes! Instantly the Star Spear spiraled downward as it lost its orbital speed.

Plunging around the earth like a comet, the ship knifed into the atmosphere with stinging velocity. Soon it was glowing red-hot from air friction.

Far below, the blue-green waters of the Pacific were streaking past, partly obscured by cloud mist. Ahead lay the continent of North America.

Tom asked Hank for more details of the attack on the cargo ship, but he could give none. “It’s a complete mystery, Tom. I suppose some earth enemy tried to shoot us, but it could have been space beings.”

As the Star Spear zoomed across the spinelike ridge of the Rockies, Tom said, “Better call Billing, Bud, and let him know we rescued Hank and his crew.”

“Righto, rocket boy!”

Flicking on the radio, Bud transmitted the message. Hardly had he finished his report when Billing’s voice came crackling back over the loudspeaker. His words were shrill with alarm. In his excitement, he didn’t bother to use the code!

“Bad news here! Ames just got a tip that the Titan has been sabotaged!”

“Sabotaged!” In dismay, Tom cried out into the mike, “What happened, George?”

“A time bomb was placed in one of the rocket tubes! It’s set to go off in fifteen minutes!”

Tom and his friends were in despair at this news. The hopes of the United States expedition rested on the great atomic spaceship!

Tom glanced at his watch, then returned to the controls, his face grim. “We must save the Titan!”

“Can we make it back in time?” Bud gulped.

“I’m not sure. Radio the base to have a jeep waiting.”

Nearly ten of the fifteen minutes were gone when the Star Spear finally landed on the island. The boys scrambled out. Running to the jeep, Tom slid behind the wheel. Bud and Hank hopped in beside him. An instant later they were roaring off toward the Titan.

A safe distance away, excited technicians and workers were milling around. Tom slammed on the brakes, leaped out, and dashed to the ship. Arvid Hanson, chief modelmaker for Swift Enterprises, stood at the base of the Titan.

“What’s being done about the bomb?” Tom demanded tersely.

“Kent Rockland found the bomb in Number Twelve tube! He’s up there now, trying to disconnect it!”

Hanson pointed to one of the cluster of exhaust tubes, each one big enough to admit a man. Quickly Tom scrambled up the ladder which had been inserted into the tube. Rockland’s voice came echoing down hollowly:

“Hold it, down there! You’re jarring me! I’ve got the timing mechanism in my hands!”

“It’s Tom! Need any help?”

“No! Give me two minutes and I’ll have it!”

Bud, crowding into the tube just below Tom, whispered:

“That’s just about all the time he has left!”

CHAPTER 6

A DANGEROUS DOUBLE

TENSION gripped the watching group as the seconds ticked off. Would Kent win his race against death inside the rocket tube?

Hanson, fearful, called up to Tom, Bud, and Kent, urging them to come down before the time bomb

would go off. For answer, Tom asked Kent how the job was progressing.

“Almost got it!” was the reply. “Stand by!”

Tom glanced at his wrist watch. The radium dial glowed in the darkness. Less than twenty seconds to go before the deadline!

Clammy sweat broke out on Tom’s forehead. His heart was booming like a bass drum. Above him, he could glimpse the rays of Kent Rock-land’s flashlight and hear the scraping noise of a tool against metal.

Suddenly Kent’s voice came excitedly. “The timer is disconnected!”

Tom went so limp with relief that his legs almost gave way on the ladder. But he recovered quickly as Rockland shouted down, “Take this baby, will you? I’ll hand it down. Careful!”

Gingerly Tom reached up, took the infernal device, and passed it along to Bud. A few moments later all three were back on the ground, blinking in the sunlight. From a distance the workers burst into cheers.

Unable to speak, Tom wrung Kent’s hand in silent gratitude. Bud clapped the husky blond engineer on the back.

“Nice going, boy!” he said.

The bomb was an ugly-looking lead-pipe contraption. Tom decided to dispose of it fast, even though the fuse was safely disconnected. Assisted by Bud, he carried it to the airfield and loaded the bomb on the heliplane. Then the boys took off and flew out to sea.

“Okay. Ditch it here,” Tom said, hovering over the choppy green waters.

“Bombs away!” Bud sang out. Seconds later, a splash of spray rose high in the air. The copilot chuckled. “Think I hit a shark right on the nose.”

When the boys landed back on the island airfield, Harlan Ames was waiting to greet them, pacing up and down beside a jeep. He looked excited.

“What’s up?” Tom asked, leaping out of the plane.

“We’ve caught the man who planted the bomb!” the security chief reported jubilantly.

“No kidding! Where is he?”

“We’re holding him at the security office. Hop in!”

Ames took the wheel of the jeep and the boys piled in beside him. With a clash of gears, they roared off across the island.

At the security office they found a cluster of FBI agents interviewing two workmen in greasy coveralls. The pair looked very much alike in build and features, and both had dark-brown hair.

But the men’s attitudes and expressions were sharply different. One was grinning despite a livid purple bruise over his left eye. The other, who looked sullen and defiant, was wearing handcuffs.

“What’s the gag? Are they twins?” Bud asked.

“Sure look like it, don’t they?” said one of the FBI men.

Ames pointed to the fellow with the bruise. “This is Chuck Moore. He lives in Fernwood, over on the mainland. He was hired as an arc welder last week and has been doing the final welding in the Titan’s exhaust tubes. Tell your story, Chuck.”

Moore jerked his thumb toward the man wearing handcuffs. “I was coming to work on the second shift and this creep jumps me. He gives me a clout on the noggin and drags me into an old empty garage. Then while I’m still groggy, he ties me up and gags me.”

Ames interjected, “Imagine the guy boasting about how he was going to blow up Tom Swift’s new spaceship and foil the expedition!”

“Yes,” Moore added. “That’s where he made his big mistake!”

At this point Wes Norris, in charge of the FBI men, said, “He took Moore’s welding gear and his identification badge, and used it to get on the base. Since he’s almost a dead ringer for Moore, nobody got suspicious.”

“Who tipped you off?” Tom asked.

“I did,” Moore replied. “I managed to get loose after a while. Then I hotfooted it to the nearest phone and called Mr. Ames.”

“Luckily,” the security chief said, “the bomb hadn’t gone off yet and we were able to nab this bird before he got off the island.”

Tom scrutinized the prisoner coldly. “What’s your game?” he asked.

The saboteur glared, then replied in a thick accent, “Once American military men get a base on that satellite, the whole world will be in danger! Peaceful democracies will be wiped out!”

“Peaceful democracies like Brungaria,” said Wes Norris sarcastically. “What all this double talk really means is that he’s a subversive who’s willing to sell out his own country.”

“No!” cried the saboteur. “I’m struggling for the cause of peace against gangsters like you!”

“That’ll do. Quiet down!” ordered Norris.

Ignoring the prisoner, Tom congratulated Chuck Moore. “Many thanks for your loyalty,” he said. “That prompt phone call saved the Titan and probably the whole expedition.”

Late that afternoon, Tom was called back to Shopton to pick up a load of small analog computers. These were the electronic brains which he had designed for each scientific field represented in the expedition. In high spirits, he invited Bud and Kent to fly back with him and have dinner at the Swift home.

After landing on the Enterprises airstrip, they went to the electronics laboratory to see the new

computers. Kent was amazed at their small size.

“Why, these are portable!” he gasped. “They’re no bigger than adding machines!”

Tom nodded proudly. “Smallest ever built, I believe. Using transistors helped a lot.”

“What are the ‘mikes’ for?” Bud asked.

“A new touch,” Tom explained. “On most machines you need a specially trained man to set up the problem on coded tape. On these gadgets, you just talk the problem into the microphone. The magnetic recording tape then feeds into the machine, where it’s translated into the proper electronic impulses.”

Tom pointed to one of the machines. “For instance, here’s the computer I designed for Jim Stevens and Ron Corey. It will handle problems of temperature, moisture, hormones, mineral traces—all the factors involved in plant growth. Suppose Jim wants to figure out the right conditions for growing the biggest, juiciest carrots up there on the satellite.”

The inventor jotted down a sample equation for carrot growth. Then he switched on the computer, punched several keys, and read the problem into the microphone. A moment later a light flashed on the keyboard and a length of tape came whirring out of the machine.

Tom ripped it off. “There are your answers.”

Kent Rockland whistled in admiration. “It would take weeks to work that out by trial and error!”

Bud, too, was impressed. “Too bad I didn’t have one of those back in high school.” He chuckled. “My homework was a trial and most of it was in error!”

“Don’t feel too bad, pal.” Tom grinned. “Even electronic brains go haywire, if you don’t keep them tuned up. They have nervous breakdowns in the form of short circuits, and give wrong results when you feed them a problem.”

“In that case,” Bud said with a chuckle, “I vote we call ‘em the Little Idiots!”

“Sure you haven’t got a short circuit?” Tom retorted with a wide grin.

The young inventor also showed Kent a new type of space suit which he had designed especially for the satellite expedition. With a zippered hood and goggles, it was much lighter and more comfortable than the suits used by the men who had helped Tom build his Outpost in Space.

“Boy!” Bud exclaimed when he tried one on. “This is the greatest! In a rig like this, a guy could really get around up there in the sky!”

Dinner at the Swift home that evening started as a gay occasion. Mrs. Swift had planned a delicious meal of fried chicken, with apple dumplings and hard sauce for dessert.

Sandy, Bud’s frequent date, who often tested planes for the old Swift Construction Company which her father had founded, talked excitedly of the expedition. “I wish I were going along,” she said wistfully.

“I do too,” Kent replied, gazing at her in frank admiration. Sandy looked very attractive in a blue linen dress that matched her eyes.

Another guest was her dark-haired friend, Phyllis Newton. Phyl, the pretty daughter of Mr. Swift's long-time friend and associate, Ned Newton, was Tom's favorite date. Her eyes dancing impishly, she said, "Tom, couldn't you let Sandy and me tuck in as stowaways?"

Everyone laughed except Bud, who seemed to have lost his usually hearty appetite. He picked at his food and said little as Kent and Sandy carried on a lively conversation. The metallurgist was telling her about his work and she seemed to be very much impressed. After dinner, Bud slumped in an easy chair and glumly watched TV.

"What's the matter with Bud?" Tom asked Phyl in a low voice.

"It's the old green-eyed monster jealousy, I'm afraid." Phyl giggled. "Haven't you noticed?"

With a sidewise glance, she indicated Kent and Sandy, who were seated together on a sofa, paying no attention to anyone else.

Tom chuckled sympathetically. "Poor Bud!"

On the flight back to Fearing Island that night, Bud answered curtly whenever Kent tried to talk to him. But the metallurgist did not seem to notice that anything was wrong.

"You sure have a gorgeous sister, Tom!" Kent remarked.

"Humph!" was Bud's only comment, and Tom grinned in the darkness.

Nothing more was said and soon they landed on the island airfield. Tom kept busy until bedtime. As he and Bud were undressing, the alarm sirens wailed.

Rushing outside, the boys saw floodlights sweeping the base as startled, half-clad crewmen poured from their barracks. Shouts of confusion mingled with the ear-splitting din of the alarm.

"Look!" Bud cried out, as the floodlights pinpointed two running figures.

Starkly revealed in the glare was Harlan Ames in hot pursuit of a fleeing man!

CHAPTER 7

CAPTURING A SPY

DIRECTLY behind Ames was Phil Radnor. The two security men were rapidly gaining on the fugitive.

Suddenly Ames hurled himself forward and brought the man down in a Hying tackle. The captive squirmed, fighting in tigerish desperation and screaming in a foreign tongue.

The security men quickly subdued him. By the time Tom and Bud ran up, Radnor was holding the man's legs while Ames straddled his chest, pinning his arms to the ground.

"What's going on?" Tom asked. "Who is this man?"

Ames looked up with a grin. "Guess you can keep me on the payroll, Tom!" he reported, his chest heaving with exertion. "I caught this man in the photography lab. He was making photostats of the blueprints for your atmosphere machine!"

By this time a mob of excited, curious crewmen were clustering around. Guards held them back as Wes Norris and two other FBI agents roared up in a jeep. Quickly the prisoner was handcuffed and hustled into the back seat.

"Nice work, Ames!" said Norris, after hearing the story. "Do you know this fellow?"

"He's wearing a badge-name's Vanko," replied the Swifts' security chief. "Apparently he works on the construction gang that's building the concrete launching platform for the Titan."

"Let's take him back to the office for questioning," Norris suggested.

But, upon reaching the security office, the prisoner refused to say anything and after half an hour Tom, Bud, and Mr. Swift, who had joined them, returned to their cabins. Next morning, while the three were eating breakfast in the headquarters shack, Ames came in.

"Did our prisoner talk?" Tom asked him.

"A little." Ames slumped into a chair, looking tired and disgruntled. "We were up half the night grilling him. We did find out that he's a native-born Brungarian and slipped into this country on a forged passport."

Bud spoke up angrily. "He's probably a paid spy working for the Brungarian government!"

"Maybe." Ames rubbed his jaw doubtfully. "But somehow it doesn't add up. From what little we know of his record, Vanko is in disfavor with the Brungarian government. He claims he hates the group in power."

Mr. Swift rose from the table. "Suppose we go see him, boys, and ask a question or two ourselves."

Ames drove them in his jeep to the security office, where Vanko, rumped and unshaven, slouched on a cot in a detention cell.

"So you're not working for the Brungarian government?" Tom asked him.

The prisoner stamped on the floor. "Bah! A gang of thugs-I hate them all!"

"Then maybe it's Streffan Mirov, the scientist, you're working for!"

The question caught Vanko off guard. A startled look flashed over his swarthy face. Then he sneered, "You are jealous of Mirov, I suppose, so you wish to make trouble for him-no?"

"Who's Streffan Mirov?" Ames put in.

“A brilliant scientist and rocket designer,” Mr. Swift explained. “Our hunch is that he’s the man who will lead the Brungarian expedition.”

Wes Norris, who was watching the prisoner’s reaction closely, said, “Tom, I think you’ve hit the bull’s-eye.”

Vanko’s next remark confirmed this. “Mirov will reach the satellite first, in spite of his enemies!” the prisoner vowed darkly.

“What enemies?” Tom asked, but he got only a scowl in reply.

Ames questioned the prisoner about the news leak.

“A million times I tell you I know nothing about it!” Vanko snapped.

“Whoever was responsible must have been a skilled technician,” Tom said thoughtfully.

“Why do you say that?” Bud asked.

Tom smiled. “To find out our take-off date, he must have listened in when Dad and I were talking over our private radiotelephone hookup between home and the office. It’s the only way he could have heard our plans, and the phones even have scramblers! That means whoever did it knew how to pick up and unscramble our signals.”

Norris leafed quickly through a typewritten report. “So far as we know, Vanko is no technician. His record shows that he has held only unskilled laboring jobs since he entered this country.”

“Then I doubt if he’s responsible,” Mr. Swift said.

Leaving the suspect in the hands of the police, the Swifts and Bud went off to work on their various tasks. Tom faced a busy day at the rocket base checking the supply list. An hour later Bud burst into his office.

“What’s wrong, pal?” Tom inquired.

“It’s Graves!” Bud paced back and forth angrily. “Everybody’s had about all he can take from that guy! Graves never saw a rocket blast-off until he came here, but now he’s out there on the launching area telling everyone what to do!”

“He’s a bit bossy, I agree,” Tom replied.

Bud flung himself into a chair. “I’m telling you, Tom, that man will wreck the whole expedition!”

This was not the first complaint Tom had received about the high-powered executive. Somehow Graves’s noisy energy had to be piped into useful channels. Tom mulled over the problem for a few moments, then said:

“I have an idea, Bud. Tell him I’d like to see him, will you?”

Ten minutes later Jason Graves strode into Tom’s work shack. “Understand you want to see me, Swift,”

he boomed.

“That’s right, Mr. Graves,” Tom said. “Please sit down. I have a problem. I think you can help me.”

Graves plumped himself into a chair. “What’s on your mind, son?”

Tom assumed a worried frown. “All the heavy stuff for the expedition, Mr. Graves, is being ferried up to the space station by cargo rocket. But all the supplies and lighter equipment are going in the Titan. There are hundreds of different items. It all has to be checked, shipped, and loaded. I just can’t handle the situation. But I thought maybe an experienced businessman like you—

The ruddy-faced tycoon jumped up excitedly. “You’ve called in the right man, young fellow! I know all there is to know on that subject. Be glad to take over!”

“That’s not all,” Tom added. He described his atmosphere machine. “We built only one. Now I’ve decided we’ll need two. That means another must be turned out in forty-eight hours!”

“Sure, sure. I can handle that too!” Graves exclaimed, rubbing his palms together. “Just give me your blueprints and inventories and a place to work. That’s all I need!”

By early afternoon Graves was installed behind a desk with a battery of telephones and half a dozen secretaries and typists. The office was a bedlam of activity. Graves dictated, phoned, argued, cajoled, and put through long-distance calls.

By the next morning his efforts were producing amazing results. Supplies poured onto the island in a steady stream, and disappeared just as fast into the yawning hold of the Titan.

“Boy, that guy’s a magician!” Bud declared admiringly. “What did you do to him?”

Tom grinned. “Just keeping him busy.”

But an hour later the young inventor came upon a scene that disturbed him. As Tom was passing the mess hall, he heard the voices of Jason Graves and Chow Winkler raised in a furious argument. Dashing inside, Tom saw the two men confronting each other like angry bulls.

“Stubborn old fool!” Graves was shouting. “I’m in charge of organizing supplies for this expedition!”

“Well, brand my howling coyote stew,” Chow bellowed, “you ain’t organizin’ the grub ‘long as I’m cook around here!”

Tom went in. “Hey, take it easy, men! What seems to be the trouble?”

Graves complained that Chow had started a ruckus when the executive undertook to order all the frozen foods, concentrates, and kitchen gear for the space trip.

“I’ve already taken care o’ that little ole detail!” Chow stormed. “An’ I’ll rope an’ hog-tie any ornery maverick what tries to tell me how to run my own chuck wagon!”

The fiery-tempered tycoon was about to explode at the idea of being defied in such terms, but Tom interrupted. “A question like this is too important to settle when you’re both angry. I suggest we talk the whole thing over after dinner tonight.”

Secretly Tom put through a long-distance telephone call to Graves's home plant and found out that his favorite dish was spareribs and sauerkraut.

Shortly afterward he telephoned Chow. "Boy, I could sure go for some spareribs and sauerkraut tonight!" Tom remarked casually. "But I guess that's out of your line."

Chow flared indignantly. "Who says it's out o' my line? Son, I'll rassle you up the best mess o' spareribs you ever tasted!"

When Graves, at Tom's invitation, dined with him that evening, he gorged himself on the juicy brown tidbits. Mellow and a little drowsy, he was in no mood to pursue his squabble with Chow.

"Come right down to it," Graves murmured as he settled back to let his dinner digest, "a man would be a fool to feud with anyone who can cook spareribs like that!"

Grinning with pride, Chow shook hands warmly with his erstwhile enemy. But after a good night's sleep, the executive was on the warpath again, this time with Dr. Jatczak.

Bud, who had become fast friends with the scientist, was helping him in his spare time. He liked to assist the wiry, soft-spoken little astronomer assemble and pack his equipment, even though it was a slow, tedious job because of the lenses and delicate instruments.

Graves, however, was not satisfied with the progress. On the day after the sparerib dinner he came bustling in to oversee Dr. Jatczak's preparations.

"Have to move a little faster there, Jatczak," the executive boomed. "We've got to push this thing through!"

Dr. Jatczak was wrapping a lens in a green velvet case. "I assure you I am doing my best," he replied calmly.

"But hang it all, that's not good enough!" Graves ranted. "I want your gear packed and stowed aboard the Titan in exactly three hours!"

Bud, greatly irritated, was on the point of hotly defending his friend. But Jatczak merely remarked with a quiet chuckle:

"My dear sir, when you have been stargazing as long as I have, three hours no longer mean a great deal. I think only in terms of light-years!"

Graves slammed out of the room as Dr. Jatczak's blue eyes twinkled behind their thick-lensed spectacles.

Bud roared with laughter. The husky young flier was so pleased with Dr. Jatczak's retort that he dropped around to Tom's laboratory later that afternoon to relate the incident.

Tom was working on some emergency "oxygen tents" to be carried by all the space crewmen on the satellite, in case the atmosphere machines should break down. He listened to Bud's story with a flickering smile. Then his face turned serious as he announced:

“I’ve had some bad news about Dr. Jatzak, Bud.”

