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To Venus! To Venus!

S.O.S. FROM AN ANALOGUE OF HELL

DAVID GRINNELL

The planet Venus was uninhabitable. If there was anything that the American space probes had shown without a doubt it was that our nearest neighboring world's temperature was in the hundreds of degrees, that its atmosphere was unbreathable, that it lacked water, and that it was pretty good example of Hell in reality.

But then came the communications from Venus of the latest Russian probe—a manned expedition, they claimed, that insisted that Venus was habitable, its temperature bearable, its air breathable, and everything we thought we knew was wrong.

The Russians also were in serious trouble and calling desperately for help.

What was the game? Was some kind of a devilish trick being pulled?

There was only one way to find out—send a team of three astronauts to Venus to bring back the truth. This is their story—the story of two Venuses and one truth.

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To Venus! To Venus!

by DAVID GRINNELL

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CHAPTER I

"Chet, this is Orbiter. Do you read us?"

"Loud and clear. What's cooking?"

"Nothing. Just wanted you to know that your target is right on the other side of the next ridge. One more climb and you're there. Just keep picking them up and laying them down and you'll be there in time for lunch. Going clear."

"Thanks a lump. Out."

Chet Duncan knew that the boys in the mother ship, orbiting high above the moon's surface, were being flip in an attempt to encourage him; he appreciated their efforts but he was tired and did not want to waste energy talking unnecessarily. He had been trekking across the dry lunar landscape for several hours, and it was hard work. Theoretically, the one-sixth Earth gravity pull should have made the trip a series of effortless leaps and long strides. But, as usual, there was a tremendous gap between theory and practice, particularly when you were dealing with a branch of one of the most specialized government services, the Space Agency of the United States.

Survival in space required an extraordinary amount of gear, and, of course, you were expected to survive in the manner and method approved. As a result, the advantage of a weakened gravity was more than compensated for by the necessity of carrying six times the equipment required for a similar trip on Earth. The cumbersome suit with its heavy helmet, bottled oxygen, air-conditioning equipment, the recycling apparatus; these plus batteries and communications equipment and sundry emergency supplies added up to a burden which had Chet perspiring. But he had crossed the empty crater and only its wall stood between him and his goal.

He clumped along, dragging one heavy foot after the other as he started the long climb which would take

him over the final ridge. His left earphone was tuned in to the wavelength of Jim Holmes, who was his target. Jim had been fulfilling his assignment of cruising the surface in the ungainly looking but very efficient moonwalker when the machine had suddenly stopped operating. Chet hoped to get it restarted.

His right earphone received the wavelength of the mother ship, which would eventually take everybody back to Earth. It took a bit of getting used to, this business of receiving two channels simultaneously, but it had been covered in the intensive training he had received, and now he, could listen to two conversations at the same time and make sense of both. The microphone in his helmet beamed his words to the mother ship, which received them and relayed them back over the entire lunarscape or even, when desired, back to Earthbase.

Chet figured that at the present rate he would be at the top of the crater's ridge in just under two hours, and from there it would be a downhill slide until he reached the moonwalker. He had no way of being sure exactly what had caused it to stop working because Jim, although an excellent geologist, was absolutely hopeless when it came to anything mechanical. If it was the shearpin, as Chet guessed, he would have it operating again within fifteen minutes of his arrival. If it was anything else, he would have to run a series of tests and hope he found the source of the trouble quickly and that it would not involve some unobtainable part.

As he panted his way up the steep cliff, Chet was surprised to find that uppermost in his mind was not the failure of the mission if he was unable to repair the moonwalker; his immediate attention was occupied by the discouraging possibility of having to hike all the way back to his point of origin in order to be picked up by the mother ship. Since he was in no mood to concentrate on so unpleasant a prospect, he fixed his mind on the broadcasts from Earth which were being rediffused into his left earphone. As often happened, Earthbase was relaying the international news broadcast:

"It was officially announced in Moscow today that a

team of cosmonauts headed by Commander Raffalovich has effected a landing on the planet Venus."

Chet snorted. He had long ago learned to withhold judgment on first hearing any news which officially proclaimed a great Russian breakthrough. It was true that they had accomplished a great deal. One could never forget that they had been the first of Earth's nations to achieve space orbit. Nevertheless, it was just as true that they had often announced spectacular achievements which later turned out to be of minor substance. This story could mean that an orbiting mothership captained by Raffalovich had sent an unmanned probe on to the Venusian surface, or they might be claiming the actual setting foot of cosmonauts on Earth's neighbor. This would indeed be spectacular. Even if the explorers never left the ship, their very presence on Venusian soil would constitute an impressive first.

Chet listened intently as he plodded carefully upward.

"Information relayed by the landing to the team is being transmitted and, when it has been analyzed and tested for accuracy, its results will be made public for the greater betterment of mankind."

Experts in various parts of the world had been contacted and their comments sought in order to clarify the news item. But in view of the terseness of the announcement and the lack of accompanying data, there was little they could venture beyond giving their views on the planet itself and the feasibility of any sort of landing. Chet himself was not one to deny that such a feat was possible. After all, while he was climbing up and down on the surface of the moon, he was not apt to feel that further adventures to nearby planets were beyond the reach of man.

But the key words, as Chet saw it, were, ". . . information relayed by the landing to the team . . ." This would seem to be a clear indication that the landing unit was unmanned. The "team" to which the information was being relayed could be anywhere from a close-parked orbit around Venus to headquarters somewhere "East of the Urals." In view of the fact that the United States had announced months ago that its own probe, carrying the most sophisticated instruments, was on its

way to penetrate the clouds of Venus and report on its atmosphere, temperature and ground conditions, he found it easy to believe that the Soviet announcement was calculated to steal the thunder from the American effort.