“What is it?”

“Dad just received a phone call from a senator in Washington saying that Dr. Jatzak is under suspicion. They’re afraid he may be disloyal to the United States.”

“What!” Bud gasped.

Tom nodded unhappily. “Dr. Jatzak may be asked to drop out of the expedition!”

CHAPTER 8

THE MYSTERIOUS CALLER

BUD could not believe that Dr. Jatzak, his new friend, was a traitor. “Tom, you’re joking!” he exclaimed.

“It shocks me, too,” Tom replied. “It’s no joke.” He went on to say that his father had immediately telephoned the senator at his office in Washington to be sure the call had not been from some crank.

“And what did he find out?” Bud questioned.

“That the senator was in Baltimore—at least at the time of the call. His secretary knew nothing about the message. But she said the senator will be back within two hours, so Dad’s going to phone him again.”

Bud walked back and forth. “There must be some mistake about this and I’m going to prove it!”

He strode out of the laboratory and hopped into a jeep. With his jaw clenched grimly, Bud sped along the road, past the fuel-storage tanks to the communications building. Here an efficient-looking young woman, named Ethel Scroggins, was operating the switchboard.

“Did any calls come in from Baltimore today?” Bud asked her.

“Hmm, let me see.” Ethel consulted her log. “Yes, we’ve had three calls from Baltimore—two for Mr. Arv Hanson and one for Mr. Graves.”

“But none for Mr. Swift?”

“Nothing yet.”

Bud felt a surge of hope and excitement. He asked the telephone operator to check the other incoming calls in her log.

Ethel ran her finger down the list. “Well, there was one from Acme Aircraft Parts in Kansas City. That

was for Mr. Graves too.” She went on naming calls from several other equipment manufacturers. Suddenly she exclaimed, “Wait! There was a call for Mr. Swift!”

“Where from?” Bud asked tensely.

“Fernwood. I remember now. The man said he was a government official. He wouldn’t give his name. Just asked me to put him through to Mr. Swift’s private line.”

“Thanks!” Bud said gratefully. He whirled and dashed out.

Slamming the jeep into gear, Bud took off with a roar. A few minutes later he screeched to a stop in front of Tom’s private laboratory. Rushing inside, he grabbed his friend by the arm.

“I’m on the track of something! Come on!”

Mystified, Tom followed Bud to the hangar and climbed into the Skeeter, their midget helicopter. Not until they were soaring westward did Bud reveal his plan of going to Fernwood to track down the phone call.

“You think that tip-off from the senator was a fake?” Tom asked.

“I sure do. We know the real senator wasn’t within a thousand miles of Fernwood.”

The small town on the mainland was due west of Fearing Island. Dusk was falling as the boys landed in a field on the outskirts of the community.

As Bud stepped to the ground, he frowned. “Now for some detective work. We’ll probably have to interview the telephone operators in town.”

Tom offered a suggestion. “Bud, I have a hunch the ‘senator’s’ call didn’t come over a private phone. The person could be traced too easily.”

Bud grinned admiringly. “Right, genius boy!”

The first pay telephone they came to was located in the general store. The storekeeper was an eighty-year-old man with a gray mustache and a black toupee which had slipped out of place. And he appeared to be hard of hearing.

“What’s that ye be askin’ me?” the storekeeper asked. “Want to know who used the phone booth today?”

“That’s right,” Tom said. “We’re trying to trace a very important call. We’d certainly appreciate your help.”

“Well, now, that’s a purty tall order. Have to think fer a bit.” Taking off his spectacles, the old man breathed on them and began polishing the lenses with his handkerchief.

“Let me see, now,” he began. “Far as I recollect, there was only four people used the phone today.” He paused, polishing thoughtfully.

“Can you remember who they were?” Bud asked eagerly.

“That’s what I’m tryin’ to tell you. First was Miss Barton. She come in about ten o’clock this morning. Bought some peppermints ‘fore she made her call. I remember watchin’ her eat ‘em while she was in the phone booth.” The old man chuckled. “Awful fond of peppermints, Miss Barton is.

“Then there was young Tad Winters. He had to call down to Newchester ‘bout some part fer his motorcycle. Young fool-he’s goin’ to break his neck ridin’ so fast.”

“Yes, go on,” Bud urged the old man.

“Well, after him come Hank Lufall. Crotchety old cuss! Hank suffers from lumbago. Goes through awful torment in wet weather. Don’t help his temper none, either!”

The boys looked at each other helplessly as the storekeeper described Hank Lufall’s symptoms in great detail. Finally Tom interrupted gently:

“And who was the fourth caller?”

“Don’t rightly know. Some feller I never seen before.”

“What did he look like?” Tom inquired.

“Well, he was a long, lanky cuss. Had a kind of wild light in his eyes, you might say.”

The man could remember no other details about the mysterious stranger. After thanking him, the boys were about to leave when the storekeeper suddenly called them back.

“Say-almost fergot! When that feller made his call, he left this here book in the booth.”

The boys examined it curiously.

“A textbook on astronomy!” exclaimed Bud.

“Yep,” said the old man. “I was leafin’ through it an’ I noticed this here name on the flyleaf- Abel Everett Lawson. Don’t know if that’s the feller who was in here, though.”

Greatly excited, Tom called Harlan Ames at Fearing Island. After briefing the security chief on the phone call Mr. Swift had received, Tom said that he and Bud had picked up a lead to a man who probably was posing as the senator. “We’ll be right back!” he added.

The boys dashed from the store. By this time it was dark. As they were crossing the field, Tom discovered that in their excitement neither of them had picked up the book.

“I’ll go back and get it,” he said. “You warm up the Skeeter, Bud.”

The boys separated and Tom retrieved the book. As he hurried across the field to join Bud, Tom wondered why the helicopter’s lights were not on.

Suddenly his foot hit something and he nearly lost his balance. Tom whipped out his pocket flashlight and aimed it at the ground. The yellow glow revealed a prostrate form, bound and gagged.

“Bud!” gasped the young inventor.

The next instant, Tom felt a terrific blow on the back of his head. He crumpled to the ground, unconscious.

CHAPTER 9

SUCCESSFUL STRATEGY

“WONDER what’s keeping the boys?” said Wes Norris to Harlan Ames, who had reported to him where Tom and Bud had gone.

Ames glanced at his wrist watch with a worried frown. “I wish I knew! It’s been half an hour since Tom called. The flight back from Fernwood shouldn’t take more than ten minutes. And with Mr. Swift’s report that the senator did not phone him about Jateczak, I’m afraid the impostor may have tried another trick, this time on Tom and Bud.”

The Swifts’ security chief and the FBI agent were waiting on the island airfield, beside their parked jeep, for the fliers to land. Kent Rockland, who had been chatting with Ames when Tom’s call was received, had also come along.

“The boys must be in trouble. We’d better go look for them!” Ames decided finally.

Wheeling out one of the larger helicopters, equipped with a giant searchlight invented by Tom’s father, the three men took off. When they reached Fernwood, Ames, who was at the controls, hovered in low, barely skimming the rooftops.

“Tom probably landed somewhere at the edge of town,” he remarked. “Break out the searchlight, Kent, and we’ll take a look.”

As Ames circled the small community, Kent aimed the searchlight downward. Its whitish glare illuminated the ground with almost daytime brilliance.

“There’s a copter!” Wes Norris exclaimed, pointing off to the right. In the field below stood the Skeeter.

“It’s Tom’s all right,” said Ames, and quickly landed his ship.

The three men jumped out and ran to the helicopter. It was empty. Ames returned to their own craft and focused the searchlight so it illuminated the portion of the field which the boys would have crossed en route to the village.

“Let’s see if we can pick up their trail,” he suggested.

The searchers began combing the area. Suddenly a shout from Rockland brought his two companions running to him. Kent was untying Bud Barclay, whose gag he had already removed.

“What happened?” Ames asked.

“Someone clobbered me.” Bud groaned as the others helped him to his feet.

At that moment Wes Norris spotted Tom lying half hidden in a clump of brush. From the scrape marks on the ground, it appeared that the inventor’s assailant had dragged him there after knocking him out.

The rescue party soon revived Tom. Aside from lumps on the head, neither he nor Bud seemed to have suffered any great harm. The boys told their story about the mysterious man in the telephone booth who had left a book at the store.

“The book’s gone,” muttered Ames, looking around. “However, that name on the flyleaf should be a good clue!”

The whole group flew back to Fearing Island. But this time Tom and Bud went in the larger helicopter, while Ames piloted the Skeeter.

As soon as they arrived at the rocket base, all of them sped by jeep to Dr. Jatczak’s quarters. The astronomer was stunned when he heard about the plot to discredit him.

“Ever know anyone named Abel Everett Lawson?” Tom asked.

Jatczak’s eyes lit up with recognition. “Why, of course! I had a pupil by that name at Tri-State University!”

“A tall, skinny guy?” put in Bud.

“That’s right.”

Wes Norris asked, “Is there any reason why he might have a grudge against you?”

“I’m afraid so,” Dr. Jatczak replied. “You see, I flunked him. He was very resentful. The boy has a brilliant mind. Unfortunately, he has some kind of emotional problem which keeps him from applying himself to his work. As a matter of fact, I found out he was under psychiatric treatment.”

Harlan Ames exchanged glances with the FBI chief. “I guess that explains everything.”

Norris nodded. “No doubt he was the one who attacked the two boys.”

“I’ll bet he’s still hanging around Fernwood!” Bud exclaimed, bouncing up. “Let’s go back and look for him!”

Grinning, Ames shoved Bud back into his chair. “You and Tom were just kayoed, remember? So take it easy, both of you, and have Doc Simpson tend to those ‘goose eggs.’ Norris and I will take over from here.”

The next morning, while Tom was checking the rocket motors on the Titan, a happy shout from Ames brought the young inventor down off the scaffolding.

“We found Lawson!” the security boss reported. “In a motel north of Fernwood.”

“Great! Where is he now?”

“Here on the island. We flew him back for questioning. He has confessed to impersonating the senator in that phone call to Norris.”

Tom accompanied Ames to the security office to see the prisoner. Bud and Dr. Jatzak arrived by car a few moments later.

The astronomer showed no animosity toward his former pupil. Gently he asked, “Lawson, why did you tell those lies about me?”

“Because I wanted to get even with you for ruining my life!” The haggard, wild-eyed youth stared at the others around him like a trapped animal.

“Don’t be afraid! We want to help you,” Tom spoke up.

Suddenly Lawson shuddered and broke down. He put his face in his hands, sobbing and gulping as he poured out his story. The night before, he had gone back to the store to pick up his textbook. Pausing outside the screen door, he had heard Tom and Bud questioning the storekeeper. Fearful of exposure, he had followed the boys and knocked them out.

“It was a terrible thing to do-terrible!” he ended. “Please forgive me! I’ve been ill, you see. Sometimes I lose control. I-I do need help. I realize that now!”

“There, there, my boy.” Dr. Jatzak patted his shoulder soothingly. “You mustn’t worry. Everything is going to be all right.”

Norris said that FBI agents would fly Lawson back to his home for treatment.

Tom and Bud left. Driving back to the rocket center, Tom said to his pal, “I’m going to take up the small test model of the Titan for a final trial run today. The model checked out perfectly on all previous tests, but I want to see if I can squeeze a little more power from the atomic drive. Want to come along?”

“You couldn’t keep me home,” Bud replied. “Let’s go, space boy!”

Promptly at eleven o’clock, Tom and Bud entered the flight compartment of the “baby” Titan. A few moments later they were strapped to their acceleration couches. Tom could feel his pulse racing excitedly as he listened to the countdown.

Blast off!

The shock of acceleration almost crushed the breath from the boys’ bodies. Outside, as the smoke cleared from the launching area, watchers saw the rocket dwindling into the blue.

Exactly on schedule, the three stages dropped off. Once the ship was in orbital flight, the boys swung their cots upright and unstrapped their safety belts.

Tom radioed his speed and position to the base, then announced that he was preparing to try out the ship’s atomic drive.

“Okay, Bud. Back on your cot!” Tom ordered.

Strapping his own safety belt, the young inventor flicked a switch and turned several dials. Then he pulled the lever actuating the cadmium rods which controlled fission in the Swiftonium pile.

“Mars, here we come!” Bud called out with a grin, gripping the sides of his cot.

The next instant, he became serious as the pressure of acceleration increased. Tom tried the rocket at full speed for several minutes and was pleased with its performance under the terrific stress, but he felt that with a few adjustments he could get more power from the pile.

“We’ll head back,” he told Bud, and started for Fearing Island.

When the rocket landed, tail first, Mr. Swift was among the first to greet the young spacemen.

“Well, boys,” he said “was the speed up to expectations?”

Bud chuckled. “Out of this world, Mr. Swift!”

Tom told his father about the changes he had in mind. “I hope they’ll soup up the ion drive even more.”

“Then there’s nothing to prevent our blasting off tomorrow as scheduled?” Mr. Swift asked happily. “I’ll make the announcement now.” Tom’s father strode off to the communications room.

A few moments later his voice boomed out over the loud-speaker. “Attention, everyone! Blast-off will take place at 0800 tomorrow morning!”

The exciting words threw the base into a frenzy of last-minute preparations. Tom hurried to his laboratory and began making sketches and notes on the work to be done. He was just finishing when Mr. Swift dropped in.

His eyes twinkled as he said, “In case you’ve forgotten, your mother and the girls are expecting us for a farewell party this evening.”

Tom straightened up, whistled, and grinned. “Dad, it slipped my mind completely!”

That evening the Sky Queen flew back to Shopton with Tom, Bud, Mr. Swift, and Kent on board for Mrs. Swift’s party. When they landed at Enterprises, Bud excused himself and took off in his red convertible.

“Have to pick someone up,” he explained mysteriously, as the others headed for the Swift home.

A game of charades was just getting under way when the house alarm sounded. This was set off when anyone not wearing a special bracelet crossed the magnetic field that surrounded the Swift home and thus announced intruders.

Everyone rushed to the front door and Tom peered out. He raised his eyebrows in amazement, then opened the door. Outside stood Bud with a beautiful companion!

“Thought you wouldn’t mind if I brought my date along,” Bud announced casually.

“Why, it’s Betty Reed!” Sandy gasped. “Come on in and join the fun!” She tried to make her voice sound warm and gay, but the friendliness seemed a bit forced. Ordinarily, Bud never dated anyone but herself!

Betty, the daughter of John Reed, the Enterprises comptroller, was just home from boarding school for a vacation. Green-eyed, with a pert little pixie face, she was very attractive.

“So this is Bud’s way of showing Sandy he didn’t like her interest in Kent!” Tom thought.

At dinner, strangely enough, Betty seemed to focus her attention on Kent instead of Bud. She chattered gaily, asking him a stream of questions. Kent, greatly nattered, could hardly take his eyes off her.

After dinner the young people danced to the latest hit records. Since Betty monopolized Kent by teaching him a new dance step, it seemed only natural that Bud and Sandy should dance together most of the time.

At eleven the party finally broke up. Flushing with embarrassment, Kent asked Bud, “Say, would you mind if I-er-took Betty home? I know she came with you, but well-er-you see j_”

Bud replied loftily, “It’s all right, old chap.

Don’t mention it. I’ve promised to take Sandy out to the airfield with me, anyhow.”

After Kent went off, Tom whispered to Bud, “You sure are a smooth operator! Phyl and I will see you two at the field.”

Good-bys were exchanged. Mrs. Swift held her husband and her son close, wishing them well but imploring them to be careful on the forthcoming journey.

Morning found the expedition crew on Fearing Island assembled in Hangar A near the Titan’s launching pad. They talked quietly, each man thinking of the tremendous adventure that lay ahead.

Mr. Swift strode into the room. Looking up, Tom noticed his father’s grim expression. So did everyone else. The hum of voices ceased.

“What’s wrong, Dad?” Tom inquired anxiously.

Mr. Swift spoke to the whole group. “A news flash just came in,” he told them. “The Brungarian government has announced that their expedition has already taken off and is now in orbit about the satellite!”

“That means they’ve won!” Bud cried out ruefully. “They’ll claim Little Luna!”

CHAPTER 10

SKY-WHEEL MISHAP

EVERY FACE in the hangar showed utter dismay. If the Brungarians had already seized control of the satellite, why should the Swifts bother to blast off in the Titan?

Tom spoke first. "Any word from Washington about canceling the expedition?" he asked his father.

Mr. Swift shook his head. "Nothing so far. Unless we hear otherwise, I'd say we're free to use our own judgment."

"Then let's go ahead!" Tom urged firmly. "That announcement may be a hoax! We know those phonies can't be trusted."

Mr. Swift approved his son's proposal, and preparations proceeded on schedule. Yet, an air of gloom pervaded the rocket base. Mechanics checked out the big ship in silence, with none of the humor and excitement that usually attended take-off. Then the tank trucks moved in to pump alcohol and liquid oxygen into the rocket-motor stages.

Shortly before eight o'clock, the last of the supplies was loaded into the Titan's hold. In groups of five or six at a time, the crewmen were whisked up by elevator to the flight compartment.

"Not even a brass band to see us off!" Bud complained as he stepped through the hatch.

When the voyagers were strapped to their cots, Tom spoke into the mike, calling for a clearance check. Instantly radar scanners began swiveling around, probing the sky with invisible feelers.

"All clear!" Billing reported by radio.

"This is it," Tom told his crew. "Good luck!"

He fed the flight tape into the automatic pilot, then buckled his own safety belt. The tape set off the time clocks in the concrete blockhouse and a dozen other recording shelters about the base.

When a loud-speaker thundered, "All personnel please leave the launching area!" mechanics and engineers scurried for cover.

Inside the flight compartment, the space voyagers listened tensely to the count-down: "X minus 20 ... X minus 15 ... X minus 10 . . ."

Suddenly Wes Norris's voice interrupted. "This is Norris in the communications office! We just got word from Washington about that Brungarian announcement. Our own secret agents report that the Brungarian claim is false! Repeat, false! As of three hours ago, they had not blasted off, although they were ready to!"

Cheers filled the cabin as Chow muttered in disgust, "Them sidewinders is full o' more tricks than a locoed bronc! Wonder how they keep track o' their own lies?"

Mr. Swift reached out from his cot and clasped Tom's hand. "You were right, son! Smart thinking!"

"Let's hope our luck holds," Tom murmured.

A second later came blast-off. With an earth-shaking roar, the Titan headed skyward!

The trip to Tom's space station went smoothly. One by one the three stages automatically dropped off and were electronically guided from Fearing Island to untrafficked areas of the oceans. The travelers coasted upward for four hours. Then, at the proper instant, Tom switched on the atomic drive to fire the ship into orbital course.

Presently a voice chuckled over the radio, "Welcome to Sky Haven!"

"It's Hank Sterling!" Bud exclaimed.

"We've arrived!" Tom grinned. He pushed the button which opened the porthole lids.

Eager for their first glimpse of outer space, the newer members of the crew rushed to the transparent quartz windows. Gasps of awe arose. Even though the men had seen pictures of Tom's space station, the immensity of the spectacle was breath-taking.

The huge silver wheel, with its twelve gigantic spokes jutting outward from a central hub, gleamed in the darkness.

One of the spokes bore a latticework telescope. Others bristled with radar scanners, as well as radio and TV antennae. On still another, highly polished mirrors were mounted to focus sunlight upon the solar-battery production lines.

As Tom maneuvered alongside, he described the layout of his space station to his companions. Each of the wheel's spokes served a different purpose. One was an observatory, one a bunkroom- others were laboratories or factories. The whole setup formed a bustling community in space.

"A fantastic achievement!" Dr. Jatczak remarked.

As soon as the Titan was moored to the sky wheel by magnetic grapples, Tom announced, "Sorry, there won't be time for any sightseeing. We must move fast if we hope to reach the satellite before the Brungarians do!"

When everyone readily agreed, Tom directed the job of loading the Titan with the heavy equipment which had been ferried up previously by cargo rocket. Space-suited work crews used midget "rocket scooters" to nudge big crates and other heavy items across the void into the Titan's hold.

Work progressed at a frenzied pace. But with the lack of sound in a space vacuum, everything took place amid eerie silence. From time to time, Tom and Hank Sterling issued orders over their suit radios.

"Look, Bud," said Tom. "How do you like that big fellow?" He pointed to a rugged tractor-tank being shoved out through the cargo port of the space wheel. It was equipped with a crane and power scoop.

"It's a beauty," Bud replied. "Those babies should come in handy for getting around on Little Luna."

"Right!" Tom radioed back. "They're pressurized, so we can use 'em before we create an atmosphere."

Just then, the crewman who was jockeying the tank forward bumped it a glancing blow with his scooter. The giant bucket was knocked loose and swung straight at Tom's back!

“Look out!” Bud and Kent cried out at the same time.

Both launched themselves with a flying kickoff from the hull of the space wheel and hurled themselves at Tom to knock him out of harm’s way!

But the effort overcarried. Meeting no resistance, the trio, bunched together, kept floating farther and farther from the wheel!

“Help, help!” Bud called.

“Stop ‘em! Somebody do somethin’!” yelled Chow Winkler, as the other crewmen gazed horror-stricken at their rapidly vanishing comrades. Soon the three might be lost in the black void of deep space!

Suddenly Mr. Swift’s voice came clearly to all listeners. “Hank Sterling. Execute emergency procedure Number Three!”

Without a word, Hank disappeared into the cargo port. Seconds later he came out with a line-carrying rocket. Mounting the launcher on the lip of the port, he aimed carefully, then fired at the castaways.

The cable snaked out like a striking serpent! As the rocket streaked past, Tom grabbed the rescue line. A moment later it snapped taut, the end being held fast to a cleat on the space wheel.

“Nice shooting!” Tom radioed. Then he, Bud, and Kent clung to the guide rope as Hank pulled them back to the space station.

“Thanks, Hank old boy! You, too, Mr. Swift!” murmured Bud.

“Same goes for me,” Kent said. “I thought we were goners!”

“Better knock off for a while and catch your breath,” Hank suggested to the trio.

“No time for that,” said Tom urgently. “We must hurry.”

At last the loading was completed. Tom and his father exchanged a warm handclasp.

“Sure sorry you aren’t coming with us, Dad!”

“I wish I could, son,” Mr. Swift replied, “but I’ll have my hands full here at the station, analyzing and processing all the data you send back. Good-by for now, and good luck!”

All members of the expeditionary force, including the crewmen who had manned the cargo rockets, now boarded the Titan. Among them was Doc Simpson, who had volunteered to join the expedition. He had brought with him a cage-ful of white rats, which he now insisted upon strapping to his own bunk.

Chow’s face wore a doubtful expression. “Brand my gyro, what’re you doin’ with them rats, Doc?”

“These are valuable cargo,” replied the physician indignantly. “I’m taking them along for research experiments on the satellite. I don’t want to risk having them injured before we even get there.”

Chow snorted. “Huh! First time I ever heard o’ treatin’ those thievin’ varmints so good!”

Smiling, Tom ordered everyone to buckle his couch belt. Then he fed in the flight tape which would control their course to the satellite, and radioed farewell to the space station.

“Here goes!” he cried as the count-down ended.

The next instant Tom was slammed back on his cot. With a sharp crack like a pistol shot, something snapped in the couch’s tilting mechanism. The couch flipped backward, hurling Tom headfirst to the deck!

CHAPTER 11

EARTH’S NEW MOON

“TOM, what happened?” Bud cried out. There was no answer!

Desperately the copilot tried to turn his head for a look, but the crushing weight of acceleration pinned him to his cot with paralyzing force.

Bud’s lungs convulsed under the pressure. His face muscles pulled taut, baring his teeth in a skull-like grimace.

Like a streak of light, the Titan hurtled through space at unchecked speed!

Again, exerting all his strength, Bud raised his right hand. Inch by inch, he groped forward, clawing for the main cutoff on the automatic pilot. At last his hand closed on the lever and he pulled it downward. Instantly the huge spaceship slackened its thrust.

As the pressure eased off, there were groans from all the passengers. Bud unbuckled his seat belt and rushed to Tom’s side. “Tom, are you all right?”

The only reply was a faint moan as Tom stirred feebly. Bud freed him from his seat belt and shouted for Doc Simpson.

Clutching his medical kit the physician hurried forward. He ran his hands over Tom’s limbs and body, checking for possible fractures, and also peered into the pupils of his eyes through an ocular instrument.

Tom, by this time, had regained consciousness. “Wh-what happened?” he muttered groggily.

“Looks as if your cot broke when we took off,” Bud replied. “You made a crash landing.”

Tom winced. “I remember now. Boy, oh boy, I saw every star in the Milky Way, then I blacked out! Something must have thrown the automatic pilot out of kilter.”

After completing his checkup, Doc Simpson reported no broken bones, nor any sign of concussion.

“Thanks, Doc,” Tom said as he struggled to his feet. “Let’s take a look at the damage.”

Lifting his couch, Tom examined the broken underpinnings. The bracket which had held the cot to its pedestal had fractured. As a result, several bolts had been sheared off or been wrenched loose under the strain.

“What’s the verdict?” Bud asked.

“Structural flaw in the casting,” Tom announced. “A weld should fix it.”

In the rear of the cabin, meanwhile, Doc Simpson was administering smelling salts to Dr. Jatczak and Jason Graves. Both men had lost consciousness during the acceleration.

As Graves revived, he brushed the doctor’s hand aside. “Get that stuff out of my face!” he growled. “What do you think I am—a sick old lady?”

Dr. Jatczak, however, was grateful. “You must pardon my weakness.” He chuckled. “I am not yet quite used to being a shooting star!”

The crew’s attention suddenly was diverted forward to blue-white flashes of light and the sputter of sizzling metal. Armed with welding torch and mask, Tom soon mended the fracture.

In fifteen minutes his acceleration couch was repaired. Next, Tom examined the automatic pilot and made some adjustments. Then he took a reading of their position with the device which he called his Spacelane Brain.

Kent Rockland came forward to peer over the inventor’s shoulder as the machine whirred into action. On one dial a needle flickered to the 27,-600-mile mark. On another dial colored dots registered a navigational fix.

“What is that gadget?” Kent inquired with keen interest.

“A combination stellar sextant, cosmic-ray altimeter, and computer,” Tom explained. “We were way off course, but this gimmick will plot a new one for us in a hurry. Incidentally, there was a short in the automatic pilot, which jammed on the atomic drive controls full power.”

Turning to the crew, he ordered, “All hands back on your cots and fasten your safety belts! We’re going to accelerate again!”

“This time, let’s not burn a hole in the sky, pal,” Bud gibed as he took his seat.

Tom chuckled. “I’ll watch it.”

Cautiously he flipped on the automatic pilot. The Titan speared forward at terrific but bearable acceleration.

Minutes later, the rocket’s automatic cutoff switch shut off the power. The Titan then coasted into an orbit 50,000 miles from earth and soon the satellite filled the forward-view screen. The crew stirred with excitement.

“Wow!” Bud gasped. “We’re here! I can hardly wait for the first look!”

Tom turned on the tracking-control computer and the rocket went into a slow-cruising pattern around the strange asteroid. Then he pushed the button which uncovered the portholes.

Ripping off their seat belts, everyone crowded to the windows. In silence, they gaped down at the weird moonlet. A feeling of awe akin to terror gripped the crew as they eyed the mysterious intruder from outer space.

“A new and unknown world!” Dr. Jatzak exclaimed.

“Brand my space suit,” Chow quavered, “jest lookin’ at the thing makes my spine feel like a buckin’ bronc!”

“I’ll coast in to about twenty miles altitude,” Tom announced. “Bud, you and Dr. Jatzak break out a telescope and see if you can spot any signs of a Brungarian landing.”

“Righto, skipper.”

Tom swung the spaceship closer to Little Luna. Bud and Jatzak hastily set up a tripod-mounted telescope and scanned the surface of the satellite.

A strange panorama passed before their eyes. Rocky and barren, the little world seemed devoid of life. The rugged terrain was indented with yellow craters and broken by upthrusting crags of gray, pink, and blue.

Presently, as Tom cruised around the satellite, they passed from the sunlit zone into the nighttime portion. Even in the dim light, details of the terrain were visible.

“Fortunately, there’s enough earthshine to light up the satellite,” commented Dr. Jatzak with his eye to the telescope.

“Earthshine? What in the name o’ coyotes is that?” Chow queried.

“Sunlight reflected back from the earth.”

Chow beamed. “Then most of it’s comin’ from Texas!”

The others chuckled and Tom drawled out of the side of his mouth, “Well, brand my panhandle, if it ain’t!”

After circling the satellite several times, the travelers could find no sign of any earlier landing by a spaceship.

Bud gave a whoop of triumph. “Yippee! We’ve won the race!”

The crew joined in a ringing cheer, as the men shook hands and slapped one another on their backs.

Jubilant, Tom nosed the Titan in still closer and began scouting for a place to land in the twilight zone. “Not much level ground,” he remarked, “but I guess that spot up ahead should be all right.”

Tom knew the lesser gravity would not require so much power in easing the Titan to a gentle landing. Reaching out, he switched on the gyros for the descent maneuver. The craft responded by tilting to a vertical, tail-down position. The atomic blast was now firing straight downward.

As the ship hung motionless for a moment, Tom's hands flew back and forth among the banked rows of levers and switches. At the same time, his keen blue eyes kept a hawklike watch on various dials.

Suddenly the ship began to sink groundward. But the rate of descent was very gentle.

"By jingo, this is better'n goin' down in an elevator," Chow said admiringly. "My stomach can't even feel it!"

"The rate of descent is controlled by radar echoes," Tom explained. "The echoes automatically adjust the atomic blast so as to brake our speed of fall to zero by the time we touch the ground."

Moments later, Tom flicked a switch to extend the magnesium landing gear. Hydraulic struts absorbed the impact as they settled to rest on the surface of the satellite.

"Okay. Into your space suits, men!" Tom shouted, his heart thudding with excitement.

Quickly the crew donned their gear and stepped through the air lock in small groups. Tom went first, carrying an American flag, the base of which was tipped with a long spike.

As soon as his feet touched ground, Tom wedged the spike deep into a crevice between rocks. Then he stepped back and saluted the Stars and Stripes. The others did the same.

At ease again, Chow exclaimed, "Sure feels good to stretch my legs!" He kicked his heels together and gave a little hop.

The next second, Chow was soaring high above the ground! Screaming over his suit transiphone and flapping his arms wildly, he came down ten yards from the spot where his leap had begun.

"A cowfly boy!" Bud quipped as the crew rocked with laughter.

Chow looked sheepish. "Brand my jets" he said, "I must have swallowed some helium pills!"

"Don't worry," Tom reassured him. "It's just the low gravity. Up here, we weigh only one-twentieth as much as we did on earth. That's enough to hold us down if we don't get too frisky."

At Tom's request, George Billing returned to the ship's communication compartment and made radio contact with the space station. A short official ceremony was then broadcast and the space station relayed it to earth.

Speaking over his suit mike, Tom described their space voyage, the survey flight around the satellite, and the landing. He concluded:

"I hereby officially take possession of this satellite for the United States of America!"

A thrill of pride swept over the crew as all of them snapped to attention and saluted. A few minutes later the space station informed Tom that millions of American listeners were jubilant but astounded to learn that they now owned the new moon!

As the young inventor signed off, Bud grinned. "Brother!" he said. "Now I know how Columbus felt when he claimed land on another continent."

"Only there ain't no Injuns here," Chow spoke up.

The crew's high spirits, however, ebbed as daylight faded. The men were appalled by the utter barrenness of the satellite, and the huge ball that was earth, glowing in the sky, made them homesick.

To keep the men's minds occupied, Tom worked them at top speed. For two hours they labored to unpack supplies, set up equipment, and try out the vehicles that were geared to work on the atmosphereless moon. Then, after a hearty meal provided by Chow, they retired to their bunks in the Titan.

Early the next morning, Tom announced to the others that he and Bud were going to do a little exploring in one of the small caterpillar tanks.

"Be careful, fellows!" Hank Sterling warned.

"We'll keep in constant touch by radio," Tom promised.

The ride was slow and jolting over the rugged terrain. In the blazing sunshine, the rocky ground seemed to glisten with a steely brilliance. An hour passed.

"Hey, look at those crater walls!" Tom exclaimed. "I'll bet they're extinct volcanoes. Let's go see."

He steered toward them, but as the treads crawled forward, the tank suddenly slewed around. Its nose dropped, and the ground seemed to fall away beneath them! Gray powder began to inch up over the view plate!

"Hey, what's happening?" Bud gulped as he grabbed for support. "What is that stuff?"

"Volcanic ash!" Tom cried. "We've run into a crater full of it!"

CHAPTER 12

IN DEVIL'S HOLE

IN THE TITAN'S communication room, George Billing heard the boys' cries of alarm. Then the signal went dead!

"Tom, can you read me?" he shouted into the mike. Repeated calls brought no response.

Frantic with anxiety, Billing called Hank Sterling on his transiphone. The blond, square-jawed engineer, in charge of a work crew outside, listened as Billing poured out news of the boys' plight.

“Good night!” Hank cried out. “George, we’ll take the derrick tank and go pull ‘em out!”

Under the engineer’s directions, the crane bucket was removed from the big work tank. Huge grappling hooks were rigged in its place.

News of the disaster spread quickly among the crew. As Hank and George were about to board the tank, Kent Rockland rushed up.

“Let me go with you!” he urged. “I’ve handled bulldozers and all kinds of construction equipment.”

“All right. Hop in!”

Kent took the controls and the tank rumbled off. From listening to their radio reports, George had a general idea of which way the boys had gone. Also, the rescue party was able to make out their tire marks here and there among the rocky debris.

The trail wound among jagged hills and along the rim of a rocky canyon. Off to the right, a range of pink and blue crags stood out in sharp detail under the pitiless sunlight.

“Good thing these tanks are temperature-controlled!” Hank remarked grimly.

“How long have the boys been gone?” Kent asked.

George Billing glanced at his watch. “About three hours.”

“Which means they have only an hour’s supply of oxygen left,” Hank muttered.

With desperate urgency, Kent gunned the tank forward. After clawing their way through a narrow defile, the rescuers emerged onto a barren plain. Ahead rose the streaky yellow walls of several craters. Billing pointed them out excitedly.

“Those must be the volcanoes I heard Tom talking about just before their radio conked out!”

Hopeful that they were now nearing their goal, the rescuers advanced as fast as possible toward the craters. Here tire marks were unmistakable. Suddenly Kent felt the tank treads losing their traction. The hard ground was dropping away! “This is it!” he cried as the tank’s nose dipped downward.

Slamming the engine into reverse, Kent barely managed to back away safely. Hank scrambled out through the tank’s air lock to survey the situation.

“Tom and Bud have vanished!” he radioed. “They’ve sunk into the chasm without a trace!”

Hank’s face was grave as he re-entered the tank. “We’ll have to fish for them blind with the grappling hooks!” he told his companions.

Hank himself operated the crane. Foot by foot, he swung the hooks like feelers into the gritty gray depths, hoping to hit metal.

After a few moments of the awful suspense, the men’s faces were streaked with sweat. Kent clenched his hands nervously. Would they find Tom and Bud in time?

Suddenly Hank broke the silence. "I've hit their tank!"

Relieved, Kent and Billing uttered words of encouragement. They watched as Hank maneuvered the hooks delicately, seeking to get a grip on the sunken vehicle.

At last he threw in the clutch and fed power to the winch. Groaning, it started to reel in, then pulled taut under the resistance of a heavy weight!

"We've hooked 'em!" Hank exclaimed jubilantly.

Slowly the engineer hoisted the little tank upward. Moments later, it broke through the top layer of ash. Swiveling the crane around, Hank deposited the vehicle on solid ground.

Kent gasped. "Swell fishing, Hank! This is one time the big one didn't get away!"

The smiles faded as Billing tried to contact Tom and Bud by radio. Even now, with the signals no longer blotted out by layers of ash, there was no response!

Had the boys' oxygen supply given out?

"Come on!" Billing urged. "Maybe there's still a chance to revive them!"

Zippering the hoods of their space suits, the trio were about to clamber out when two figures emerged from the rescued tank.

"They're alive!" Kent yelled joyously.

In a minute Tom and Bud were safely aboard the derrick tank, exchanging hugs and thumps with their rescuers.

"Man alive, are we glad to see you!" Tom said enthusiastically.

"A little longer and that tank would have been our coffin," Bud added. "Our oxygen was almost gone. When we map this place, I vote we call it 'Devil's Hole'!"

"Why didn't you answer our radio signal just now?" George Billing wanted to know.

The boys replied that they had heard nothing over their receivers. Evidently the grappling hooks had jarred their radio out of commission.

"Let's get back to camp pronto," Tom said. "We'll need some kind of safety device to prevent any more accidents like this. I have an idea for an invention that may take care of it."

After hitching the boys' tank to the rear of the big one, the group started back to their base. When they reached the spaceship, Tom hurried to his laboratory.

An hour later Bud found his friend hunched over a drawing board, under a fluorescent lamp, sketching out electronic circuit diagrams.

"How's your new gadget going to work, skipper?" Bud inquired.

Tom pushed back his green eyeshade. “Nothing very new about it. We simply shoot out a signal in advance of the tank treads and wait for the echo to bounce off solid rock. By timing the interval, we can tell whether the ground drops away.”

“Like a ship’s fathometer, eh?”

“More or less, except that we can’t use sound waves when there’s no atmosphere. It’ll really be more like search radar. The trick is to generate a beam that’ll pierce the volcanic dust without causing a lot of false echoes.”

Bud grinned. “That shouldn’t be too tough for a wonderboy who’s already conquered space.”

“Your confidence is touching, old pal,” Tom retorted, then yawned and took a hearty stretch.

After relaxing for fifteen minutes over a cup of hot chicken soup, brewed from a cube, Tom went back to work. Soon he had the plans for his new invention drawn up, and called in several individuals to assign them the tasks of making and installing it.

George Billing was to assemble the electronic units, while Arv Hanson would turn out the housings and mechanical parts. Kent Rockland was given the job of installing one of the warning devices on each tank.

This job finished, Tom called in Jason Graves and asked him to take charge of organizing the work of the various scientists. “If you’ll take that load off my shoulders,” the young scientist said, “it will leave me free to make the final adjustments on my atmosphere machine.”

“Just leave everything to me!” Graves boomed, and promptly went to work.

By nightfall, survey teams had begun measurement of the satellite, while Bud and Dr. Jatzak had begun assembly of a small but powerful telescope. Metallurgists had gathered rock samples for analysis.

Shortly before the evening meal, Kent came into Tom’s laboratory with several reddish chunks of rock, flecked with metallic glints.

“Tom, I think this ore may be our best bet for producing oxygen in the atomic furnaces!” he announced excitedly.

“I’ll look at it under the spectrograph,” the young inventor said. He took the rock samples into the metallurgy laboratory. A few minutes later both scientists were grinning happily.

“Nice going, Kent,” Tom congratulated him. “It’s almost pure red iron oxide, plus about two percent of rare metals. It should vaporize very nicely in the atomic furnace.”

The scientists joined the others at supper. Later, after watching a TV comedy relayed from earth, the men were glad to retire. Tom, however, worked on, tinkering with the mechanical parts of his atmosphere machines.

“I’d better run another test on that pump impeller before I quit,” he decided, yawning sleepily.

Exhausted by the day’s grueling activities, and fighting to stay awake, Tom flicked a switch and bent over the whirring impeller. Suddenly his head nodded and he slumped forward. As he did, the

sharp-bladed impeller cut a deep gash in his arm!

Pale from shock and with blood spurting from the wound at an alarming rate, Tom staggered to the wall intercom and pressed a buzzer.

“Doc Simpson!” he called weakly. “Hurry to my-” Tom’s words trailed off as he collapsed to the deck!

CHAPTER 13

FRIEND OR ENEMY?

IN THE ship’s infirmary, Doc Simpson heard Tom’s call and leaped from his bunk. Grabbing a medical kit, he dashed out into the passageway, where he collided with Bud.

“What happened, Doc?”

“Tom’s in trouble. Come on!”

Bursting into Tom’s laboratory, they found the young inventor sprawled on the deck in a welling pool of blood.

Doc and Bud bent over him. “Quick! Press here with your thumb!” Simpson ordered Bud, indicating a spot in Tom’s armpit.

As Bud complied, the bleeding stopped. With deft fingers, Doc Simpson cleansed and bandaged the wound. Then they carried the unconscious youth to a bunk. Tom’s skin was pale and clammy, his lips blue.

“He’s in a state of shock. Pile on the blankets!” As the doctor gave orders, he rigged up tubing and a needle to administer plasma.