Turning it over in his mind and considering the announcement from every conceivable angle kept him occupied so that time flew by as he covered the difficult ground. Almost before he was ready for it, he reached the top of the crater and paused as he glanced down its sloping outer rim. Not only was it downhill, but it was nowhere near as steep as his upward climb. Two hundred yards away, just where the slope met the level ground, the moonwalker was perched motionless.

"Hey, Jim," he called on the intercom wavelength, "I've got you in sight and I'll be with you in a couple of minutes."

"I know," Jim replied casually, "I've been following you on the bounce-radar. Judging by your speed, I thought at first that I had latched onto some fat moon caterpillar and I was about to report it as a fantastic discovery when I recognized your outline. They wouldn't have believed me anyway," he concluded solemnly; "caterpillars travel much faster than that. Even fat ones."

Chet smiled but made no reply. Regulations required radio silence except for necessary conversation. And going by the book, a three word answer was all that would have been required from Jim. But going by the book was not Jim's habit. He was a well trained geologist whose natural aptitude for his profession made him one of the finest in the business. He was not the military type and had been induced to enter the Space Service simply because his country needed him and made its need very clear. He would go anywhere they wanted to send him and do anything they wanted done, but he would do it his way. Jim Holmes was an innate civilian.

When he was just a few yards from the walking machine, Chet called out, "Are you prepared to open up?"

"Sure thing," came the laconic answer. "Suit's under pressure, cabin depressurized."

The main hatch swung open and Chet climbed aboard. Although face to face within the confines of

the small cabin, the two still conversed by radio within their individual pressure suits.

"Have you any idea of what's wrong?" Chet asked.

"Not the slightest," Jim said, shaking his head. "I thought that's why they sent *you*."

"Sure. I just thought you might have some clue. Let's take a look at the shearpin."

"Help yourself."

Chet dropped to his knees, unscrewed a floor plate, and lifted it off. He thrust his arm deep into the aperture, felt around, and allowed his fingers to run up and down the smooth shaft he located.

"Tell me," he asked his friend, who sat comfortably watching him. "what happened?"

"It just quit."

"I know that," he answered a trifle impatiently. "I mean, did the power fail or did you suddenly lose traction?"

Jim looked genuinely baffled. "I really don't know," he said. "We just stopped and then I turned off the motor and called in."

"Okay. Let's try it another way," Chet persisted. "Was the motor running before you shut it off?"

"Oh, sure. That's what I've been trying to tell you. It was running but we weren't getting anywhere so I switched it off." Jim seemed to think he was dealing with an idiot.

"Gotcha," Chet said. "One minute you were rolling merrily along and then there was a snap and the walker stopped walking but the motor kept running so you switched it off and called Orbiter."

"You are so right." Jim smiled. then he looked puzzled. "But how did you know about the snap?"

"I didn't. I was just hoping. I think we may be in luck. It sounds as if the problem is nothing more than a broken shearpin, and I brought along a spare. We ought to be underway inside of ten minutes."

"Well, if it's that easy," Jim said, "you'd think they would tell us about it so that we could fix it ourselves."

"They did."

"Oh." He watched as Chet removed the broken pin and slipped the new one into place. Then an idea occurred to him.

"But won't whatever caused it to break in the first place have the same effect on this one? I mean, nothing's changed inside, has it?"

Chet finished his repairs but left the floorplate out of place. "No, nothing's changed," he explained, "but nine times out of ten when these things go, it's because of ordinary fatigue. Unless you were jammed and tried to force the moonwalker through, the chances are we'll be on our way."

"Nothing jammed and I didn't force anything," Jim said. He sounded relieved.

Chet climbed into the driver's seat, which was perched high on a pole which slanted out of the floor. Jim took the navigator's seat to the right of the driver; the moonwalker could be operated from either location, but Jim was delighted to ride as a passenger. They buckled on their shoulder harnesses and Chet threw the main switch, which activated the instrument panel. All gauges showed normal with ample power reserves indicated. Through long habit, he read out each gauge, and Jim's eyes flickered over the panel as he followed the routine. Finally Chet closed his heavily gloved fingers over the motor switch and moved it to the ON position.

The microphones in his helmet picked up the answering hum and the slight vibration testified that the motor was turning efficiently. He increased power and reached for the clutch shaft. He eased it forward slowly and the giant revolving legs on either side of the cabin came to life. Lurching and heaving like some giant beetle, the moonwalker moved ahead as it started to climb the slope. At once, Chet pulled back the clutch and reduced power to minimum idling. He spun the crank which locked the clutch into neutral and unfastened his harness.

"I guess we're okay," he said simply.

"Thank heavens," Jim breathed fervently.

Swiftly, Chet replaced the floorplate and plugged his suit into the moonwalker's system. Jim remained in his seat but plugged himself into the same system.

"Moonwalker to Orbiter." Chet had switched to the correct frequency and placed the call. The answer came immediately.

"Orbiter. Gotcha. Go ahead."

"This is Chet. Moonwalker's operational. Shall I proceed to the bug?"

"Right. How long do you expect it to take you?"

"I'm going to take the easy way around, even though it will take me a little longer. I should be there in about three and a half hours. Figure time to transfer. We should be in a position to lift off in four and a half hours from now. How does that fit in?"

As Chet talked, he pulled a set of charts from their nesting place and spread one of them on the table in front of him. The orbiting mother ship would be feeding the information he had relayed into their computer in order to determine how soon, after three and a half hours, they would be in a position to rendezvous. This gave Chet just enough time to double-check his route and confirm his time estimates.