Gradually, with the aid of stimulants, Tom regained consciousness. At sight of Bud’s frightened face, he grinned wanly. “Relax, chum! You look worse than I do.”

Bud responded by squeezing his friend’s hand, gently. “Next time don’t scare us like that, you old space eaglet, what happened?”

Tom described his accident, after which Doc Simpson ordered him to stay in bed for twenty-four hours.

Tom grimaced. “But I can’t stay in bed tomorrow, Doc! I must get the atmosphere machines working!”

The physician finally agreed to let Tom oversee the job of assembling and testing the two machines, provided Bud and Kent did the work.

“Tom, you must not exert yourself,” Doc warned, “or you may be flat on your back a lot longer than

twenty-four hours!”

By morning the color was back in Tom’s cheeks and he felt much refreshed by sleep, although his arm pained him. Chow brought breakfast to his bunk, and fussed over him like a mother hen while he ate. Then the young inventor climbed into his space suit.

“What’s going on outside?” Tom inquired as he tightened a leg strap.

“Graves is loadin’ up a couple o’ tanks fer a survey trip,” Chow replied.

Hurrying out through the ship’s air lock, Tom emerged in time to see a dozen crewmen boarding the tanks. Graves, who planned to lead the party, gave the boy a quick report.

“We’re going to run our survey lines clear around the satellite,” he explained. “And we’ll pinpoint the locations of the north and south poles. You thought the poles should make the best locations for setting up the atmosphere machines.”

“That’s right. And Little Luna’s revolution,” Tom said, “will help to spread the gases evenly.”

Graves added that he expected to be gone two days, and had packed plenty of food concentrates and spare oxygen.

“Good luck!” Tom said, shaking hands. “Thanks for getting things organized!”

“Nothing to it,” Graves replied, grinning.

Looking somewhat like a pouter pigeon in his space suit, the robust tycoon climbed aboard the larger of the two tanks. When the hatches were sealed, the tanks rumbled off.

During the next few hours, Bud and Kent set up and tested both atmosphere machines. The fascinated crewmen looked on as the big glittering gas spreaders spun around high above the camp, apparently supported by nothing!

“Brand my cookstove,” Chow muttered, scratching his stubbly chin, “I’ve seen a heap o’ queer things since I been workin’ fer you an’ yer pa, Tom, but this takes the prize!”

Tom watched the work approvingly. “We’ll be able to ditch our space suits once we get these machines in operation,” he said. “Think how good it’ll be to breathe fresh air again-fresh from a sealed tank, that is.”

“Sounds about as fresh as this dehydrophobiated grub we’re eatin’,” the cook grumbled.

Tom smiled. “You mean dehydrated, Chow.”

“Wai, mebbe so, but a steady diet of that stuff is enough to give a man hydrophobia!”

As the cook clumped off in his space boots, Tom chuckled. Then he showed Kent some notes and sketches.

“While you fellows were busy,” he said, “I worked out a plan to manufacture our own air supply.”

Tom explained that his method involved using an atomic pile for generating electric current to electrolyze ore, thus releasing oxygen. From nitrate minerals he would extract nitrogen, and krypton would be formed as a by-product from the reactor.

“There’s enough carbon here to produce what little CO₂ we need,” Tom added. “And we brought along enough hydrogen to fill the bill.”

“We’ll have to monitor the atmosphere constantly,” Kent reminded him, “to keep tabs on the radioactivity from your reactor and solar radiation.”

“I’ve already taken care of that,” Tom replied.

He described how continuous spectrographic and infrared analyzers would check on the composition of the atmosphere. Carbon-monoxide gas fumes would be catalytically converted to carbon dioxide and the excess CO₂ removed by a caustic scrubber.

It was decided that Kent, in charge of a crew of metallurgists and other technicians, would build a rock smelter at the site of each atmosphere machine.

Just then Bud cried out, “Look! Graves and his crew are coming back!”

Surprised and uneasy, Tom watched the survey tanks crawl toward the base. What had brought them back so soon? Was something wrong?

His fears deepened as the lead tank ground to a halt. The hatch cover popped open and Jason Graves scrambled out, glowering.

As Tom ran to meet him, Graves said angrily, “We’re not the only ones on this satellite!”

“What!”

“We just spotted another spaceship!”

“Where?” Tom was thunderstruck, as were the others, who picked up Graves’s words on their suit transiphones.

As his crew climbed from the tanks, Graves continued, “About two hours’ travel from here. The ship is sort of a flying-saucer shape, and enclosed in a transparent dome or hangar.”

“Any people around?” Tom asked.

“We didn’t go close enough to find out.” Graves added, “I thought it might be wiser to come back here and decide our official course of action before they spotted us.”

“Good work!” Tom nodded approval and frowned thoughtfully. His brain whirled with questions. Could it be that the Swifts’ space friends had made a landing. If so, why had they not contacted the American base?

More likely, the spaceship had brought Brungarians!

Before Tom could voice his thoughts, Bud spoke. “Whoever they are, they must have just landed. They

sure weren't here when Dr. Jatczak and I scouted Little Luna by telescope!"

"They could have been," Graves argued. "The ship is painted black and gray. If it was on the night side of the satellite, you could easily have missed it!"

"That's possible," Tom said.

A worried silence fell on the group as the crewmen eyed each other. Perhaps the American spaceship was not the first to land on the satellite!

Thinking fast, Tom came to a quick decision. "Before we make a move, I'll try to contact my space friends," he said. "If the ship is not theirs, we'll know it must be the Brungarian expedition!"

Dashing aboard the Titan, Tom hurried to the communications room. After Billing had warmed up the powerful transmitter, Tom studied his space dictionary and beamed out a message. This codebook, which his father had compiled, contained a list of all the symbols the Swifts had been able to translate.

George monitored the signal on the oscilloscope. Working the tuning knobs, he watched the mathematical symbols in flashes of light which Tom sent racing across the screen—a flattened circle, two intersecting curves, a wiggly line that looked like a two-headed snake.

"How soon do you hope to get a reply?" George asked when the message was finished.

Tom shrugged. "We'll keep sending every five minutes until we—"

He broke off as Bud burst through the doorway. "Hey, skipper!" the pilot yelled in excitement. "A rocket just landed outside!"

Tom leaped to his feet, knocking over the chair on which he had been seated. "You mean a spaceship?"

"No. A small missile!"

Dashing outside, Tom saw a silvery, man-sized projectile half buried in the ground twenty yards from the Titan.

Hank Sterling shot a worried glance at Tom. "What'll we do? It may be armed."

"This," Tom said, "is a job for Robbie the Robot!"

Robbie was a four-foot model of a giant robot which Tom had invented to handle dangerous jobs at the Swifts' atomic energy plant, The Citadel. The automaton was operated partly by directional tape, partly by hand controls. Tom had brought it along in case radioactive ore should be found.

Quickly the robot was uncrated and set up. Then, as Tom manipulated the small remote-control panel, Robbie clanked forward on his metal legs.

Dr. Jatczak and the other government scientists watched in fascination as Robbie approached and examined the small rocket. Through the robot's "camera eyes," Tom could see every detail on his control screen.

After careful scrutiny, Tom announced, "Okay, fellows. It's not explosive."

“Wow! What a relief!” Bud exclaimed.

“What is the missile?” Kent asked.

“We’ll soon find out,” Tom replied. “There’s some kind of small cylinder inside the head.”

Walking up to the rocket, Tom extracted the small cylinder and unscrewed it. Inside was a rolled-up piece of paper. Tom gasped as he read the message.

CHAPTER 14

HEAT TRAP

TOM’S CREW pressed close as their skipper read the message:

TO THE AMERICAN INTRUDERS: YOU HAVE NO CLAIM TO THIS SATELLITE SINCE WE, THE BRUNGARIAN SPACE FORCE, ARRIVED FIRST. UNLESS YOU BLAST OFF WITHIN THREE HOURS, WE WILL CONSIDER YOU HOSTILE INVADERS AND ATTACK!

STREFFAN MIROV

The ultimatum brought an angry outburst from Tom’s crew. Their suit transiphones crackled with indignation.

Jason Graves fumed, “That Brungarian bandit! Telling us to get off this planet! We’re Americans—they can’t shove us around that way!”

“Now you’re talkin’, pardner!” Chow chimed in, shaking his gnarled fist. “Reckon none of us hankers to knuckle under to them space rustlers!

They ain’t fenced in this sky range yet, not by a long shot!”

Blistering comments came from Arv Hanson and Kent Rockland, and the crewmen buzzed like a nestful of angry hornets. Bud, however, kept his own temper in check, waiting to hear what Tom had to say.

The young inventor let the crewmen express themselves, then called for silence. “No sense losing our heads,” he told them. “If possible, we must avoid trouble.”

“What!” Graves exploded. “You mean we’re going to take this lying down?”

“I didn’t say that,” Tom replied evenly.

“Then what do you propose to do?” Graves challenged.

Tom turned to Dr. Jatzak. “You speak Brungarian, don’t you, Doctor?”

The astronomer nodded. “Quite fluently.”

“Good! Then you, Bud, and I will go to their camp and try to parley with them. In the meantime, all scientists and technicians please go on with your work.”

Graves spoke up again. “Suppose they attack us while you’re away?”

“I’m leaving you in charge of the camp,” Tom replied. “If we’re not back in six hours, radio word to my father at the space station. Then blast off and go into orbit until you receive further orders.”

Graves saluted, like a general taking over an army. The other crewmen looked on grimly as Tom, Bud, and Dr. Jatzak embarked in one of the tanks.

“Good luck, buckaroos!” Chow called out.

“Thanks. We may need it,” Tom replied tersely as he wriggled into the air lock.

Other voices joined in a tense send-off. Then the hatch was sealed and the tank ground into action.

Bud threw the gearshift into high. “If we’re not back on time, Graves probably will start a war!”

Tom shook his head. “I’m sure he’ll obey orders,” he declared.

Leaving camp, the vehicle rumbled over a rocky plain and headed into the beetling hills beyond. The slopes were strewn with boulders and up-thrusting clumps of granite.

Inside the tank, the three travelers were bumped and jolted by the rough terrain, but their weight was so much less than on earth that they felt no real discomfort.

“Next time, let’s build these jobs with better springs!” Bud remarked.

“They worked okay on earth,” Tom said, “but here they have the wrong spring constants.”

Wearing earphones, he listened carefully on the warning device. “Hold it!” Tom shouted suddenly. “Sounds like a crater ahead!”

Bud braked the tank hard, then crawled out through the hatch to scout the terrain. “It’s a crater, all right,” he reported. “Big one, too. That volcanic ash makes it hard to tell where the solid ground ends.”

Cautiously the boys skirted the dangerous chasm, then continued their journey, with Tom making frequent radio reports to the base. Twenty minutes later the tank encountered a smaller crater and was detoured again.

As it rumbled across a barren plateau, the vehicle suddenly shuddered under a glancing impact.

“Something hit the hatch cover!” Bud exclaimed as he slammed on the brakes.

Dr. Jatzcak paled. "Do you think the Brungarians are shooting at us?"

"I don't know," Tom replied tersely. "Swivel the turret, Bud."

As the dome revolved 360 degrees, the boys peered through the view plate.

"Can't see a thing," Tom said, "unless someone is strafing us from a spaceship. I'll crawl out and look. You two men stay inside until I give the all clear."

The young inventor squirmed through the air lock. Moments later, he rapped a signal on the tank's hull. The other two hastily emerged to join him. Tom was holding a small chunk of iron-gray metal about the size of a golf ball.

"Here's what hit us," Tom announced over his space-suit transiphone.

"A meteorite!" cried Dr. Jatzcak, pouncing on the still-warm specimen with professional interest.

"Left quite a trail," Tom went on. He pointed to a long gouge in the hatch cover where the meteorite had grazed the tank. Beyond, it had plowed a furrow at least twenty feet long in the solid rock.

Bud gave a low whistle. "Whew! That baby was really traveling!"

"A few feet lower," Tom remarked, "and I hate to think what might have happened to us."

Fearing that the weakened metal of the hatch lid might spring an air leak, Tom decided to repair it at once. He took out the tank's tool kit which contained welding equipment. Working swiftly with a modified electric welder, he built up a bead of protective metal along the gouge.

The travelers embarked once again and the tank rumbled off. They were now more than an hour away from the Titan.

The sun, almost at zenith, beat down with merciless intensity. In its stark glare, the treeless, bone-dry landscape made a harsh, forbidding picture.

"Seems to be getting hot," Bud remarked after a while. His space suit was unzipped, with the hood thrown back over his shoulders.

Presently Dr. Jatzcak took out a handkerchief and mopped his face. "I agree with you, Bud," he said. "It's becoming rather uncomfortable."

As the tank rolled along slowly, the temperature continued to climb. A frightening suspicion struck Tom. He checked the thermostat.

"It's not working!" he exclaimed.

Without the thermostat to regulate it, the tank's air-conditioning system could no longer function!

"No wonder the view plate's fogging up." Bud gulped, rubbing it with his sleeve. He tried the air lock, then yelled, "Tom, it won't open!"

He realized at once that the heat had expanded the lid. Repeated blows failed to force it open. They

were trapped inside!

“Can you correct the difficulty?” Dr. Jatczak inquired. His voice remained dry and precise.

“I’ll try,” Tom said. “Zip up your suits. It’ll help a little.”

As he whipped out tools and began tinkering with the thermostat, the temperature mounted with terrifying rapidity. Although the space suits were designed to reflect sunlight and reduce the absorption of heat, they were not insulated to protect against the high heat of a sealed air space. Soon the tank’s interior became suffocatingly hot.

Tom shook his head to clear the sweat from his eyes. “If I can’t find the trouble soon-“ he muttered.

Bud finished the thought for him. “We’ll all be broiled alive!”

CHAPTER 15

A DOUBTFUL TRUCE

THE TANK was fast becoming an oven! Knowing that they could survive for only a short time in the merciless heat, Tom worked frantically to repair the thermostat.

“Any way I can help?” Bud offered, gasping.

Tom shook his head. “The thermostat itself seems okay, so there must be a short in the control circuit. I’ll have to trace it!”

The tank’s electrical system was a maze of wiring. Using a small test light to locate the short, Tom found the job maddeningly difficult. With flying fingers, he ripped off sections of housing to check every branch of the circuit.

Dr. Jatczak, meanwhile, grew pale and faint. Beads of perspiration glistened on his forehead. Worried, Bud unzipped the doctor’s space suit and fanned his face with one hand, trying desperately to stir up the humid air in the cramped living space.

“I know you’re hurrying, pal,” Bud told Tom, “but be as quick as you can!”

Tom worked on frantically. Then, suddenly, a soft hum filled the tank compartment as the cooling compressor whirred into action!

“You did it! It’s running again!” Bud shouted. “Three more minutes and we’d have been gone geese-and roast geese at that!”

Throwing back his hood, Tom wiped a sweat-streaked face with his sleeve. “A close call,” he gasped. “Say, what’s wrong with Dr. Jatczak?”

The little astronomer had slumped to one side, almost toppling off his chair. The boys grabbed him and loosened his clothing. As Bud chafed his wrists, and Tom pressed a water canteen to the scientist's lips, the air inside the tank quickly cooled. In a few moments the doctor revived.

"A thousand thanks," Jatzak murmured. "Please forgive my momentary weakness."

"Sure you're all right?" Bud asked him anxiously. "Maybe we'd better go back."

"No, no! I refuse to hear of it!" the astronomer protested. "I assure you I am all right. Please let us go on!"

Tom would have insisted upon returning except for the Brungarian ultimatum. Realizing they were faced with a crisis and had no time to lose, he decided to press forward. As the tank cooled even more, Tom tried the entrance hatch to the air lock. To his relief it moved easily.

Forty minutes later the visitors came in sight of the enemy camp. "Here we are," Bud announced. "Should we roll right up to their front door?"

"No. Better stop here," Tom decided. "Otherwise, they may think we're coming to attack."

With Tom carrying a white flag of truce, the three climbed out of the tank and stared at the Brungarian base. Before them rose a huge, transparent dome, covering more than an acre of ground. Apparently made of thick plastic, it gave off rainbow glints in the sunlight.

Inside rested the odd-looking Brungarian spaceship. Enormous in size and circular in shape, it was painted black and gray. For this reason, scrutiny of it from a distance was difficult.

"Graves was right," Bud remarked in an awed voice. "It does look like a flying saucer!"

"I have a hunch that saucer shape is just a camouflage," Tom said thoughtfully, "Mirov probably rigged it to cover the spaceship after they landed."

"Why so?" Dr. Jatzak asked.

"We know they blasted off from our world," Tom explained. "And for take-off in the earth's atmosphere, a cigar shape is much more efficient."

Dr. Jatzak nodded. "Mm, quite correct. I was overlooking that point."

"But why bother to fake a new version now?" Bud put in.

"It's hard to say," Tom replied. "Propaganda maybe. Perhaps the inventors want us to think that they're farther ahead on spaceship design than they really are. Or maybe it has something to do with the storage and maintenance of their ship. Anyhow, let's get moving!"

Cautiously the three Americans advanced on foot. After circling part way around the dome, they found the air lock. Two armed, stony-faced Brungarians stood guard at the entrance. Clad in space suits with transparent helmets, they watched without flicking a muscle as the Americans approached.

"Friendly-looking, aren't they?" Bud muttered.

“At least they’re not shooting yet!” Tom replied.

Dr. Jatzak had to tune his suit transiphone to a different frequency to converse with the guards. In Brungarian, he told why they had come.

The guards had evidently been expecting them. Replying only in surly grunts, they gestured the Americans inside with a wave of their weapons.

Passing through the air lock, Tom and his friends were met by a scowling officer in a green Brungarian Air Force uniform. In response to Dr. Jatzak’s greeting, he uttered a few words in a harsh guttural tone and strode off.

“He says Mirov, the commander, will deal with us,” Dr. Jatzak translated, tuning to Tom’s wave length.

As the callers waited, Tom looked around. Few crewmen were in sight, aside from armed guards stationed at several points. However, two technicians were tending the dome’s air-conditioning machinery and others were busy at the control panel of some shielded equipment. Tom assumed this to be a small atomic turbogenerator which supplied the base with power.

Presently a tall, handsome man in a gold-braided uniform approached. He had brown, wavy hair and brilliant, glowing dark eyes. At sight of the three Americans, he thrust out his hand in greeting and smiled, displaying strong white teeth.

“Ah, it iss so nice to see you!” he declared in a thick accent. “I am Streffan Mirov. Alas, I do not spik the English so goot!”

Tom introduced himself and his two companions, then said, “Dr. Jatzak will be glad to translate, in case you wish to speak in your own language.”

Mirov eagerly accepted and burst into a flood of Brungarian. Jatzak reported that he was apologizing for sending the note. He had acted in haste and trusted that Tom Swift would overlook his unfortunate threat.

Mirov went on to praise the scientific genius of Tom and his father. He had long admired their many inventions.

Tom and Bud exchanged a quick, puzzled glance. Why this sudden change in Mirov’s attitude, and why all these sugary remarks?

The situation was partly explained when the Brungarian added that he especially admired Tom’s atmosphere machine.

The young inventor felt a strong urge to ask how Mirov had learned about the atmosphere machine. Tom refrained, however, realizing that Mirov would probably give a false answer.

Instead, Tom described his machine very simply and told how he hoped to establish an atmosphere for the whole satellite. Turning to Dr. Jatzak, Tom went on:

“Tell Commander Mirov that he and his men will also benefit from such an atmosphere if I am successful.”

Mirov hastily acknowledged this and agreed that the two groups should work in peace. Moreover, he said, the satellite should belong to all nations of the world. Of course, he added, if any mineral wealth were found, it was only natural that the countries which had sent expeditions should take the lion's share. As Jatczak translated this last part, Mirov winked slyly at Tom.

Ignoring this attempted bribe, Tom replied, "Please ask Commander Mirov if he has any plans to use this new moon as a military base."

Mirov skillfully dodged this question and others along the same lines. Somewhat irritated, Tom mentioned that he and his crew had scouted the whole satellite before landing. "At that time we saw no sign of the Brungarians," he ended sharply.

"A most natural oversight," Mirov replied smoothly. "The dark colors of our ship would blend into the landscape. This no doubt camouflaged our ship."

It was sad, Mirov went on, that a dispute should have arisen over who had landed first. But he suavely suggested that this matter be taken up before the United Nations. Tom agreed.

Suddenly Mirov frowned and added, "By the way, our ship's radar picked up some sort of craft as we were approaching the satellite. Strangely enough, it accelerated so fast that our radar lost it in a few seconds."

Tom felt a surge of excitement as Jatczak translated this bit of news. The young inventor at once recalled an instantaneous blip on his own screen which he had thought was a passing meteor. Now he felt that his conclusion might have been wrong. The unknown ship had perhaps belonged to the Swifts' space friends!

But Tom made no mention of this possibility, merely remarking casually, "Perhaps Commander Mirov would show us around before we leave."

The Brungarian's face stiffened. He agreed, but the tour lasted only a few minutes. After showing them the atomic power plant and air-conditioning equipment, Mirov called a halt without inviting his visitors on board the spaceship.

"Now you will perhaps join me in some refreshment," he said hastily.

The gold-braided commander ordered tables and chairs set up, and had a steward serve platefuls of a tasty but highly seasoned reddish concoction.

"This is moojta, the Brungarian national dish, in concentrated form," Dr. Jatczak explained.

"Wow! It's hotter than Chow's tamales!" Bud gasped, gulping down a quick mugful of water.

After a polite exchange of good-bys, the Americans took their departure. To forestall Mirov's men picking up any remarks they made over their suit transiphones, none of the three spoke until they were safely embarked in their tank.

"I sure don't understand that guy!" Bud remarked in a puzzled voice as they started off. "First he sends us a threat, and now he acts as if we were pals!"

“I still don’t trust him,” Tom said. “The whole setup’s phony.”

“What do you mean?” Bud asked. “It looked real enough to me.”

Tom explained that the saucerlike shape of the spaceship was actually the result of two circular “verandas” being built around the ship. “Apparently they’re using them to store equipment,” Tom went on. “And that’s not all. The black-and-gray color was a fresh paint job!”

“How could you tell?” Dr. Jatczak inquired.

“By the wet paint splashes on the ground.” Tom lifted his boot and showed a gray smear on the sole.

“Trust our boy detective to spot a detail like that!” Bud grinned. Then he noticed the worried look on Tom’s face and asked what was wrong.

“Actually,” Tom replied, “their ship must have had a mirrorlike finish to achieve the best reflection of heat in space. That means we would have spotted them for sure if they had landed first.”

“So?” Bud persisted.

“So they didn’t land first. Therefore they’re not apt to wait and have their case decided by the UN. I have a hunch we’re in for trouble!”

CHAPTER 16

EMERGENCY ALARM

WHEN TOM and his two companions returned to the American base, everyone there rushed out and swarmed around the tank. Tom, Bud, and Dr. Jatczak told of the parley.

Their listeners were amazed that the crisis had ended so quickly. Some were relieved by the news. Others were suspicious.

Hank Sterling asked, “Do you think we can trust Mirov?”

“I wouldn’t count on it,” Tom said grimly. “We’ll take every precaution and I’ll radio for instructions.”

Accompanied by George Billing, Tom hurried to the communications room of the Titan. George warmed up the transmitter and made contact with the space station, then turned the mike over to Tom.

“Hi, Dad!” the young inventor said as his father’s voice came through.

“Good to hear from you, son! How’s everything going?”

Tom quickly reported the developments, and added, “Dad, please contact Washington. Tell them what

happened and find out what we should do in case of attack.”

“I’ll get the instructions immediately,” Mr. Swift replied. “Meanwhile, stay on the alert and try to avoid trouble.”

After signing off, Tom rounded up the group of scientists and technicians. They listened intently as he laid out a plan of action.

“I believe,” Tom said, “that the most important thing is to get the atmosphere machines going as soon as possible. That’ll give us more freedom to move around and also show the Brungarians we’re doing our part to make this satellite livable. Here’s how we’ll tackle the job.”

The young scientist said that a garrison force would be left at the base to guard the Titan. The others would be divided into two work crews. One group, under Tom and Kent, would proceed to the north pole and set up an atmosphere machine there. The other group, under Hank Sterling and Jason Graves, would do the same at the south pole.

It was now too late in the day to start out. For the rest of the afternoon, Tom kept the men busy checking, organizing, and loading the necessary tools and equipment.

As twilight fell, everyone returned to the Titan for supper. Later, Tom explained the task in more detail, using blackboard and chalk to describe the operations of setting up the atmosphere machines and atomic reactors.

Before going to bed, Tom and Bud donned their space suits and went outside. The night sky was brilliant with stars. But the huge bright ball of earth outshone everything else in the heavens.

Bud chuckled. “What a dither the song writers would be in up here!”

“Why?” Tom asked.

“Because they wouldn’t have a reason to rhyme June and moon any more,” Bud replied. “They’d have to talk about the earth shining way up in the sky, or walking with your date in the earth-light.”

Tom grinned. “They might rhyme earth and girth, if your girl friend happened to be the chubby type.”

“Sounds more like a song about Chow and his size fifty-two belt,” Bud quipped. “Say, Tom, what makes the earth so much brighter than the moon?”

“Higher reflectivity,” Tom replied. “As a matter of fact, it’s twenty times as bright as the moon. Which reminds me—we still haven’t found out why this satellite glows so brightly when seen from earth.”

Bud patted Tom on the shoulder. “Let’s not go into that now, genius boy,” he said, “or you’ll be slaving over a hot slide rule all night. I vote we hit the sack.”

“Second the motion,” Tom said, yawning.

As dawn broke, the two work groups started out in opposite directions. Each party comprised a cavalcade of six tanks.

Tom’s vehicle rumbled northward. In the east, the sky blazed with dazzling sunlight, while the rest of the

space void remained a star-twinkling blackness. The jagged mountain peaks, pink, steel-gray, blue, and ocher, threw long shadows across the travelers' path.

After they had traveled for an hour, Bud asked, "How will we know when we hit the pole, Tom?"

"The tank's gyrocompass will give us a pretty close idea," Tom replied. "We landed almost on the equator of Little Luna, so the dead reckoning position should be about twenty-five miles due north. I'll check by shooting the sun," he added.

Shortly afterward, Tom signaled for his convoy to stop. "We're at the north pole," he announced.

Everyone ate a meal of compressed rations, then piled out of the tanks and went to work. As Tom worked with the crew erecting the atomic reactor, Bud supervised the men who were installing the radib generator, powered by one of Tom's solar batteries. The atmosphere spreader was then lifted on the ionic beam, and the gas feed line was hooked up to the bank of compressed oxygen tanks.

"All set, skipper," Bud reported.

"Fast work, fellows!" Tom congratulated the crew.

Bud grinned. "What else did you expect with Whiz Barclay bossing the job?"

"Watch it, boy! You'll break an arm patting yourself on the back!" Tom chuckled.

He checked various connections, then flicked a switch and opened the gas valve. Instantly the atmosphere spreader whirled into motion, becoming a silvery blur.

"How soon can we take off our space suits?" one of the workers wanted to know.

Tom replied, "First we must get the reactors working to produce enough gas to blanket the satellite. If all goes well, we'll be breathing the stuff by tomorrow and we'll notice a difference before dark tonight."

Everyone now turned to finishing the atomic reactor, except Kent, who went scouting for a good supply of the iron oxide ore. This would be used in the atomic furnace to produce oxygen for the atmosphere-making machine.

The young metallurgist returned shortly with several reddish chunks. "There's an adequate supply up there, Tom," he reported.

Bud, who was standing by, frowned dubiously. He glanced up the rocky slope where Kent had found the ore, then back at Tom. "But how do we get the stuff down here to the pile-bucket brigade or wheelbarrow?"

"You're getting tired, Whiz. Better take it easy." Tom patted his pal's arm sympathetically. He grinned and added, "Just watch."

Taking a small charge of explosive from one of the tanks, Tom headed up the slope, scouted around a bit, then planted the charge at a strategic point. After clearing the area, he touched off the blast.

Boom! A geyser of dirt and rocks sprayed upward, to shower down in all directions. This was followed by a miniature landslide as tons of the reddish rock came pelting down the slope.

“Hey, I heard that, skipper!” Bud yelled in amazement. This was the first “natural” sound he had noticed since arriving on Little Luna.

Tom nodded happily. “We’re building up enough atmosphere to carry sound waves,” he replied excitedly. “And here’s all the rock we need, just waiting to be shoveled into the reactor.”

Within two hours, the reactor was finished and a chain stoker was rigged up to feed in the rocks. Tom started the small atomic reactor. As the current was generated, it electrolyzed the iron oxide and oxygen began to boil off.

By this time, the tanks of compressed gas were exhausted. Tom spun a valve, permitting the gas feed line to draw oxygen from the reactor. In a matter of seconds, the little satellite was well on its way to producing its own atmosphere.

“Another outstanding achievement, Tom!” Dr. Jatzak said enthusiastically.

It was nearing midnight when Tom’s work party arrived back at the Titan. Hank and Graves pulled in an hour later to report similar success for their group. Jubilant, the men held a rousing celebration before tumbling into their bunks, exhausted by the day’s work.

In spite of the late hour at which they had retired, everyone turned out at daybreak to witness the first atmospheric sunrise on the tiny planet. The eastern sky was flushed with dawn colors of rose-pink, gold, and crimson.

“Oh man, ain’t that a sight!” exclaimed Chow, as he and the others gingerly removed their space suits, then breathed deeply. “Almost as good as it looks in Texas! An’ the air’s balmy, too.”

“That’s because the atmospheric blanket protects us from extreme temperature changes,” Tom explained.

“We’ll all be balmy if we don’t get some more shut-eye.” Bud yawned. “Let’s go back to bed!”

Tom agreed. After a late breakfast he issued orders that everyone keep an emergency “oxygen tent” handy at all times. Compactly folded, these tents could be carried as packs and inflated if the atmosphere machines should ever fail. The young inventor also devised an alarm system to warn of any breakdown in the operation of the atmosphere machines.

“These gadgets are the heart of the system,” Tom said. “They work like barometers.” He showed Bud one of the devices in his laboratory. “They’ll register any change in pressure immediately. If one of them goes down even a few millibars, a circuit will close, setting off lights and sirens.”

“Neat, man, neat!” Bud commented. “I’ll take a dozen!”

Tom arranged to have the devices installed at various points on the satellite, and also on every tank. Then, calling Graves into his laboratory, he asked him to supervise the job of setting up TV cameras at both poles.

“I’ll have George Billing monitor them in the communications room,” he added, “so that we’ll be able to spot trouble ahead of time.”

By the following day, Tom's warning system was in full operation. Teams of scientists, glad to be free of their space suits, sallied forth on a dozen different projects.

Tom and Bud drove at once to the south pole of the tiny moonlet. About two miles from it they left their tank to explore a narrow valley on foot. Its sloping walls were studded with rocky outcrops in fantastic shapes and colors.

"A pint-sized Grand Canyon!" Bud exclaimed. "Sure wish I had a color camera to—"

He broke off as a wailing shriek echoed through the valley.

"It's the atmosphere alarm!" cried Tom.

The boys dashed back to their tank, and sped toward the pole. On arrival, they emerged in space suits and found the red warning lights flashing. Tom made a fast check. To his surprise, the automatic feed valve was wide open and the smelter was operating full blast!

"Maybe it's the other machine that stopped," Bud suggested. "This one seems okay."

"Wait a minute." Tom turned a switch and pulled a lever on the radib generator. The whirling gas dispenser stopped spinning and slowly descended. Tom tinkered with it, then raised the machine and started it whirring again. A few minutes later the red warning lights went out and the sirens trailed off into silence.

"Good going, chum!" said Bud. "What was wrong?"

"The core containing the Inertite slipped out of place, so the gas molecules were no longer mutually attracted. The atmosphere was beginning to dissipate and drift off into outer space."

Tom radioed George Billing on the Titan and asked him to make contact with all personnel at large. "Make sure everyone's okay, George. Bud and I will be back pronto."

When Tom and Bud returned to the base, Billing told them that all personnel who had left camp to embark on outside projects had reported being safe except Dr. Jatzak.

"I don't know where he went, but he didn't leave by tank, certainly."

"Jumpin' jets!" Bud yelled. "We'd better check!"

Accompanied by Tom and Doc Simpson, he hurried to a nearby plateau where the astronomer had set up his telescope. They found Jatzak's transparent emergency tent still inflated, but inside, the little astronomer lay sprawled face down, unconscious! They surmised that he had been so busy observing the sky, he had not inflated his tent until he was almost asphyxiated. Frantic, they ripped it away.

Doc Simpson felt the man's pulse. "It's very weak. He'll need artificial respiration—fast!"

First Doc, then Bud, then Tom straddled Jatzak's body and applied rhythmic pressure to his lungs. But after twenty minutes of steady treatment, the victim showed no signs of reviving.

"I'll try a shot of adrenalin," Doc said tensely. Filling a hypodermic syringe, he injected the heart stimulant, then waited.

Again there was no response!

White-faced, Bud threw a pleading glance at Doc Simpson. But the medic shook his head slowly.

“I’m afraid we may have found him too late,” he said sadly.

CHAPTER 17

A STRANGE DISCOVERY

“YOU MUST save him, Doc, you must!” Bud exclaimed in dismay as he knelt beside Dr. Jatzak.

“There’s still hope, Bud,” the physician said hastily, “but the odds are against us.”

Knowing how fond Bud had become of the astronomer, Tom gave his friend’s arm a squeeze. “Keep your chin up, pal. We’ll work on Dr. Jatzak as long as there’s an ounce of hope!”

Spelling each other at five-minute intervals, the trio continued to apply artificial respiration. Again Tom’s turn came around. With a slow, pistonlike rhythm, he labored over the unconscious man, forcing air in and out of his lungs. Suddenly a long gasp escaped from Jatzak’s lips!

“He’s coming to!” Bud cried softly.

Jubilant with hope, Tom kept pumping until Dr. Jatzak’s eyes flickered open. Then Doc Simpson waved spirits of ammonia under the astronomer’s nose. He coughed and gasped.

“Wh-where am I?” he murmured weakly, trying to raise his head.

“Don’t talk-just lie still,” Doc Simpson told him gently.

On an improvised stretcher made from his collapsed oxygen tent, the boys carried Jatzak back to the Titan, where he was put to bed in the ship’s sick bay.

Doc Simpson gave him a complete examination, then injected a sedative to put him to sleep. Emerging from the compartment a few minutes later, the physician found Tom and Bud waiting anxiously.

“Dr. Jatzak will have to stay in bed for at least forty-eight hours,” Simpson reported. “After that, we’ll see about further treatment. But he’ll pull through all right.”

“I sure hope so,” Bud said earnestly.

Doc Simpson reassured the others by saying, “Jatzak should be back on his feet soon, but he’ll need plenty of rest. And, incidentally, this is a good place to convalesce.”

“Because of the low gravity?” Tom queried.

“Exactly. The lessened amount of muscular strain here would be helpful to heart patients,” the medic replied.

“Maybe Little Luna would be a good place to set up a hospital,” Bud suggested.

Doc Simpson nodded enthusiastically. “My experiments with the white rats would certainly indicate that.” He explained that he had been trying some treatments for asthma and certain heart conditions-treatments that had not been too effective on earth. “But up here the rats respond to them very well!”

Tom and Bud congratulated him on his discovery as they walked to the mess hall. To celebrate everyone’s narrow escape from the atmospheric crisis, Chow prepared a special lunch for the crew. To their amazement, the men found themselves served with appetizing hamburger patties, mashed potatoes, stewed corn, milk, and fruit pudding.

“What a chef!” Bud cried as he finished the last spoonful of pudding. “Chow, I take back everything I ever said about your rattlesnake soup and the other crazy concoctions you dream up!”

Chow winked. “High time you learned to discern good food.”

Kent praised him too. “This meal really hit the spot, Chow. How did you do it with all those dried-up rations we brought along?”

“Oh, ‘twarn’t nuthin’,” the cook replied. “I juiced the ‘burgers up a bit with some o’ the water Tom’s been distillin’ down in the engine room. Almost brung ‘em back to normal, if I do say so myself!”

After lunch Tom, Bud, and Kent strolled around camp, enjoying the afterglow of Chow’s meal.

“What’s on the program this afternoon, space boy?” Bud asked.

“I want to do some more exploring,” Tom said. “Ever since Mirov mentioned that vanishing spaceship, I’ve been hoping to find some sign that our space friends were here on Little Luna.”

“That’s a good idea!” Kent agreed. “How about starting with that range of hills over there?” He pointed off to the west.

“All right,” Tom agreed. “And we’ll take along Robbie the Robot. I’d like to check for radioactive ore.”

The trio returned to the ship to get Robbie. As they passed the galley, the boys heard Chow muttering angrily.

“Varmints!” he growled. “Thievin’ rascals!”

“What’s the matter with him?” Bud whispered, as the three made their way to the Titan’s air lock.

Tom grinned. “I think he’s talking about Doc Simpson’s white rats.”

“Why?” Kent asked, puzzled. “What’s he got against white rats?”

“Chow probably thinks they’re like the pack rats he used to have trouble with in Texas,” Tom replied. “My guess is he’s worried about them getting into the stores.”

A few moments later the three explorers set off. Though not wearing space suits, all had donned weighted boots to offset the low gravity. With Robbie stalking ahead like a metal midget, the group strode along over the barren rocky terrain.

Presently they reached the mountains and began following a ledge that wound upward among the rocks. The colorful crags and peaks, which looked majestic from here, actually were tiny compared to mountains on earth.

“Like miniature Alps,” Kent commented.

Bud had taken the lead on the narrow trail. “Say, here’s a cave!” he called out, after rounding a huge boulder.

Something in Bud’s voice made Tom hurry forward. The sight that met his eyes was strange and intriguing. In the face of a steep pinnacle of bluish rock was a large opening. It seemed to be the entrance to a passageway. Though wide enough to admit all three boys, the floor of the passageway sloped sharply upward at an incline of almost 75 degrees.

Kent gave a low whistle. “Hey, that’s too smooth and well-finished to be a natural cave or rock fissure. Looks to me like an engineering job!”

Bud flashed an excited glance at Tom. “What do you make of it?”

Tom looked at the opening in solemn awe. “Our space friends,” he almost whispered, “may have carved this passage!”

“But why build it at such a steep angle?” Kent asked.

“It’s only a guess,” Tom replied. “But maybe their own planet has such low gravity that an incline like this is easy for them to ascend.”

Then another idea struck him. “If the space people really were here on the satellite, they may have left instructions for us and some samples of their civilization!”

“Well, sizzling skyrockets!” Bud exclaimed. “What’re we waiting for?” Eagerly he started to scramble up the sloping passageway, but Tom pulled him back. “What’s the matter?” Bud complained.

“Listen! Robbie’s built-in Geiger counter is picking up radiation!”

As Tom tuned several control knobs, the ticking grew louder. Excitedly the young inventor watched the needle flicker upward on the dial. “High-level radiation!” he exclaimed.

“Wow! Good thing you brought Robbie along,” Bud said. “How about sending him to explore the cave?”

“Just what I intend to do.”

Inserting a new instruction tape for walking, Tom manipulated the portable control panel. With stiff,

clanking movements, the chunky little automaton started to march up the passageway. But the grade was too steep. After a few steps he suddenly lost his balance and tumbled over backward!

“Watch it!” yelled Kent. As the boys ducked clear, the robot landed at their feet with a clattering uproar that echoed through the canyon!

“Oh, fine,” Tom grumbled. With Bud’s help, he set the mechanical man upright again, then whipped out a Phillip’s-head screw driver and removed a plate from the back of the robot’s head.

“Any damage?” asked Kent, as Tom examined the electronic controls inside.

“Don’t see any offhand,” Tom said. “Robbie’s pretty well protected by rubber shock-mountings. But I’ll have to reset the gyrostabilizer in his body. Apparently it won’t compensate for this steep incline.”

Bud offered to go back to the Titan and get the necessary tools. Removing his heavy space boots, he took off at a fast trot. A few minutes later he returned with a tool kit and a portable floodlight. “Thought this might help us see what’s up there,” he panted.

“Good! We can use it.”

Quickly Tom opened the robot’s metal torso and adjusted the gyro mechanism. Then, once again, Robbie started up the incline. One of his manipulator hands clutched the floodlight. This time, the little automaton made it without any trouble.

“Ah, good old Mighty Mite!” Bud murmured.