"Okay, Chet, we'll take you off in four hours, seventeen and three-quarter minutes; that will be 15:20:22 Washington Mean Time. Do you want a time check?"

Chet immediately punched the button at the bottom of the clock located on the instrument panel. This allowed it to be electronically checked and corrected by Orbiter. Now it was simply a matter of keeping to his schedule. Perhaps "simply" was the wrong word. A thousand things could go wrong. Navigating the lumbering moonwalker was in itself a job which could be rated a solid day's work.

If everything went well, they should reach the bug in plenty of time to button up the walker, deactivating it and transferring its delicate instrumentation to the vehicle which would take them to the mother ship. The walker would be left behind to await the arrival of the next team. Then there would be the activating of the bug, the correct setting of the telemetry and guidance equipment and a serene wait to be lifted off and picked up by the mother ship. That was all there was to it, if everything went well. Chet realized, of course, that the reason he and Jim, two human beings, were involved at all was because when things did not go entirely as planned, there was no machinery which could match the brain.

The bug hove into view with time to spare. Chet

maneuvered the walker close in, tucking it under an overhanging promontory as protection against a shower of meteorites which might damage it during its idle wait. Then the two men began the laborious transfer of equipment. The solar batteries were dismantled and placed within their insulated storage containers where they would remain inoperative and shielded from the excesses of heat and cold until needed again. When this work was completed, Chet took a final look around as Jim clambered aboard the bug, then he joined him. The pressure door clanged shut and Chet spun the locking wheels; that done, he began the pressure buildup, drawing on the vehicle's atmospheric tanks.

He brought the instrument panel to life and carefully adjusted a series of slide-switches, tuning the main antennae to the precise pattern of the mother ship's emanations. From then on, the remote-control equipment upon which their safe pickup depended would respond only to the precise radar pattern of the orbiting base.

All the instruments brought from the moonwalker were plugged into their appropriate receptacles so that they became part of the bug's integral system. Once the bug had been picked up by the mother ship, they would be available to it as well. Now there was nothing to do but wait. If something went wrong during the pick-up and coupling, Chet would be available to take over direct, manual control; but barring mishap, lift-off, rendezvous and final coupling would be effected automatically.

As soon as the cabin-pressure light winked green, indictating that the atmosphere aboard equaled that of Earth at about six thousand feet, Jim started to divest himself of the bulky spacesuit. This was not correct procedure.

"Hey, buddy, you might want to have that thing on if we suddenly lose pressure," Chet called pleasantly. Since the cabin was up to pressure, voice could travel normally through the air. Chet, however, still enclosed in his helmet, spoke through microphones. Jim, who had discarded his earphones when he had taken off his helmet, could hear Chet's words clearly over the cabin

loudspeakers. His own voice was picked up by the in-cabin microphone.

"If we suddenly lose pressure," he said, "I don't want to be around to know it. I'd rather cash in quickly than linger around on this desolate rock or up in the emptiness. You know they couldn't rescue us soon enough. Besides, the suit's a drag. It weighs a ton."

"True enough. Nevertheless, regulations call for—"

"Aw come on, Chet. Regulations are written by some cat whose job calls for him never to leave his desk except for an occasional parade. When we dock with Mama, we'll go straight through a pressurized air lock into her pressurized cabin where everyone will be wearing regular fatigues, right? So what's the point of waiting around in a full suit of armor?"

Chet was about to persist, but the warning buzzer sounded and lights blinked to life on the panel, indicating lift-off was about to occur.

Without a voice-transmitted message, the bug lifted off and was swept into contact with the mother ship.

CHAPTER II

Chet crawled gingerly through the air lock, taking care not to strike his helmet against the narrow bulkhead. He snapped a perfunctory salute as he stepped aside to permit the entry of Jim, who followed close behind. Two of the crewmen came to his side and helped him take off his helmet. He swung his head this way and that, enjoying his new-found freedom. The crewmen, both officers who equaled him in rank, continued to help him shed his awkward suit: Phillip Lombardi and Douglas Mailie, both excellent astronauts.

Captain Alexander Borg, senior officer in charge of the expedition, came forward to greet the returning men.

"Good to see you safe aboard, Chet," he said, his face softening as much as it ever did.

"Thank you, sir."

The softness disappeared from the captain's swarthy countenance.

"Holmes! Where is your suit?"

"In there, sir." Jim pointed toward the air lock which led to the bug.

"There was some emergency? You were injured and had to de-suit in order to receive first aid? A malfunction in the suit, perhaps?"

Jim looked miserably uncomfortable. "No, sir," he stammered, "it's just that . . . well, you see . . ."

"No, I don't see!" the captain roared. He respected the young geologist's ability, but he could not stand an infraction of regulations—especially of safety procedures. "Go in there and get it. And bring your suit and report to me."

Jim managed a pleasant grin. "I have the report right here, sir," he said, offering it to the captain.

"Get that suit!"

"Yes, sir." Jim turned, dropped the tape pack carrying his report, picked it up and scurried through the bulkhead, bumping his head.

"All right, Chet, come into my office." Captain Borg led the way to his "office," which was simply a cubicle containing a small table and a double bench at either side.

Chet had taken his tape pack from his suit. It contained a full account of his mission. He placed it on the table.

"My report, sir," he said.

"Good." Captain Borg took it and tucked it into a container on the wall near him. Later, it would be condensed to its vital parts and he would listen to it. His brows furrowed as he leaned slightly forward.

"You heard the earlier report about the Russian Venus probe?" he asked.