With keen interest, the boys watched the six-inch TV screen on the control panel. Through Robbie’s camera eyes, they saw the sloping passageway suddenly level out. A faint whirring sound came over the loud-speaker as the gyro-stabilizer swung the robot’s body back to a position of normal balance.

“Thank goodness he didn’t flop on his nose,” Tom remarked. “I wasn’t too sure about that adjustment.”

As Tom worked the control knobs, Robbie turned slowly, flashing the light from side to side. Apparently he was in a large cave or room. The whitish glare revealed walls lined with shelves, bearing a bewildering array of strange objects. Some looked like twisted glassware used in chemical work. Others seemed to be made of stone or metal.

The boys held their breath in sheer fascination.

In the center of the floor was what looked like a cubical-shaped rock about twelve inches on each side. It seemed inert. But as Tom started the robot walking toward it, Robbie’s movements became jerky and erratic.

“I can’t control him!” Tom gasped.

Suddenly the television screen began to flicker, then blacked out completely!

“What-what happened?” Bud whispered.

CHAPTER 18

TERROR FROM THE SKY

“YOUR GUESS is as good as mine!” Tom muttered. Completely mystified, he worked the control panel frantically but got no response.

The boys looked at one another in dismay. “Now what?” Kent asked.

“Only one thing we can do.” Tom shrugged. “Return to the ship for anti-radiation suits, then go in there and get Robbie. Come to think of it, maybe I’d better go in alone.”

Bud objected. “Think we’re going to stand by and let you have all the fun?”

“Besides,” Kent put in, “I want to look at some of that stuff on the shelves.”

“Okay. Let’s make it snappy before Robbie soaks up too much radiation!”

Leaving the portable control panel outside the cave, Tom and his two companions hurried to the base. Boarding the Titan, they went to their lockers in the crew’s compartment and pulled out the hooded green coveralls which had been issued to each man on the expedition. These suits, impregnated with Tomasite, were designed for wear on all jobs involving exposure to atomic radiation.

“Boy, that gadget on the floor was really spooky!” Bud remarked, struggling into his suit. “Do you suppose that’s what made Robbie conk out?”

“Sure seemed that way,” Tom replied. “It must exert some kind of radiant energy that—“

A sudden outburst of wild shouts and shrieks arose outside the Titan.

“What’s that?” Kent cried out.

“Sounds like an attack!” Bud exclaimed.

The boys rushed from the compartment and scrambled through the air lock. An uproarious scene met their eyes. Half a dozen terrified white rats darted frantically in all directions, making prodigious leaps in the low gravity. Behind them, with an upraised meat cleaver, came Chow Winkler, bouncing high in the air at every step!

“Thievin’ varmints!” he roared. “I’ll chop you up for mincemeat, you sneakin’ pack rats!”

As Chow slashed right and left with his cleaver, Doc Simpson sprinted behind him, trying vainly to restrain the enraged cook.

“Don’t hurt ‘em!” Doc pleaded. “They’re valuable! Chow, stop! Please!”

Chop! . . . Slash! . . . Whang!

Roaring with mirth, the crewmen cheered, hooted, and guffawed at Chow, Doc, and the rats. Finally, Tom recovered enough from laughing to grab Chow around the waist.

“Stop it, Chow!” he gasped.

Panting like an exhausted walrus, the wild-eyed cowpoke poured out his complaint. For three hours he had worked to hydrate a batch of food concentrate, trying to produce a tasty cheese-and-crackers snack for the crew.

But in an unwise moment he had left the whole trayful exposed on a pile of equipment outside the Titan. The rats, sunning themselves in their cages nearby, had sniffed the cheese, wriggled free through the bars, and promptly devoured the whole feast.

“Gnawed up every last crumb, that’s what they did!” Chow wailed. “The low-down, sneakin’ critters!”

“Don’t worry, Chow,” Bud said consolingly. “It just proves what a super job you did on the cheese and crackers!”

Tom comforted the cook as best he could, while Doc Simpson rounded up his escaped charges. Embarrassed, Doc apologized to Chow and promised to reinforce the cages with wire netting, so that the white rats could never escape again.

When the excitement finally died down, the boys hurried back to the secret cave. Tom carried a pocket-size Geiger counter and a pair of long steel tongs for handling the mysterious cube. Bud and Kent each held a Tomasite-lined sack.

Zippering their hooded green suits, the boys clambered up the steep ramp that led inside the rocky escarpment.

The floodlight which Robbie carried still burned brightly. But the little robot was sprawled helplessly on the floor of the cave.

A few feet away lay the cubical object. In the silence of the eerie cavern, there was something strange and menacing about its queer shape. Tom saw that it was not a perfect cube, each of its six faces being built up in several steps or layers.

“What’s the first move, Tom?” Bud asked him.

For answer, Tom approached the cubelike object and picked it up with his tongs. Instantly it began to glow with a white-hot radiance!

“Jumpin’ Jupiter! Look at it!” Kent gasped.

Tom dropped the cube and it faded into dullness again. Mystified, he muttered, “I’d better check the radiation.”

Holding the small Geiger counter toward the cube, Tom watched the dial, then gasped as the needle shot upward. “Wow! This thing is hotter than a pistol!”

“Too hot to handle?” asked Kent.

Tom shook his head. "Not in these suits. But Robbie must have absorbed quite a dose. You two go ahead and collect as much stuff from the shelves as we can carry. I'll haul Robbie out of here."

As Tom dragged the clanking robot through the passageway, Kent and Bud hurried to select the most interesting objects they could find.

"Look!" Kent exclaimed. "They're covered with some kind of marks or hieroglyphics!" He held one of the objects up to examine it in the glare from the floodlight. It was a red tear-shaped mass with a metallic sheen.

"Just like the space symbols Tom picks up on the oscilloscope!" Bud declared.

Tom confirmed this a moment later when he re-entered the cave. Hastily the three youths loaded the sacks they had brought.

"Okay, let's get out of here!" Tom urged.

While Bud and Kent each slung one of the sacks over his shoulder and started down the ramp, Tom seized the tongs again and picked up the cube. As he carried it out, the mysterious substance glowed with a white radiance!

"What about Robbie?" Bud inquired as they emerged from the cave.

"We'll leave him here to cool off some of that radioactivity he picked up," Tom replied. "We can come back for him later. Let's go!"

Despite their heavy loads, the trio made good time back to the base. To their surprise, it seemed deserted.

"Where is everybody?" Bud asked.

"They must be on board," Tom said, puzzled.

As if to prove his statement, the air-lock hatch suddenly flew open. Chow Winkler popped out and came running toward them.

"Come on! Get inside pronto!" he cried frantically.

"What's wrong with the camp?" Bud asked.

Chow pointed skyward and screamed, "Look behind you!"

The boys whirled in alarm. Hovering overhead like some sinister bird of prey was a huge saucer-shaped helicopter.

"The Brungarians!" Kent cried out.

As he spoke, bomb-bay doors flashed open in the ship's belly and four long, snakelike tubes whipped into view. The tentacles groped menacingly toward the four Americans—each tube armed with a huge suction cup on its tip!

“Run!” Bud shouted.

The three youths and Chow dashed for the Titan, but the cook could not keep up with the others.

A scream of terror split the air!

Tom turned quickly. What he saw made his face blanch in horror. Firmly gripped by one of the huge tentacles, Chow was being hauled up into the enemy spaceship!

CHAPTER 19

RESCUE RAID

AS CHOW WAS DRAWN into the enemy ship, Tom’s blood ran cold. Yet he was powerless to aid the faithful Texan.

Tom himself was wildly dodging the writhing tentacle that was aimed at him. No time to reach the Titan now! Bud and Kent, too, were ducking and weaving in a frantic attempt to evade capture.

At that moment the strange cube Tom was holding seemed to come alive. Dazzling rays shot out from it toward the tubes.

There was a searing hiss, followed by a burst of light. All three snakelike tentacles vanished in smoke, completely disintegrated by the powerful rays from the cube!

“Yahoo!” Bud yelled in a frenzy of relief. “Give it to ‘em, Tom! Blast ‘em, boy!”

Impulsively, Tom started to aim the cube toward the Brungarian spaceship, but suddenly he checked himself. If he should destroy the enemy, atomic war on earth might result. Besides, Chow was aboard as a prisoner! His life could not be jeopardized.

As Tom hesitated, the hostile craft blasted out of range and streaked off.

Bud was disappointed, “Why didn’t you counterattack, Tom?” When the young inventor explained, Bud grudgingly admitted his friend was right.

“We’ll save Chow some other way,” Tom declared, gritting his teeth, and the others nodded vigorously.

Kent spoke up. “I still don’t savvy what happened, Tom, but that cubical little marvel sure saved us!”

Tom admitted that he was completely baffled, then added that something else also puzzled him. “That spaceship was the Brungarian one Bud and Dr. Jatzak and I saw at their camp. But there were no rotors on it at that time.”

“Mirov,” Bud said, “probably decided to bring them when he learned through his spies that you were planning to create an atmosphere up here.”

By this time, crewmen were swarming from the Titan. Tom warned them about the glowing cube, and asked Hank Sterling to line a container with Tomasite as a receptacle for the weird object.

“I believe my space friends left it in the cave we found.”

Arv Hanson, meanwhile, told how the Brungarian spaceship had been sighted just a few minutes earlier. It had blasted off when the American crew fled into the Titan for safety, only to reappear as soon as the boys arrived.

Hank speedily finished his task and returned to Tom holding a small box. It was lined with a green plastic substance. “See if this will hold it, Tom,” Hank said.

Using the tongs, Tom deposited the glowing object in the box, then covered it with plastic sheeting. A quick check by Geiger counter showed that the mystery cube was safely shielded by the Tomasite, then it was stowed aboard.

Now the crew showered Tom with questions about his strange find. One asked, “Is it some kind of death-ray machine?”

“I doubt it,” Tom replied, “or we wouldn’t be here now. After I investigate it, I’ll let you know.”

Despite Tom’s cautious replies, his own brain was seething with wild speculations. Obviously the cube possessed tremendous power. But what kind of power; power for what purpose? And how was it controlled? Above all, why had the space people left it in the cave?

“Tom, what about Chow?” Graves asked in a booming voice.

“I’m not forgetting him,” Tom replied, grim-faced. “There’s not much we can do, except wait.”

“Wait!” Bud exclaimed, eager for action.

“I’m sure we’ll hear from the Brungarians,”

Tom said coolly. “They’ll probably hold Chow as a hostage and try to make us—“

Skree-e-e-e! Tom’s words were drowned out by the shrill whine of a missile. Every head jerked upward as a silver blur streaked over the camp to a crash landing close by.

“Another message!” Bud cried out. He started forward until Tom commanded: “All of you stay here while I check. It may be explosive!”

Dashing to the spot, he unscrewed the nose section. Inside was a tube containing a note. Tom beckoned the other members of his expedition to come forward. As they gathered around him, he read aloud:

tom swift, u.s. commander:

BLAST OFF IN ONE HOUR, OR THE MAN WE TOOK PRISONER WILL BE KILLED. IF YOU OBEY, HE WILL BE RETURNED SAFELY TO EARTH. IF YOU DISOBEY, REMEMBER HE WILL DIE IN ONE HOUR!

“Those skunks!” Bud exploded, clenching his fists.

“Never mind all that!” Graves cut in. “What do we do now-clear out like a lot of whipped dogs and not even put up a protest?”

“Not on your life!” Tom snapped. He paced up and down, running his fingers through his blond crew cut. His brows were puckered in deep thought. Suddenly he stopped and his mouth relaxed into a thin smile. “I have an idea!”

“Let’s hear it,” Bud urged.

“It all depends on a hunch,” Tom said. “A hunch that the Brungarians are holding Chow prisoner outside their spaceship.”

Tom explained that their enemies would not want the American to learn any of their secrets. For this reason, they probably would not take him inside the spaceship until the last moment and then blindfold him.

“Let’s hope I’m right, because it’s our only chance. Now here’s my scheme.”

As the men listened, their faces brightened into grins of excitement as Tom told how he planned to use the atmosphere machine to outwit Mirov. Then he and Kent grabbed space suits, hopped into a tank, and gunned northward at high speed. Hank Sterling and Graves took off in another vehicle, heading south.

Meanwhile, one of the helicopters brought along on the expedition was hastily readied for flight. With Bud at the controls, it whirled aloft and sped toward the Brungarian base. As Tom had surmised, Bud saw that the transparent dome had been removed from the enemies’ spaceship to permit take-off. With an atmosphere now established, they had not bothered to replace the dome.

Hovering motionless at a safe distance, Bud trained binoculars on the camp. Chow’s guard was holding him outside the ship! The cook’s pudgy figure and his gaudy red-and-yellow cowboy shirt were unmistakable.

Flicking on the helicopter’s radio, Bud spoke a single word into the mike. “Roger!”

Then he flew back to the Titan and landed. The others who had remained at the base were already safe aboard. Bud climbed through the air lock and the hatch was sealed.

Meanwhile, his terse radio report had been picked up over the earphones by both tank crews, speeding toward the poles. Tom and Kent exchanged grins.

“So far, so good!” muttered the young inventor.

When they reached the north pole of the tiny moonlet, Tom jumped out of the tank. He hauled down the

atmosphere spreader and removed the Inertite core with the aid of a wrench. Instantly the red warning lights began to flash and the siren screamed noisily.

Quickly Tom scrambled back into the tank. As it roared off toward the enemy camp, he and Kent pulled on their space suits.

The next fifteen minutes were laden with suspense. Everything depended now on whether Tom's gamble would pay off.

Kent clutched Tom's arm as they approached the Brungarian base. "There he is, skipper!"

Inside his transparent emergency tent, Chow waved excitedly at them, his grizzled face creased into a broad grin. As Tom had hoped, the Brungarians, apparently at the first sound of the alarm, had fled into their spaceship, heedless of the prisoner's safety.

Chow was hauled aboard. "Brand my sagebrush tea," he babbled, "I jest knew you'd be comin' fer me soon's that sir-een started wailin'."

"Let's go!" Tom urged. "Mirov's men will remember their space suits in a minute and be after us like a swarm of hornets!"

CHAPTER 20

SABOTAGE!

FERVENTLY HOPING to escape pursuit, Tom drove at top speed from the Brungarian camp. At the north pole, he clambered out of the tank and started the atmosphere machine working again. Then he radioed Hank and Graves to set the one at the south pole in action.

The next minute, Tom's rescue party was on its way back to the American base, without any sign that they were being followed by the Brungarians.

Kent Rockland heaved a deep sigh of relief. "Just tell me one thing, Tom," he muttered. "What would you have done if Chow had been inside the spaceship?"

Smiling grimly, Tom considered the query. "If Chow had been inside, I'd have gone in for him!" From the ring in Tom's voice, Kent and Chow knew the young inventor was serious.

Arriving at the base, they were greeted by cheers and shouts of welcome. With the atmosphere normal again, the crew swarmed from the Titan to surround the rescue party.

Bob Jeffers slapped Chow on the back. "What was the idea of letting that big snake grab you?" he joked. "Don't they grow 'em that big in Texas?"

Chow grinned and scratched his head. "Pardner, if I ever saw a sidewinder like that on the range," he

drawled, "I'd sure crawl into the nearest gopher hole an' pull it in after me!"

Tom hurried aboard ship and went to the radio room. As soon as Billing had made contact with the space station, Tom related the whole story of the kidnaping to his father.

"Dad, we must do something and do it fast!" Tom pleaded. "Otherwise, Mirov may have us at his mercy!"

Mr. Swift's voice sounded anxious. "Haven't heard a word yet from the government authorities," he said. "Until they give us instructions, try everything possible to avoid outright hostilities. Remember, a fight up here could lead to a deadly atomic war on earth!"

Tom promised to avoid trouble if humanly possible. As he signed off, Bud strode in. From the angry flush on his face, Tom guessed what was on his mind.

"Simmer down, pal," he advised gently, laying a hand on Bud's shoulder. "Whether we like it or not, we must keep cool."

"But Mirov double-crossed us, Tom! We can't just sit back and let him get away with it!"

"Bud, there's too much at stake to lose our heads," Tom said quietly. He related the conversation with his father.

Bud listened, but insisted stubbornly, "I still think we should have a showdown."

"There's one thing I can do."

"Name it," Bud challenged.

"Try to figure out the scrambling devices on their ship's radiotelephone system! If we could eavesdrop and pick up their plans in advance," Tom went on, "we'd at least have a better chance of figuring out some defense."

"That won't be easy," Billing warned.

"No, but it's worth a try," Tom replied.

He requested Billing to set up a radar sweep around the Titan, and asked Bud to detail men for outside guard duty on a round-the-clock basis. Then he hurried to his laboratory and settled down to work in the electronics cubicle.

Two hours later, as Tom finished wiring a chassis studded with gleaming vacuum tubes, transistors, and condensers, Bud entered. He stared at the young inventor's contraption.

"Bid you figure out a way to break their scramblers?" Bud asked.

"You're looking at it, pal!" With a grin, Tom unplugged his soldering iron and lifted the electronic chassis off the bench. "Come on. Let's take it to George."

In the communications room Billing listened in amazement as Tom explained how his un-scrambler worked. He hooked it into the ship's radio receiver.

“Let’s see if we can pick up anything,” the young inventor added. He rotated the directional antenna to get the strongest signal, then turned several dials.

Presently a voice came through, barking out an order in Brungarian. Another voice responded. Moments of silence followed, then another brief exchange of words. Though none of the listeners could understand the foreign tongue, the words crackled over the mike in clean, unmistakable fashion.

“You’re a wonder, Tom!” Billing exclaimed.

Tom waved off the compliment. “Have someone monitor their signals around the clock,” he told the radio chief. “Never mind the ordinary chitchat such as we just heard. But if you pick up any long conversations, have Br. Jatzak in sick bay translate the message.”

“Right, skipper!”

Since Billing’s watch lasted for another hour, the boys left. Bud now told Tom that while he had been working on the machine, the crew had made plans for a welcome-home feast for Chow that evening. He added that Arv Hanson, an enthusiastic back-yard chef when at home in Shop-ton, had taken over the ship’s galley and had produced an appetizing array of dishes.

“Wait till you see it, Tom,” Bud said, and led the way to the galley.

The others were waiting. They laughed and talked as they circled around the table, loading up their plates in buffet style.

Arv himself, six-foot and heavy-set, stood in the doorway with a big spoon and a tall white chef’s hat, beaming happily.

“Boy, this is delicious!” said Hank Sterling, biting into a golden-brown fish ball.

“It’s Arv’s smorgasbord touch!” Bud exclaimed, referring to Hanson’s Swedish background.

Chow was enjoying himself as much as his mates. “Brand my kippered herring,” he remarked between mouthfuls, “if I don’t watch this hombre Hanson, I’m goin’ to be out of a job around here fer sure!”

Suddenly Tom stopped short in surprise as Ron Corey handed him a small dish of fresh, tiny-leafed spinach. “Say, where did this come from?”

Corey and Jim Stevens doffed imaginary hats and took a bow.

“Little Luna’s wonder,” said Jim. “Forced plant growth in the exhilarating atmosphere you have created here.”

As everyone else’s jaw dropped open, he went on, “Yes, indeed, the product of earth’s new moon.”

Tom tasted the greens which he declared to be delicious, then congratulated the botanists.

Jim and Ron glowed with pride as their messmates slapped them on the back. After supper, everyone except Billing trooped outside for a look at their satellite garden.

The vegetable plot consisted of a small patch of soil, not far from the Titan but carefully concealed by rocks. Although almost sundown, there was still enough light for the men to see neat rows of sprouting green vegetables interspersed with cactus to keep water evaporation loss to the minimum. The tiny, low-growing plants seemed to be thriving.

“But how did you keep them from dying when the atmosphere machines conked out?” Tom asked.

Jim Stevens pointed to two emergency tent packs, one at either end of the garden. Each was equipped with a small automatic mechanism.

“This device,” Jim explained, “automatically trips the oxygen release button and inflates the tent whenever the surrounding air pressure drops. George Billing helped us rig ‘em up.”

“Think of it, Tom!” said Ron Corey enthusiastically. “With your atmosphere machines, man could be self-sustaining in a matter of months, even on the asteroids!”

Just then, Billing’s voice sounded over the loud-speaker. “Emergency, Tom. Come here, quick!”

Tom hurried to the communications room, with Bud and Graves at his heels. “What’s wrong, George?”

“The TV camera at the south pole has blacked out.”

Bud glowered. “Mirov’s work, I’ll bet!”

“We’ll find out,” Tom said. As he started off, Graves held him back. “Let me take care of this. It was my job in the first place. I’ll round up a couple of TV men.”

“Okay,” Tom agreed.

Half an hour later Graves reported from the south pole. “We can’t find out what’s wrong with the camera.”

“Okay. Bring it back,” Tom replied. He was disturbed by this temporary loss of protection. “At least we have the alarm system,” Tom added.

“By the way,” Graves boomed, “I saw a lot of interesting ore on the way down here. How about a team of us going out to collect some more rock samples?”

“Let’s wait until tomorrow,” Tom replied. “I’d rather keep everyone close to the base until we find out whether the Brungarians are going to make more trouble.”

The next morning, Billing reported that nothing suspicious had been picked up from the enemy radio, so Tom gave a reluctant approval to the expedition Graves had suggested. The four-man team, including Kent and two other metallurgists, would be gone for twenty-four hours. As they prepared to take off in one of the large helicopters, Tom was still worried.

“Keep in touch by radio,” he warned them. “And if the alarm goes off, be sure to land right away!”

“Don’t worry.” Kent grinned as they shook hands. “If the atmosphere goes blooey, we’ll have to land!”

As the rotors whirled into motion, the helicopter soared skyward. Tom and Bud stood waving good-by

until the occupants of the cabin were lost to view, then strolled back to the Titan for a visit with Dr. Jatczak.

They found the astronomer sitting up in his bunk in sick bay, poring over a chess problem.

“Hi, Doc! Who’s winning?” Bud greeted him.

“You’re looking lots better,” Tom said.

Dr. Jatczak smiled with pleasure at seeing the two boys. “Thank you. I am indeed feeling much stronger.”

But the smile soon faded. Behind the thick-lensed spectacles, his blue eyes twinkled less brightly. He seemed restless and fretful. “If only I could get back to work again with my telescope!” he sighed.

“You’ll be up and around soon,” Tom assured him.

“Which reminds me,” Jatczak confided, “I believe I may have stumbled on something important-truly momentous, in fact! But I wish to check my observations further before I tell you any more.”

Both Tom and Bud were highly curious, but the astronomer refused to reveal his secret discovery. After chatting a while longer, the boys left him so as not to tire the man too much.

“Corey asked me to come to the garden,” Tom said. “He and Stevens are going to inject some special liquid fertilizer into the root system of certain plants.”

The boys went outside and watched the process with interest.

Suddenly Ron Corey exclaimed, “Say, what’s the matter with those crazy tents? The alarm system didn’t go off, but the tents are inflating!”

“Quick!” Tom warned. “Inflate your own tents, fellows! The atmosphere machines must have been sabotaged!”

CHAPTER 21

A POLAR BATTLE

AS the two young agricultural experts triggered the oxygen cartridges, their tents ballooned out, enclosing the men in transparent shells.

Tom and Bud, meanwhile, raced toward the Titan, into which most of the crew had fled.

“What about inflating our tents?” Bud yelled.

“We have a job to do!” Tom called back over his shoulder. Stumbling across the rocky ground, he dashed on. With every step, the air seemed to be getting thinner!

“Think we can make it?” Bud gasped, close on his friend’s heels.

“We’ll have to!”

Sharp pains were racking their chests and muscles by the time they finally clambered into the ship’s air lock and sealed the hatch behind them.

“Oh, brother!” Bud panted, wiping his forehead. “A couple more minutes in that low pressure and we’d be popping like firecrackers!”

Tom whirled the release valve to open the inner door of the air lock, and hurried to the radio room. “Did you pick up anything on the TV cameras?” he asked Billing.

“No luck. The only camera that was working blacked out a few minutes ago.”

“I was afraid of that.” Tom turned to Bud. “Break out our space suits! I’ll round up Hank and some other men.”

“What for?”

“Repair job at the poles. We may be in for a fight!”

Quickly the repair party assembled outside the Titan. Tools and replacement parts for the atmosphere machines were loaded aboard a pair of caterpillar tanks. Bud and two electronics men climbed into the first vehicle.

“Good luck!” Tom called over his suit transiphone.

Bud waved back. “Ditto, skipper!”

As Bud’s tank roared off toward the north pole, Tom and Hank Sterling gunned their engine and the tractor treads ground into action. At top speed the tank rumbled southward.

When the two sighted their destination, Hank exclaimed, “Wow! A reception committee!”

Ahead, grouped around the sabotaged atmosphere machine, loomed a small but menacing group of Brungarian guards. In their big transparent helmets, and armed with electronic homing mortars and automatic grenade pistols, they looked like a cartoonist’s conception of invaders from another planet. A short distance away stood the tank in which they had come.

“Halt!” came a rasping voice over the radio.

Tom answered coolly on his mike. “We’ll give you Brungarians exactly sixty seconds to leave the area!”

His words were greeted by a splutter of incredulous rage. Then the same voice barked out a guttural command. Instantly the Brungarian weapons spat a fiery hail at the tank.

The attackers’ looks of triumph turned to utter consternation as every shell proved ineffective. Instead of

blowing up the tank, the missiles glanced off harmlessly!

Hank chuckled. "Seems as if our Tomasite coating is one secret they didn't find out!"

"Either that, or they weren't expecting the tank to be coated with it," Tom suggested. The Swifts' miracle plastic formed an impervious shield-its electromagnetic properties making it impossible for the shells to detonate!

"Boy, could we mow them down with a turret gun!" Hank said wistfully.

Tom smiled, then said, "Instead, let's give 'em the old goal-line rush, Hank!"

He gunned the tank forward, straight at the Brungarian troops!

The attackers stood their ground for a moment, firing a few more futile bursts. But as the tank bore down relentlessly, they scattered in panic!

"Hank, take the wheel," said Tom, "and keep those guys on the run while I fix the atmosphere machine."

"Right."

Tom grabbed up an armful of tools and several tubes. Then he opened the air lock and jumped out while the tank was still in motion. He raced to the broken atmosphere machine and made a quick diagnosis of the damage.

Hank, meanwhile, was roaring around the pole in widening circles. Each time a Brungarian fighter aimed at Tom, Hank would rout him out with lunges of the tank, at the same time keeping the enemy away from their vehicle.

Suddenly Bud's voice crackled over the tank radio. "Barclay to Swift! How are you making out?"

Hank grinned and flipped on the mike. "Just great, pal. How about you?"

Bud chuckled. "When they couldn't blast us, they ducked for cover in their tank like scared rabbits! Briggs and Larsen are out fixing the atmosphere machine now."

"Same here, except Tom's doing the fixing, and the enemy are still shooting."

"Incidentally," Bud added, "the Brungarians smashed the only TV camera that was working."

Comparing reports, Hank and Bud concluded that the saboteurs had inflicted little damage, because they probably planned to rebuild the atmosphere machines for their own use after knocking out the Americans.

Tom soon replaced the broken tubes in the radio generator and straightened several parts that had become bent when the air spreader crashed to the ground.

"All set, Hank!" he radioed, when the machine was again in operation.

Quickly the tank pulled close to pick him up. Once aboard, Tom sent an urgent message to Billing, telling him to dispatch two tank crews at once to each pole in order to guard against further sabotage,

and signed off.

“Now let’s mop up those space rookies!” Tom told Hank.

“It’ll be a pleasure!” the engineer replied.

One by one, their vehicle flushed out every Brungarian still lurking nearby. Each man was chased relentlessly until he flung down his gun. The weapons were then ground into twisted metal under the tank treads.

Tom now ordered Mirov’s men to return to their own vehicle. They did this without argument and sped off.

Bud called again. “Okay here, fellows. Briggs and Larsen are back, and our atmosphere machine is running again.”

“Guard tanks are coming to take over,” Tom told him. “Stick around until they show up.”

An hour later Tom and Hank returned to the Titan. Billing met them with a worried frown as they stepped through the air lock.

“Anything wrong?” Tom asked.

“Those metallurgists-Graves’s unit-I haven’t heard from them since just before the atmosphere machines were wrecked.”

Tom groaned. “Without the warning alarm, they probably didn’t have a chance to land and inflate their tents. Have you tried to make contact?”

“Been trying ever since you left,” Billing said.

“Well, keep it up. Is Bud back yet?”

“Here he comes now.” Hank pointed through the porthole at an approaching tank.

Tom hurried outside and greeted his colleague with the bad news about the missing metallurgists, adding, “I’m going to take the other copter and look for them. Come along, Bud.”

The boys ran to the spot where the helicopter was berthed and climbed in. Tom switched on the ignition and pressed the starter. The rotors whirled and the helicopter rose quickly. They searched for nearly fifteen minutes before Tom sighted a group of tents massed together. Nearby was a wrecked helicopter.

Tom found a spot to land, then the boys rushed over to the first tent and lifted it. Graves, lying underneath, his chest heaving, stared bewildered. “You-you! The air’s-almost-gone!”

“The atmosphere’s been restored,” Tom told him, rushing to another tent.

Bud was darting from one covering to another, telling the grateful men their worries were over. After the metallurgists had filled their lungs and regained their strength, stories were exchanged.

“It was a close squeak!” said Graves. His group had crash-landed when the atmosphere began to

dissipate. All of them had managed to inflate their oxygen tents in time, although one man had bled a little from a burst capillary.

“Good thing we were only two hundred feet up, or it might have been the end for all of us!” the executive added thankfully.

Tom and Bud examined the helicopter’s landing gear and controls which had been damaged in the emergency landing. Mechanics would have to come and repair them.

“We’ll all squeeze into our copter,” Tom decided.

“Say, I’m almost forgetting the most important news!” Graves interrupted as they were getting in. “Ever since we landed on this satellite, my boys have been finding traces of a new light metal. Up to now, there didn’t seem to be enough to matter, but this time I think we’ve spotted a big deposit.”

As the helicopter rose, he directed Tom to the area.

“There it is!” Jason Graves said a few moments later. Below, the rocky yellow slopes of a depression were streaked with silvery traces.

Tom landed the craft and the men fanned out with pickaxes to collect samples. A short time later they met at the helicopter, each man carrying several hunks of rocky ore.

Eager to learn what it was, Tom and the others hurried back to the Titan. Reaching his laboratory, Tom placed the samples, one by one, in his spectrograph. Graves and Kent looked on. They were deeply disappointed as the young inventor shook his head again and again.

“All I can detect are metals we already know about. Nickel, chromium, titanium, tantalum, a few traces of columbium—that’s about it.”

“You haven’t checked the largest sample yet,” Graves prodded.

Tom placed it in the spectrograph. When the metal was heated to incandescence, he studied the analysis on the photographic plate. Suddenly his face lit up with excitement.

“This is a tremendous discovery!” Tom exclaimed.

CHAPTER 22

CAVERN OF SECRETS

“WHAT IS IT, Tom?” Kent asked excitedly as everyone stared at the rock sample.

“A metal not found on earth. Its spectrum indicates unusual qualities.”

Tom at once began a series of tests, assisted by Graves. After a workable amount of metal had been isolated from the ore by electrolytic reduction, it was rolled, bent, twisted, dented, and torn apart on the physical testing machines.

Graves etched cross sections of the metal and studied them under a high-powered microscope. At the same time, Tom was dousing the silvery stuff with acids and other chemical reagents to determine its resistance to corrosion.

“It’s incredible!” gasped Graves, looking up from the microscope. “This metal surpasses anything I’ve ever studied!”

Tom nodded as he wiped his hands carefully and took off his rubber apron. “Wait’ll I give you the low-down on its chemical properties!”

Twenty minutes later Tom called his entire expedition together in the mess hall.

“Here’s a report on the new metal, which we’ve called Lunite,” Tom said above the babble of excited voices.

Instantly there was silence, except for the sound of Chow stirring a pot of soup in the galley.

“This new metal,” Tom went on, “is amazingly strong and workable. It’s highly reflective, and much lighter than magnesium!”

An audible gasp of amazement filled the room.

“Even with the fuels available now,” Tom continued, “an Inertite-coated spaceship made out of this stuff could roam the whole solar system!”

The news electrified the technical men. Everyone talked at once, shooting off ideas like a shower of sparks. Some discussed the first trip to Mars or Venus; others talked about the fortunes to be made mining valuable minerals on the asteroids.

“Someday,” boomed Graves in the hearty voice with which he often impressed Chamber of Commerce luncheons, “someday, if we can discover a new source of power to produce unheard-of speeds, we shall reach the stars!”

“The stars!” echoed Dr. Jatczak. Behind his thick-lensed spectacles, the astronomer’s blue eyes stared dreamily into space. “Think of it—a whole vast universe, scarcely probed by science! And now we may live to explore it at close range! Alpha Centauri, Sirius, the red giant Antares!”

Suddenly the astronomer exclaimed, “Which reminds me—” Jumping up from the table, he dashed out of the compartment.

The others stared after him, mystified.

“He’s working on something unique.” Tom smiled. “But so far Dr. Jatczak hasn’t given us a clue to what it is.”

Turning to Graves, the young inventor added, “Incidentally, I believe this new metal may explain the satellite’s high degree of reflectivity.”

Graves nodded. "Undoubtedly! That's why it seems so bright to observers on earth!"

Before lunch Tom radioed a full report of the new metal to the space station.

"A wonderful discovery!" Mr. Swift responded. "I'll be eager to experiment with it! This alone may well repay the cost of the whole expedition, as well as being a great boon to mankind."

"That was my good news, Dad. Now for the bad." Tom told how the Brungarians had sabotaged the atmosphere machines, and about the skirmish at the poles which had followed.

Mr. Swift was shocked. "Tom, this is outrageous! The results might have been fatal for every American!" After a worried pause, he added, "The State Department has made a protest to Brungaria but so far has received no reply."

"What if they shoot at us again, Dad?"

"Don't start a war at any cost!"

After talking it over briefly, Tom agreed to follow a policy of extreme caution. Meanwhile, his father pointed out, the United States would no doubt send a second and more drastic note to the Brungarian embassy.

"I'll set up another kind of alarm system," Tom told his father, saying it would be an electric-eye warning gadget around both atmosphere machines and the ship itself. If anyone should approach within a hundred feet of any of them, alarms would sound throughout the Titan.

"An excellent idea, son!" Mr. Swift said approvingly.

After signing off, Tom issued orders for the damaged helicopter to be repaired, and then sketched out plans for the warning system, which he turned over to the electronic technicians.

Next, donning a hooded green anti-radiation suit, Tom carried the strange, glowing ray device to his laboratory, along with the other articles found in the cave. For more than an hour, he studied the cube with every scientific tool at his command, including his own spectrograph, a diffraction grating, X rays and ultraviolet rays, a helium cryostat, and the electron microscope. None of them enabled Tom to fathom the cube's secret. The young inventor could not even determine how to take the thing apart!

"I have a hunch this gadget might be the energizer for the satellite's artificial gravity," he mused. "But where does it get its power? And how is the power transformed into controlling gravitational pull?" Tom was baffled. He must give the problem more study.

A short while later Tom summoned Bud and Kent to his laboratory.

"What's up?" Bud asked.

"I've been translating the space symbols on these objects," Tom announced, laying down a copy of the space dictionary. "The gist of it is that the space beings moved this satellite all the way from the asteroid belt into its present orbit around the earth. Don't ask me how, but they did!"

The boys were thunderstruck. Kent said in awe, "Think of the tremendous power your space friends

must have at their command!”

“But why did they do it?” Bud asked.

“They wanted us to set up an earth-type atmosphere here,” Tom explained. “They planned to try living in it to see if they could survive on earth.”

“Then why didn’t they stay here to find out?”

“Remember Mirov telling us about that strange spaceship they spotted on radar?” Tom asked. “I believe our space friends were in it. They sensed the Brungarians were treacherous, and might wipe them out if they made contact.”

“But if those space beings have such highly developed scientific power,” Kent said, puzzled, “why should they fear anything?”

Tom shook his head. “It’s a good question, all right. But I can’t even hazard a guess, since I know nothing about the physical make-up and characteristics of our mysterious friends.”

Suddenly Tom jumped up, snapping his fingers. “Say! Maybe there’s some more information on the objects we left in the cave!” He decided to investigate immediately.

Outfitted in anti-radiation coveralls, and with Tom carrying the space dictionary, the three boys started for the cave. Kent held a walkie-talkie to keep in touch with the Titan in case of attack, while Bud had a powerful flashlight and three sacks. They found Robbie the Robot propped up near the entrance, still radioactive.

“We’d better leave the walkie-talkie outside, too, so it won’t blow a tube from the high radiation in the cave,” Tom suggested.

Entering the cavern, they noticed for the first time that the walls themselves were inscribed with space symbols. Tom translated these by the glare of the floodlight.

“Well, my hunch was right,” he announced. “That cubical gadget is an energizer for the artificial gravity.”

The space beings, it seemed, had set up a gravity similar to that on their home planet. They reasoned that if Tom should succeed in creating an atmosphere, this gravity would help to make the gases cling to the surface of the satellite. Then, too, it would give Tom some idea of the type of gravity to which the space people were accustomed. Although they believed they would be able to withstand a much higher gravity, the mysterious people realized the satellite was not the place to try it.

“Why?” Bud wanted to know.

“Because a higher gravitational pull this close to earth would cause tides that might flood every continent,” Tom explained. “Which means they must know plenty about our planet!”

The rest of the message stated that the space beings hoped this experiment would teach them how to adapt themselves to earth-type conditions for long periods of time.

Tom spent the next half-hour translating symbols inscribed on other objects on the shelves. But these yielded no further clues about the strange cube, nor why the space beings had left.

“Guess we’ll just have to figure it out ourselves,” Tom decided at last. “Well, in the meantime, let’s haul this stuff back to the ship.”

As the boys emerged from the cave, each carrying a sackful of the inscribed objects, they heard a crackle of static and a faint voice.

“Hey, it’s the walkie-talkie!” Bud exclaimed.

Dashing forward, Tom turned up the volume. He was just in time to hear Billing’s voice:

“-to the ship at once! Tom, return to the ship at once!”

CHAPTER 23

A MADMAN’S SCHEME

FLIPPING ON THE MIKE, Tom asked Billing why it was imperative for him to return so quickly.

“I’m picking up something important from the Brungarian radiotelephone system,” Billing reported. “It sounds like a bad quarrel. Br. Jatczak’s on his way here to the radio room right now to translate.”

“We’ll get back as fast as we can,” Tom promised. Slinging his bag over one shoulder, he told Bud and Kent the news. “Let’s go!” he urged.

Leaping like gazelles in the low gravity, the boys hurried back to the Titan. In the ship’s communication room, they found Billing and Br. Jatczak. The radioman was watching several dials tensely as he monitored the signal. As Br. Jatczak listened, he scribbled notes at lightning speed. A torrent of guttural abuse poured from the set.

“It’s Mirov’s voice!” Tom whispered tensely.

Jatczak nodded swiftly. Just then another voice broke in. This one was high-pitched and shrill, half pleading, half accusing.

“That fellow speaking now-Mirov calls him Nirotk!” Jatczak interjected.

“Must be Karl Nirotk!” Tom muttered.

“Who’s he?” Bud asked.

“One of their top-level nuclear physicists!”

Quickly Tom scanned the notes that Dr. Jatczak had dashed off. It was evident that Nirotk was begging Mirov not to go through with some plan.

Tom held the earphones out to Dr. Jatczak. "I suggest you put these on and switch off the speaker. Then translate out loud."

The astronomer hastily complied and at once the whole conversation became easier to follow.

"I insist you report this frightful plan to our government immediately!" Nirotko was saying. "They already distrust your craze for power, Mirov, but this shows you are even more ruthless than they suspected! Don't you realize our government has spies watching you every moment?"

"They know you hired the man who tried to photostat the plans for the Swift atmosphere machine. And they know you plotted that stupid attack on the Swift cargo rocket. Both times the results were nil-you succeeded only in smearing your own prestige!"

Tom and Bud exchanged startled glances as Dr. Jatczak translated this outburst. Here was proof that Mirov had been the instigator of much of their troubles. The next words were even more revealing.

"It's true our government did everything possible to stop the Swift expedition," Nirotko went on. "First they spread suspicion that the Swifts were responsible for the new satellite-that fool, Professor Voort, was always sympathetic to our cause! Then the news leak . . . and the bomb planted in their ship . . ."

Bud clenched his fists. "The sneaking rats!"