"Yes I did. Something about a landing on the surface. I couldn't tell whether it was supposed to be manned or not."

"That's the way they like it," Borg said, "but while you were in your approach and docking we received an update on the story. Seems the mission was unmanned. An automatic station sending loud and clear from the surface of Venus!"

"So they've developed hardware and batteries capable of taking the heat and transmitting through it." Chet looked impressed. It did not strike him as an

outstanding technological breakthrough, but, as an astronaut, he respected efforts and achievements in space at any level, by any human.

"Seems they didn't have to," Borg continued evenly, betraying nothing more than a straight reporter's manner. "Seems that the surface of Venus is not too different from Central Africa. Kinda hot. Nice soil. Plant life. Even real, honest-to-goodness plants. The kind of place our friend Holmes would like; he wouldn't have to wear a suit."

Chet was stunned. Both the United States and Soviet flybys had indicated, and the scientific world had agreed, that the surface temperature of Venus had to be well over 600° Fahrenheit. Pure lead would run like a river at that heat.

"Has that been confirmed?" he gasped.

"Sure has," Borg replied laconically, "by the Russians."

"But I mean, has anybody else agreed?" Chet floundered. The news was altogether too surprising to be taken in stride.

"Has anyone else agreed?" Borg asked. "Who could agree or disagree? It's their probe, their signal, their interpretation and their announcement. They say they have sent something up from Earth. We can check that. They're right. They say that the thing was headed toward Venus. We can check that; they're right. They say it headed right into the planet. We can check that, too; they're right again. Now they say that it has landed and is telling them something; we cannot check that. Jodrell Banks, Arecibo, everything our side has is trying but we have not been able to pick up anything. They tell us it is saying that Venus is offering us a warm welcome. Hot but hearty. Plants and plenty. It contradicts everything we know . . . or think we know. What do *you* think?"

"I really don't know, sir," he said, lapsing into the formal address because of his uncertainty, "but there are two main reasons which cause me to question this report right off the top of my head. First, all the information which the Free World has been gathering points to conditions exactly the opposite of those you just described. Until now, the Russians have agreed with our findings. Secondly, the Russians have a knack for con-

fusing the world. Sometimes, it seems, for the sheer sake of confusion."

Jim Holmes had approached the cubicle as Chet was talking and he stood a few feet away, his suit bundled neatly under one arm while his free hand held his tape pack report. Captain Borg glared at the suit and then at the face of the geologist.

"Okay. Put that suit down and let's have your report." He accepted the tape pack and filed it in the same receptacle which held Chet's report. He motioned Jim to a seat next to Chet. Jim squeezed into place.

"You've heard about the Russian Venus probe?"

"Yes, they've been telling me."

"What do you think?"

"Me?" Jim brightened considerably. "Well, I wouldn't start planning a new hotel or anything up there. I think it would take more air-conditioning than we can afford."

"Meaning?"

"Meaning, sir, that I refuse to believe it right now," Jim replied. "Unless I was ordered to, sir," he added.

Chet barely suppressed a smile.

Borg stared for a moment. Then he sighed. "That makes it unanimous. Five of us aboard. Five trained men, astronauts who think in terms of space; some of us scientists in our own fields. And not one who is willing to accept the Russian story." He shook his head. "I think I would feel better if one of us had argued the other side."

Phillip and Douglas had joined them, standing by the edge of the table.

"After all," Borg continued, "in spite of the fact that the Russians may seem peculiar to us in the way they do things, they're not stupid."

"The first Sputnik was Russian," Jim agreed, "so was the first man in orbit. And the first spacewalker."

Borg nodded.

"It seems to me that I heard somewhere that when the first Russian was orbiting Earth and sending messages, a number of our scientists thought the thing was a hoax," Jim continued.

The captain exhaled a large breath. "Okay," he said, "let's get on with it. Phil, what's been coming in?"

The meeting broke up as Phil went to the teleprinter

and gathered the sheaf of papers on which each incoming message was continuously recorded.

Chet was sound asleep in his cramped bunk when Doug pulled the curtain aside and awakened him. "Captain wants you," he said.

Chet climbed out, rinsed his face in the tiny sink, using no more than two ounces of water, and walked to the captain's office. Borg was seated on his side of the table and Chet sat opposite him. Doug joined him.

"Duncan, I wouldn't have disturbed you if it wasn't important. You've earned your rest and you need it." It was not Borg's habit to apologize for ordering someone to duty. "We've got orders to set up an antenna to monitor the Russian Venus probe. Mailie will second you. He's already got the location worked out."

Doug placed a finger on the chart which covered the tabletop.

"Here, Chet," he said; "this crater will do nicely."

Chet tried to dissolve the remnants of sleep which fogged his mind.

"You mean we're not going to monitor right from here?" he asked.

"No, they want the highest precision possible. We'll set up a W-type bowl antenna with a self-contained recorder."

"Or we could microwave back to you and tape it here," Chet suggested hopefully. The W-type was the heaviest rig they carried and he knew from hard experience that any sort of work while encased in the spacesuit required enormous exertion. Special undersuits helped to control the rate of perspiration but they, too, added weight and all in all, it became highly desirable to keep things simple and the workload to a minimum.

"Highest possible precision." Borg spoke slowly, clearly. "Let's leave it up to you. Select whatever rig you want for the job."

"W-type bowl antenna," Chet said resignedly.

"Good. We're processing the bug now; it will be fueled and loaded in forty-five minutes. How long will it take you to be ready?"

"Forty-five minutes, sir."

"Fine, but don't cut any corners. We're in a hurry but our first duty is to the success and safety of our mission."

"I understand," Chet said.

Captain Borg looked at his watch. "Very well, then. Take-off will be in one hour. We'll set you down as close to your spot as possible. There's a good landing site no more than a hundred yards away so we won't use the mooncrawler. That'll save us time. Now get yourself something to eat."

Chet appreciated the last order. He felt starved.

"Mailie can brief you while you're eating," Borg added, dismissing the two.

Chet got to his feet and made his way toward the food locker. Captain Borg was the most competent officer he had ever known; he was, however, not the softest or most compassionate. Perhaps those were opposite qualities. Chet acknowledged that Borg drove himself as hard as he drove the others and he was strictly fair, but his idea of generosity was to award an extra fifteen minutes in which to prepare for an eighteen-hour mission. And he would positively insist that you got a good meal . . . provided you got an in-depth briefing in between chomps! Chet took one of the specially prepared food pies from the freezer and popped it into the electronic oven. In less than a minute, the pie was steaming hot. He had no idea what ingredients went into its preparation; it was dietetically balanced and designed to be easily and comfortably digested in space. It tasted good. Much better than the tubes of cold paste which he would be packing with him. He listened carefully as Doug explained the mission and poured forth details.

As Chet was suiting up, he mentally reviewed the operational plans he had been given. It was as routine as anything in space could be. A simple glide path to the surface, the flight and landing controlled by computer from the mother ship. Then hours of backbreaking work putting together the antenna bowl, hooking in the recorder and carefully focusing it on the incoming signals from Venus. This would be followed by a long, tedious wait, sheltered in the bug, while the recorder did its automatic work. Finally the antenna would have

to be disassembled and stowed aboard the bug before lift-off back to the mother ship. It was tiring to think of the mission as a whole. Better to concentrate on each step as it came up.

It would be much simpler, Chet thought, if the mother ship itself could land on the moon's surface. But it couldn't, he knew. The mother ship was a large and heavy vehicle and used up too much fuel in any maneuver but drifting. Chet knew that some day new and more powerful propulsion systems would allow giant ships to soar and take off from every corner of reachable space. He only wished that day were now. But it wasn't, so he settled himself into the bug and strapped himself in as Doug occupied the adjacent seat.

His earphones crackled with messages flowing over the intercom in preparation for the castoff toward the surface. Although he was technically the pilot, he had nothing to do but listen as each instrument was read and checked by Phillip and Captain Borg. Just before the final countdown, the captain said, "Happy landings, fellows, and remember, maintain radio silence until return. We'll relay Earth messages toward you but we won't be talking to you ourselves. Good luck!" There was a click as the intercom connections parted, along with all the other support systems. The mother ship had let go. Four tiny jets eased the bug away from her protective skirts and, firing alternately, they positioned the small craft for its descent to the pale surface. The precise retrothrust was applied and the bug broke orbit and began its moonward spiral, carrying the two astronauts to their destination.

It was the time of the long wait. The antenna was in place; it was focused correctly onto the electronic signals emanating from Venus' southern hemisphere. The recorder was soaking up the intricate series of scratches and bleeps which spoke of the climate and general conditions as they were supposed to be on Venus.

Chet and Doug sat in the bug. They had not bothered to pressurize the cabin but they had plugged their suits into its main system. They were to get as close to ten hours of recording time as possible. Their number one priority at this point, however, was to be ready for

lift-off, which would come automatically and without prior message from the silent mother ship. It would lift off with or without anybody aboard. Both men were thoroughly determined to be aboard, but they weren't going to talk about it.

To kill time, Doug asked, "Do you think this will wrap it up? I mean, do you think we'll be going back when we've completed this mission?"

"There's no way of telling for sure, but I'd guess they're planning to lift us off and cut this whole expedition back to Earth just as quickly as they can."

"You think so?" Doug asked eagerly.

"The way I see it," Chet said, "we just happened to be at the right place at the right moment. The Russians announce their Venus sensation just when we're in a position to obtain the most accurate reading of their setup. Now they may or may not know we're here but we're not going to help them out by explaining what we're doing. So . . . radio silence. We've got their data on tape and if we transmit it back, there's a good chance that they'll intercept our signal and know how far we've gotten in checking their story. So . . . no transmission of data. But Space Agency wants to get their ears onto this tape. How can we best satisfy these requirements, Mr. Mailie?"

Chet had performed a near perfect mimicry of Captain Borg laying out a problem.

Doug cued himself into the playlet by assuming the subordinate role. "In order to meet all the requirements, sir," he said stiffly, "we should immediately and at once, sir, without further delay, make tracks for home base right now, sir!"

"Hand-carrying the tape, Mr. Mailie."

"On a velvet cushion, sir!" Doug replied.

CHAPTER III

In the Santa Monica Mountains, behind Malibu, the Space Agency maintained its underground headquarters. Less than an hour from the big civilian "think tanks" in Santa Barbara to the north and closer yet to the bustling metropolis of Los Angeles to the south, it was

ideally situated to permit the assemblage of key personnel without drawing public attention. The San Diego Freeway carried hundreds of thousands of cars each day; thirty or forty unmarked cars of assorted makes could make their exit within minutes of each other and be completely unnoticed in the rush of traffic. Canyon Road, to which the exit led, was a public thoroughfare. Private roads ran from it to the various ranches in the area; it was a beautiful but desolate country. Several of the innocent-looking roads which appeared to run aimlessly into the hills were, in reality, hidden accesses to the enormous cavern in whose hardened site the Space Authority had cemented itself.