"Oh, yes, our government tried to stop them!" Nirotko's voice continued shrilly. "They agreed to let you disguise our ship and try to prove we landed before the Americans. Even the kidnaping was not disapproved. But sabotaging the atmosphere machine was useless, as I warned you!"

"In each case, you have failed, Mirov! You are already in disfavor. But if our leaders knew of this insane plan of yours, they would never allow it-never! Not even to recoup all our losses!"

At this point Mirov's voice broke in, snorting with rage. Dr. Jatczak reported, "He's telling Nirotko to get out-that nothing will stop him from carrying out his plan!"

Then Nirotko spoke again. "When you set off those atomic bombs by radio one hour from now, they will do more than just destroy a part of the satellite and release deadly radiation. You have miscalculated again, Mirov. They will blow this satellite to pieces. It may even be that the gravitational pull between earth and the moon will be upset. Don't you realize, Mirov, they could cause a collision which would destroy the world?"

Gasps of fear escaped from both Bud and Dilling as they listened to the startling translation. Tom said nothing, but his face was bleak. The safety of the whole world was in danger!

"Skipper, look!" the radarman broke in, pointing to the screen. A blip of light was visible at three o'clock!

"The Brungarian spaceship!" Billing exclaimed. "They've blasted off!"

"Looks as if they're hovering at about a hundred and fifty feet of altitude," the radarman added.

Jatczak continued translating. Mirov was speaking again, ranting at Nirotko. But his words struck terror into the hearts of the Americans.

“You’re a fool, Nirotk!” he gloated. “A fool and a weakling! Did you think your fumbling attempts could stop me? Me, the great Mirov? I tell you the bombs have been set and they will be detonated on schedule!”

Suddenly Dr. Jatzak’s face went white with horror. “He’s ordering Nirotk to be thrown out of the ship!” the astronomer gasped.

The next instant, Jatzak tore off his earphones with a shudder, as a terrible scream was heard by everyone in the Titan’s communication room!

CHAPTER 24

RACE WITH DEATH

FOR A MOMENT the Americans stood frozen with horror. Nirotk’s ghastly shriek still rang in their ears!

In every mind was the same nightmarish picture-the picture of a helpless and fear-crazed scientist being hurled from the Brungarian spaceship to the rocky ground far below!

It was the most brutal and cold-blooded act Tom had ever known. Shuddering, he managed to pull himself together. Unless he and his friends acted at once, an even more terrible catastrophe loomed in the offing. Everyone on Little Luna would be blasted to death!

“We must move fast!” he cried out.

Dr. Jatzak, still weak from his recent illness, looked dazed and bewildered. “Tell us what to do!” he pleaded.

Tom barked out crisp orders. “Bud, go warm up two copters. Dr. Jatzak, please find Graves and Doc Simpson and tell them to report for take off immediately. Kent, rustle up two super-Geiger counters from the supply room.”

As the three rushed off to carry out his orders, Tom turned to Billing. “Call the space station pronto!” While waiting, he got an approximate fix on the Brungarian ship’s position.

“Here’s your father, Tom!” Billing reported a moment later.

Grabbing the mike, Tom slid into the chair which Br. Jatzak had vacated. Breathlessly he relayed the terrible news about Mirov’s mad scheme-a scheme which might blow up the satellite!

“Good heavens, son, this is horrible!” gasped Mr. Swift, trying to keep his voice under control. “You must find those bombs! It’s your only chance-maybe the world’s only chance!”

“We’ll try, Bad! I believe our best bet is to locate Nirotka. If he wasn’t killed, he may be able to tell us where the bombs are planted.”

The elder scientist promised to radio the Brungarian authorities at once, in the slim hope that they might be able to reach Mirov in time with strong counterorders. Though frantic for his son’s safety, Mr. Swift forced himself to keep calm.

“Good luck, Tom! We’ll all be praying for you!”

“Thanks, Bad. And if-if anything happens, give my love to Mom and Sandy and-and Phyl!” Tom gulped, then signed off. As he sped to the ship’s air lock, Tom realized all too well that even his beloved family, in fact all mankind, were in dire peril.

Outside, Bud, Jatczak, Kent, Graves, and Doc Simpson were waiting near the two purring helicopters. Other crewmen clustered around in stunned silence. News of Mirov’s mad plot had spread like wildfire.

“What are our chances, skipper?” Hank Sterling asked quietly.

Tom shrugged. “We’ll need luck,” he admitted. Hank laid a hand on the young scientist’s shoulder without speaking, while others pressed forward to shake his hand and wish him success.

“Thanks, fellows!” A lump rose in Tom’s throat as he realized that he had won the crew’s complete trust and affection. They were depending on his leadership to save them.

Quickly the six-man party took off, three in each helicopter. Tom piloted the lead ship, Bud the other. Skimming eastward, they headed for the spot which the radarscope had indicated.

Unfortunately, the ground below was broken and shadowed by rocks, crags, and gulches. Precious minutes slipped away as they swept the terrain with binoculars.

“There he is!” The cry broke from Kent who was in Tom’s craft. He pointed to a man’s figure, spread-eagled grotesquely on the rim of a sandy canyon.

Both helicopters landed fast. The Americans ran to Nirotka’s side, and Doc Simpson examined him with swift but unhurried precision.

“He’s still alive,” the physician muttered. Incredibly, he reported, no bones were broken, the low gravity having eased the victim’s terrible fall.

As Doc Simpson applied stimulants, Nirotka began to revive. He was a thin, bony-faced man with a sallow complexion, pale now from shock. He wore a trim black goatee.

At first his deep-set gray eyes seemed glazed, as they roved over the faces of the Americans looking down at him. Then, with a rush of returning consciousness, he jerked upright and burst into a frantic torrent of words.

“What’s he saying?” Tom asked quickly.

“He’s telling us about the bombs,” Dr. Jatczak replied. “He says they were planted along the equator on opposite sides of the satellite. Mirov plans to detonate them by radio as soon as he estimates his spaceship is safely out of range.”

“How soon will that be?”

After hastily checking watches, Nirotko estimated it to be less than half an hour!

“Tell him,” Tom requested Dr. Jatzak, “that we heard his argument with Mirov—that we want to save him, as well as ourselves and perhaps the whole world! We must disarm those bombs before they go off. Ask him to tell us exactly where they are.”

Dr. Jatzak translated rapidly. His face fell as he listened to Nirotko’s reply. Turning back to Tom, he gasped:

“Nirotko says we may be able to disarm one bomb but not the other!”

“Why not?”

“It’s at the bottom of a deep volcanic pit. The inside walls are too steep to go down by tank, and climbing down would take at least a couple of hours!”

The Americans stared at each other in sick dismay. Tom felt an icy chill of fear strike the pit of his stomach, but he forced himself to think fast.

“I’ll go down by copter!” he announced. “Ask Nirotko where the pit is located.”

There was another rapid exchange in the foreign tongue. Then Jatzak turned and translated the directions which Nirotko had given him.

“It must be one of those empty craters we spotted just before we fell into Devil’s Hole!” Bud exclaimed.

Tom nodded, adding to Jatzak, “How about the other bomb?”

The astronomer quickly obtained directions for finding it. To get the greatest radiation fallout, Mirov had planted the atomic bombs at geographically opposite points on the satellite.

Again Tom issued orders. Doc Simpson and Dr. Jatzak were to stay and tend Nirotko. Kent and Graves would take off in one helicopter to find and disarm the surface bomb. He would make the descent into the volcanic pit.

“Not without me!” said Bud with determination.

Since a single lost moment might mean the difference between life and death, there were hasty farewells and shouts of “Good luck!” Then the two teams clambered into their helicopters.

Kent and Graves flew westward, skimming along the moonlet’s equator. The spot described by Nirotko was an uneven rocky plain, mostly reddish in color, though splotched with grays and greens.

As Kent steered the helicopter in a zigzag course across the plain, Jason Graves listened to the super-Geiger counter, designed by Tom for uranium prospecting by air.

“No reaction?” asked Kent, as they reached the crest of hills bordering the plain.

“Not a sign,” Graves muttered in a worried voice.

Turning the ship, Kent flew back across the plain, this time widening his search pattern. Still the counter failed to give off any clicking.

“Sure it’s working?” Kent asked desperately.

“Sure I’m sure!” Graves flicked the test switch and a violet bulb glowed. “That proves the counter circuits are all functioning okay.”

The men were baffled. Panic mounted as they realized time was running out.

“Maybe we have the wrong location!” Kent exclaimed. “Let’s try beyond those hills.”

Crossing the ridge, they spotted another red-rock plain. This time, as Kent swept the area, the counter began to click loudly. ‘You’ve hit it!’ Graves cried out. Kent plunged the craft straight downward, near the point where the signal was loudest. As the landing gear touched ground, both men jumped out.

“There it is!” Kent yelled. The device was sticking out of the ground. Grabbing wrenches and screw drivers from the helicopter’s tool kit, the two Americans hastily ripped off the radio-controlled detonator.

“Well-that-that takes care of this one!” gasped Jason Graves. His heart was pounding, and his voice was shaky with relief. “Now if Tom and Bud-“

Meanwhile, after flying east, the two boys had found the volcanic pit where the other bomb was planted. A steady click-click came from their super-Geiger counter as they hovered over the yellow crater.

Bud gulped as he glanced down. The opening was barely wide enough to admit the helicopter!

“Going to be a tight squeeze, skipper!”

“We’ll make it!” Tom said, gritting his teeth. “We’ll have to make it!” He glanced at his wrist watch. “Eight minutes left!” Cautiously he eased the helicopter downward into the chasm.

Suddenly the stabilizer rotor scraped one of the pit walls, smashing the blades. The helicopter lurched wildly.

“Hang on, Bud!” Tom yelled. “She’s out of control!”

The craft pounded against one wall of the crater, ricocheted, and scraped the opposite wall with a nerve-shattering screech. A second later both boys were slammed against the dashboard and knocked unconscious as the helicopter plummeted toward the bottom of the pit where the bomb lay!

CHAPTER 25

A HERO’S WELCOME

AS THE SECONDS ticked away, Tom and Bud lay motionless in the helicopter's cabin. Every passing moment brought closer the blast that might destroy the world!

Tom was the first to stir. His eyes fluttered open. With a groan, he struggled slowly upright, clutching the pilot's seat for support.

Even after he got to his feet the young inventor swayed dizzily for a moment, trying to regain his bearings. Then his eyes fell on his wrist watch.

Less than one minute to go!

Tom's brain cleared as if someone had splashed him in the face with cold water. "Bud!" he yelled, shaking his friend by the shoulder. "Wake up!"

Without waiting to see if his pal responded, Tom grabbed tools and burst out of the cabin. By a miracle the helicopter had not landed on the bomb, which lay a few feet away.

With frantic fingers, Tom tackled the job of disconnecting the detonator. How many seconds still remained before Mirov would throw his radio switch? Even a watch could not be relied upon exactly-Nirotko had only estimated the time!

"I must keep cool," Tom muttered.

"Can I help?" Bud staggered out of the cabin, shaking his head groggily.

"Here! Hold the wrench on that nut."

Tom's own hands were trembling. Beads of sweat stood out on his forehead. Bud, too, was gripped by the terrible tension. Soon he could hear the blood pounding in his ears.

Moments later, the job was completed!

"You did it, pal!" Bud said hoarsely, a wan grin on his face.

White-faced and panting, the two boys sank to the ground to recover their calm.

Presently Tom actually smiled. "Graves must have found the other bomb. Now all we have to do is climb out of this pit!"

The boys eyed the beetling rock walls that hemmed them in on all sides. A little more rest, and they started up. When they had clambered halfway out of the crater, a welcome sound came to their ears. The other helicopter!

It hovered into view overhead. Kent and Graves lowered a rescue ladder and the boys climbed up.

"Whew!" said Bud, as he stepped into the craft.

"Saving the whole world in a split second is more than I bargained for! Don't wish that on me again, space boy!"

Tom grinned, then radioed Billing as the helicopter rose again. "We're safe, George, and everything's okay. Contact the space station at once and pass on the good word. Tell Dad I'll give him a full report later."

After picking up Jatzak, Doc Simpson, and Nirotko, the overloaded helicopter flew back to the Titan, where a scene of wild rejoicing took place.

Chow was already preparing a banquet to celebrate the great occasion. The crewmen gasped and cheered when he brought on sizzling T-bone steaks.

"What did you do, Chow? Rope Taurus, the bull?" Bud quipped, slicing another forkful of the juicy meat. "Ah, nothing like starry steak!"

"Listen here," said Chow. "I brung them steaks along frozen. I been hoardin' 'em ever since, waitin' fer jest the right time to cook 'em. I reckon this is it, an' no mistake!"

Dinner over, Tom radioed a full report of the exciting bomb discovery and disarmament to his father. In relating what happened, he gave Nirotko full credit for helping to avert disaster. He added that the Brungarian scientist was being treated for shock and contusions by Doc Simpson, and would return to earth aboard the Titan.

"I'm planning to blast off tomorrow, Dad," Tom added. "A small garrison force will be left here to guard our country's claim to the satellite and let us know if any enemy invaders are about to land."

"It's wonderful how well everything has turned out, son," Mr. Swift commented. "We all have a great deal to be thankful for! Now let me give you some news!"

Jubilantly Mr. Swift reported that Mirov had been arrested upon landing in his native country. A Brungarian announcement stated that the rocket chief would be tried for treason and "crimes against humanity."

"Another thing, Tom," Mr. Swift went on. "Your guess about the news leak was right."

"How so, Dad?"

"The letterhead for the news release was stolen from our Enterprises printer. We'd have found out sooner, except that he's been out of town and just returned. Incidentally, from some clues he gave the FBI, they have rounded up the guilty Brungarian agent. He is a skilled electronics man. He cracked our radiotelephone scramblers, just as you suspected."

Smiling, Tom heaved a sigh of relief. "Well, I guess that clears up everything, Dad."

Mr. Swift added that the Titan's home-coming would be somewhat different from its take-off, but refused to say any more on the subject.

"See you tomorrow, son. And get a good night's rest."

"Right, Dad. So long!"

Tom signed off, wishing he might crawl into bed at once. But there was still much to do, organizing the

departure operation for the following day. It was almost midnight when he finally tumbled into his bunk, exhausted but happy. A moment later he was fast asleep.

The next thing Tom knew, Bud was shaking him gently. “Wake up!”

“Huh! Something wrong?” Tom almost bounced out of his bunk before his eyes were fully open.

“Take it easy, pal!” Bud advised. “I just want you to come outside and see a phenomenon you’re responsible for.”

Pulling on his trousers, Tom slipped into his loafers and hurried with Bud to the ship’s air lock. As they stepped into the atmosphere, something wet splashed on Tom’s nose. The sky was gray and overcast. Drops of moisture were splattering all around.

“It’s raining!” Tom cried out excitedly.

“The satellite’s first shower!” Bud grinned. “With Mirov in jail, Little Luna’s getting more livable every day!”

“Which means I’ll be sure to come back for more experiments,” said Tom.

After a quick breakfast everyone set to work getting ready for the homeward trip. While the crew stowed their gear aboard the Titan, Tom went to the cave and marched Robbie back to the ship. Still radioactive, the little robot had to be swathed in heavy wrappings of Tomasite plastic.

“Well, brand my history books,” said Chow, when Tom asked him to help carry Robbie to the lab, “this critter sure looks like a Ee-gyptian mummy!”

“But a little more lively at times.” Tom chuckled. Stepping to the wall intercom, he pushed a buzzer. “Attention, everyone! The ship will blast off at 1200.”

The words were hardly out of his mouth when Bud burst into the lab. “Tom, Dr. Jatczak has disappeared!” he cried fearfully.

“What!”

A quick search confirmed that the astronomer was nowhere in camp. His bunk had not been slept in. Hastily Tom and Bud took off in a helicopter to look for him.

“Something’s flashing up ahead!” Tom reported, as they rounded the “night” side of the satellite.

The flashes proved to be rays of earthshine glinting from the lens of a telescope. Dr. Jatczak was making observations from one of the higher promontories.

The boys landed and climbed out. Dr. Jatczak paused to scribble some notes furiously by the glow of a flashlight, then broke into a wild jig!

“He’s gone space happy.” Bud gasped.

“I’ve done it! I’ve done it!” Dr. Jatczak kept exclaiming.

“Done what?” Tom asked, completely mystified.

“Proved the density and spectral composition of Sirius and Alpha Centauri beyond the shadow of a doubt!”

“Well, congratulations!” The boys wrung his hands.

The little astronomer was so delighted with his findings on the two important stars that he gabbled in technical terms which even Tom found a bit hard to follow. Bud was completely baffled. Grinning, the two boys helped Dr. Jateczak dismantle his telescope and then escorted him back to the helicopter.

Soon the Titan was ready for blast-off.

“Strap your seat belts, everybody!” Tom warned, then fed the flight tape into the automatic pilot.

As the timer began ticking off the last few moments before blast-off, the travelers settled back on their couches. Suddenly the engines, fed by auxiliary fuel rockets, roared into life. Belching flame, the huge spaceship blasted off into space.

Once clear of the satellite’s thin layer of atmosphere, Tom switched off the rockets. His keen blue eyes scanned the control dials. Reaching out a lean, sinewy hand, he shoved the main drive lever forward. Smoothly and silently the ship streaked through the void on atomic power.

When it reached the Outpost in Space, Tom pushed a button to actuate the magnetic grapples. Invisible lines of force locked the Titan to the great silver sky wheel.

Quickly Mr. Swift came aboard, accompanied by several other personnel, for a joyful reunion with his son. Then couch belts were fastened once again, the magnetic grapples were released, and the spaceship headed earthward.

Hours later, they touched down in a smooth landing on Fearing Island. Tom flicked open the porthole shutters and looked out.

“Good night!” he exclaimed.

Held back by guards was an excited throng, eager to greet the returning heroes who had taken possession of the satellite in the name of the United States. TV cameras, interviewers with headphones and portable microphones, reporters and newsreel photographers stood poised for action. Gold-braided admirals, generals, and Air Force commanders were clustered in the front rank.

“Dad,” Tom gasped, “is this what you meant by-“

Mr. Swift nodded, smiling. “I told you our home-coming would be different from the takeoff!”

As the crew trooped out through the air lock, cheers split the air, and a brass band broke into “The Stars and Stripes Forever”!

Tom nudged Bud, remembering the latter’s wisecrack about no band to see them off. “Guess your complaint brought action, pal!”

An instant later Tom and the others found themselves mobbed as the crowd broke forward, out of

control! Tom tried to shunt the newsmen and officials off to his father, but Mr. Swift said:

“It’s your show, son. The spotlight’s on you!”

Unable to duck the welcoming committee, Tom gave a short speech on the future of space travel and science. Then, one by one, he introduced the various members of the expedition. Each gave a short report on his findings-Dr. Jatzak on astronomy, Jim Stevens on agriculture, Doc Simpson on medicine.

The last to speak was Jason Graves. He told about the wonderful new metal they had discovered, and painted a glowing picture of its use in the coming conquest of space. To his shipmates’ surprise, the tycoon gave Tom full credit for the expedition’s success.

“My congratulations to Tom Swift Jr., the most outstanding inventor of the year!”

Luther Helm, the representative from the Defense Department, then stepped up to the microphone to say that the Swifts would be given the honor of naming the new satellite. Though it had been nicknamed Little Luna, the government wanted to list its newest possession by a more scientific designation.

After a short discussion with his father, Tom announced, “We’ve decided it will be called Nestria, in honor of my mother, Mary Nestor Swift!”

The onlookers cheered loudly. Mrs. Swift, blushing with pride, was swept forward by the strong arms of her son and husband to smile into the cameras. Not until the ceremonies were over did Sandy and Phyl find a chance to greet the boys with hugs and congratulations. Uncle Ned Newton and his wife added their warm words of joy at the momentous outcome.

Finally, Tom and Bud found themselves alone as they changed from their rocket attire. “Well, my space friend,” said Bud, “where do we go from here?”

“Who knows?” Tom answered dreamily, but he was ready for his next adventure.

“Right now, I must analyze that glowing cube from Nestria,” Tom said. “I don’t think the energizer should be kept away from Nestria for any length of time, because if the gravity goes, so does the atmosphere! We’ll have to take it back, Bud.”

Then he chuckled and added excitedly, “Maybe our space friends will be there in person to tell us the whole story!”

THE END

TOM SWIFT ON THE PHANTOM SATELLITE

By VICTOR APPLETON II

No. 9 in the Tom Swift Jr. series.