A three-year-old car of common make nosed its way along one of the access paths. It seemed to contain a group of businessmen. They were dressed casually and chatted among themselves as they rolled along. The driver, in a sportshirt and light linen jacket, was a Special Operative of the Space Agency. His passengers were Captain Alexander Borg, Chet Duncan, Jim Holmes, Phillip Lombardi and Douglas Mailie.

Thick cables, buried deep, carried communications lines. On the surrounding peaks, microwave relays and laser transmitters augmented the wire systems and insured that the nerve center of the Space Authority would be in touch with every part of the world and the space surrounding it, regardless of any conceivable attack. Its food and filtered air supply, along with its water and other necessities, were calculated to last for two years without outside replenishment. Its fuel and power generating facilities were of similar capacity. It could withstand a direct nuclear hit, the rubble of which would provide armor for a succeeding attack. At this particular moment of history man's defensive ingenuity had caught up with his offensive ability. There are no absolutes in warfare, but in a rigid application of the laws of probability—and an advanced security network—the Space Authority headquarters could be termed impregnable.

Headquarters was not itself a prime originating source of space missions. No flights were launched from it. It contained relatively few tracking units or principal antennae. It was, instead, a vast, complex control and

training center which was linked, in fail-safe series, to launching sites and instruments all over the earth and far into space.

The characteristics of Captain Borg and his squad had been taken and filed when they had first joined the Agency. When orders had been cut requiring their presence at headquarters on this particular day, it was a simple operation to add their characteristics to those which were to be passed. When their visit was officially over, their names would be deleted from the approved list and locked again in the master file.

The agent who had driven them to the headquarters now led the party to a conference room. It was a rectangular room, containing a horseshoe table which had room for about a dozen chairs along its outside edge. They were shown to seats at one of the edges, Captain Borg being seated nearest the U-shaped head of the table. Looking to their left, they saw the blank wall onto which charts, maps and anything pertinent to the meeting could be projected. The room was well-lighted, soundproofed and comfortably air-conditioned. They were left alone for a few minutes, which they spent in silence.

The door slid swiftly open and five men walked in. Three were dressed in military uniform, two in business suits. A short man with a powerful build and a shiny bald head took his place at the exact center of the table. This was Creighton Curtis, director of the Space Agency. Known throughout the service, but *never* to his face, as "Craggy," he represented the final word on any matter dealing even indirectly with space. He reported directly to the President of the United States, who alone could overrule him. For very good reasons, "Craggy" had never been overruled.

The other men took seats opposite Captain Borg's party. Curtis opened the meeting by addressing himself to the astronauts.

"Gentlemen," he said, "this is General Farsons, Army; Admiral Lawton, Navy; General Slater, Air Force; and Mr. White."

Everyone exchanged nods. There was no need to introduce the astronauts because, as the invited party, it was obvious that everyone in the room knew who

they were. There was no further explanation as to who the slight individual with the gray hair and steel-rimmed glasses was. He was simply Mr. White and none of the astronauts cared to venture a question. Jim Homes thought briefly of asking who this guy White was and why he was here, but with Captain Borg seated directly to the right of him, Jim thought that perhaps he should remain silent. Curtis got down to business.

"Ordinarily, gentlemen, your debriefing would be carried on in an individual and routine manner. But under the circumstances, we decided that a group debriefing at this level would best suit our purpose. I have your reports and your log and we have all been through them. I also have the tape of the Venus signals brought back by your expedition. Who made this recording?"

"Chet Duncan, seconded by Douglas Mailie," Captain Borg snapped the answer. Obviously the report contained that information but "Craggy" liked to do things his way and Borg was keenly aware of the chain of command. He expected obedience from his crew and he was perfectly prepared to deliver obedience to those above him. That's the way things got done.

Curtis leaned back in his chair and looked directly at Chet.

"Duncan, your record shows that you are thoroughly familiar with the setting up and operation of type-W bowl antennae. Would you agree?"

"Yes, sir."

"And, Mailie, you have accomplished this type of operation many times, have you not?"

"Yes, sir."

Back to Chet: "You had just returned from a mooncrawler repair task when you were ordered back to monitor these signals. Were you tired?"

"Yes, sir, I was tired," Chet replied honestly, "but not to the extent that my ability was impaired. I had slept some before I returned to the lunar surface so I was in pretty good shape."

"Mailie, you were performing routine watch while Duncan was retrieving the mooncrawler. Is there anything we should know about your physical condition before you embarked on the antenna mission?"

"No, sir," Doug answered. "I was feeling fine. I had been following the incoming news and Captain Borg asked me to prepare the preliminary data for the antenna installation. When Chet and I took off, I felt that we were both in condition. It was a pretty routine mission, sir. No complications."

Mr. White cleared his throat and in a thin, high-pitched voice said, "Did either of you notice any unusual side effects once your mission was underway? Dizziness . . . headache . . . anything at all out of the ordinary?"

"No, sir," Chet and Doug spoke as one.

Curtis sat up straight. "Let me tell you what's on this tape you brought in," he said. "You will understand why I wanted to make absolutely certain that your mission was carried out exactly in the manner it was supposed to be. If you felt hurried, or tired, or out of sorts, you might have produced results tainted by these conditions. I am now satisfied that this did not happen. The signals you brought us are supposed to have originated in the southern hemisphere of Venus. I must congratulate you on the accuracy with which you set up your equipment; the signals are sharp and clear and perfectly tuned."

Both men felt a blush of gratitude for the compliment but neither betrayed any sign of pride. Curtis addressed himself to Captain Borg. "Your tape," he said, "corroborates the story the Russians have been putting out. Mr. White here can translate the Russian system of messages with an accuracy which Moscow would envy. What we have here is a report which has been signaled back by an automatic station located somewhere in the southern hemisphere of Venus." He paused. The light glinted off his head as he turned left and right, searching the faces of the nine men. After a momentary silence, he said, "Now, Mr. White, could you sum up for us briefly what is known, apart from these signals, of the climate at Venus' surface."

Again the gray-haired civilian cleared his throat. His tongue moistened his lips and he looked down at the polished table as if reading from a paper. There was nothing in front of him. "The data collected by such respected scientists as Dayhoff, Eck, Lippincott, Sagan,

Moroz, Mintz—I could go on and on . . . these men represent many nations of the world—plus the information gathered by our own Mariner probes from Five through Eight and the Russian Venera probes Four through Seven, does not lead us to a unanimous answer. That is to say that different conditions of testing involving such methods as microwave, radar, flybys and probes produce different results. Nevertheless, the results obtained have not varied from each other to a shocking degree. By all the testing to date, Venus has been shown to have a surface temperature in excess, certainly, of four hundred degrees, and more likely approaching seven hundred degrees. Duststorms are thought to abound and—"

Curtis held up his hand and Mr. White stopped talking as if a switch had turned him off.

"For the purposes of this discussion, I believe we may limit ourselves to a simple consideration of temperature levels. Weather conditions, atmospheric content, and moisture availability can be compared in depth later," Curtis said, "but right now let us focus on the temperature. There are men in this room who have experienced temperatures in excess of four hundred degrees. If he is protected by some form of life-support system such as a spacesuit or vehicle, it is no startling development to hear that a human being can function in the presence of such heat.

"But the Russians say that no such life-support is necessary on Venus because their little machine has settled onto its surface and found it to be no hotter than the desert around here gets in summer. Gentlemen, I would like each of you to express yourself on the credibility of that statement. For this round, please limit yourself to no more than two or three sentences. Mr. White?"

White cleared his throat and licked his lips nervously. "I find it hard to believe," he said.

"It would be most useful if you could bring yourself to take one position or the other," Curtis rejoined; "you can change your mind later, if you wish, but how do you feel right now?"

"I don't believe it," Mr. White said in a low voice.

"General Slater?"

"Negative!"

"Admiral Lawton?"

"Everybody says 'hot,' the Russians say 'cool'; I'll go along with the majority. Navy says *nyet.*" He smiled at his little joke. No one else smiled.

"General Farsons?"

"It's a trick! I don't know what they're up to but they're trying to sell us a bunch of poppycock. Of course I don't believe it!"

"And now Captain Borg, if you please," Curtis turned toward the other side of the table.

"On the grounds that it contradicts everything we have learned, and also because I have never believed in the Soviet method of post-facto announcements, I have no faith in their latest allegation."

"Holmes?"

"Well, from an intellectual point of view, I believe it is our duty not to believe anything until we have been given some good reason to believe it. We do not blindly believe that two plus two equals four; we understand the equation and agree with it and we therefore believe it. It's the same if someone hands me a rock and tells me it happens to be gold-bearing ore. I—"

"Holmes!" Curtis barked. Jim got the message at once.

"I have no reason to believe the latest Russian claim, sir," he said.

"Lombardi?"

"No, sir. I don't go along with it."

"Mailie?"

"No belief, sir."

"And you, Duncan?"

Chet frowned. He was wrestling with his conscience. He felt that he might be justified in going along with the group in order to conclude this phase of the interview and then bring up his private thoughts as the discussion broadened. But he knew that Craggy was not just conducting an exercise in conversation. The whole tone of the meeting was being set by the spontaneous exposure of each man's present thinking. He shifted uncomfortably in his seat. There was a lot of brass at the table and a junior officer could not easily express a position in direct opposition.

"Frankly, sir," he finally said, "at first I was inclined to dismiss their story but I haven't been thinking of anything else since I first heard the news and if I had to make a snap decision right now . . . I would accept the Russian version."

There was a momentary hush and then General Farsons snorted. "Nonsense!" he said.

"General Farsons," Curtis said calmly, "I have asked for nine separate opinions. If I had wanted yours alone, I would have asked for it."

General Slater addressed himself to Chet directly.

"You apparently do not go along with the ideas of your young colleague," he said, indicating Jim Holmes, "who believes it is our duty to accept only something for which proof has been offered."

"Not entirely, no, sir," Chet answered. "For instance, I've never had any hard proof that my mother actually gave birth to me and I sure believe in her."

General Farsons barely suppressed another snort. Chet realized that it was not coming out the way he wanted it to. It was a difficult thing to put into words. He tried again.

"What I mean is, that there are some things which you tend to accept on faith. Of course if it is later proved to be wrong, you discard the thing. I was personally involved in recording those signals. I know from my own knowledge that they came from the southern hemisphere of Venus. Nobody I've spoken to doubts that they are Russian signals. Although my first reaction was negative. I cannot bring myself to believe that the Soviets would attempt an enormous world-wide hoax which could very quickly be exposed. Perhaps they are getting faulty readings—which they believe."

"The thing that confuses me," Doug Mailie remarked, "is what makes the Russians so anxious to prove that Venus is habitable? Whether they believe what they're saying, or whether they know it to be a lie, why are they making such a big deal of it before checking it out thoroughly and coming up with proof?"

Mr. White's high voice answered him: "We've been monitoring the Russian broadcasts ever since they came up with this What we've found is that the greatest emphasis is being placed on their Asian wavelengths.

They've been holding themselves out to these people as the Christopher Columbus of our times. What they're saying is something like: 'Look, you poor, overcrowded, starving masses, your friends the Russians have found a special rice-filled heaven for your millions. The imperialistic capitalists of America don't want you to have it. They want to exploit it for their selfish profit, so they deny it exists. But with your help we can keep it for all the people to whom it rightfully belongs. Join us in this mighty effort and you will share in the glories and comforts of Communistic Venus.' One thing is clear. They are using this as the basis of an all-out drive to gather almost a billion Asians into their sphere of influence."

The discussion continued with questions being asked and opinions being delivered. The representatives of the Armed Forces were the most unbending; Admiral Lawton seemed perhaps a little softer than the other two but despite his more gracious manner he seemed as inflexible. The astronauts forgot about rank and brass and joined the conversations heatedly. Creighton Curtis alternately prodded and soothed, always asking questions, never committing himself. Finally, he said, "Gentlemen, I do not expect to reach any final conclusions at this discussion. I want you all to know that I found your opinions most instructive and you are to be congratulated for the energetic ways in which you put forth your views. Before we adjourn I would like to ask one more question. Duncan, what makes you so positive that the Russian Venus data is authentic?"

Chet thought a moment before he replied. "Sir, I wish to state that I am not at all positive that it is authentic. I simply feel a deliberate lie constitutes a risk graver than the Russians would be likely to take. And as regards the possibility of honest error, I believe too much supporting data has been received. If it was temperature alone, I might be inclined to blame faulty equipment. But the chance of similar error being reported in the atmospheric readings as well as the soil characteristics and the plantlife would be too much of a coincidence. Every facet of the data is remarkably consistent with every other. No, sir. I feel sure we can rule out instrument error. That leaves the question

of whether they are telling us the truth or deliberately lying."

"And your feeling is that they are telling us the truth?"

"That is my present feeling, sir, but it is not based on deep conviction. My thinking might be affected by my anxiety to avoid the trap this thing has set."

"What kind of trap?" Curtis leaned back and closed his eyes. Those who had worked with him before knew that this attitude reflected Craggy when he was at his most alert.

"Well, sir, if we officially deny the Soviet claim, and they turn out to be right—a situation which will be resolved one way or the other within the year, I'd guess —then zap! There goes our credibility and public confidence for a long time to come. They'll claim we knew all along but tried to hide it from the world. If they're wrong, they'll hang themselves, but if they're right we can't deny them the victory without hurting ourselves badly."

Curtis opened his eyes. "Good point. Gentlemen, thank you very much."

Without another word, he stood up and left the room and the meeting broke up.

The five astronauts were provided rooms within the living quarters of the complex. Chet and Doug roomed together, Jim and Phil shared a room and Captain Borg was by himself. They were given no specific duties but were told that they could expect to remain there for two or three days and to be on hand if needed. They worked out regularly at the fully-equipped gym, played a lot of handball and watched television in the ward room. Still, time hung heavy. There was little discussion about recent events and no speculation about the future. They had long ago learned that, when you were cooped up, things ran a great deal smoother if you avoided second-guessing yesterday's errors and trying to forecast upcoming missions.

Captain Borg did speak briefly and privately to Chet once.

"I think you did a good job at the meeting. I know it isn't easy to be the only dissenter in the room. And I won't pretend to agree with your position because

I did not agree with what you said. But I'm proud of you for saying it."

"Thank you, sir. I'm afraid I got the distinct impression that the generals and the admiral don't quite share your opinion. I think I annoyed them. I hope Craggy didn't get too upset."

"Mr. Curtis is a fair man; he was after information. I wouldn't worry about him. But tell me, Chet, just between us, feeling as you do, what do you suggest we do about this mess? That's the one thing I was hoping they'd get around to."

"I guess they didn't bring us there to make policy. They just wanted our first reactions," Chet said.

"True enough," Borg persisted, "but how would you handle it?"

"Well, I haven't really thought about it too much," Chet answered, "but we have a Mariner launch coming up in a few weeks. I'd suggest that they modify whatever package they're sending up to lock in on the Russian discovery. And furthermore, I'd try to plunk it down in the southern hemisphere someplace. We might get some answers of our own."

"Hmmm. Of course the Mariner flight will take three months to get there after launching. What's our official position till then?"

"I simply wouldn't take an official position. I'd let things go on the way they are. Individual scientists are making personal statements. News commentators are coming up with their own analyses and a bunch of Congressmen are making the usual noises. They're all pretty well agreed that the Russians are pulling a hoax. I figure that if everybody just goes on talking it will sound like an official position and we can sweat it out until we've got something more concrete to go on. Then we can officially accept or deny the story without climbing out on a limb."

"Chet, we're on opposite sides of the fence as regards our evaluation of the Russian information," Borg said, "but I think you're one hundred percent right about what we should do. Ah, well, ours not to reason why, I suppose."

When Craggy sent for him it was not by telephone.

One of those efficient, hard-faced men came to collect him and guide him through the maze of elevators and fast-moving conveyors. Craggy's office was large. Large enough for the minor conferences which were a continuous part of his working life. Although the office was not as complete as the main Action Room, its walls contained enough electronic equipment to keep him in touch with the world. One wall was made of glass and was nothing more than a huge phosphor screen which acted as an oversize, bright-light television set. Any camera, projector or pantograph in the world could be connected to it. The director's desk was large and strangely old-fashioned. It was his personal piece and it amused some people to learn that the country's most up-to-date agency, the one which was so modern that it was always working ahead of its own time, was run from a piece of furniture which was an authentic antique. But Craggy would not be without it. It had belonged to his grandfather, and his grandfather had been President of the United States.

Chet's guide took him directly to the edge of the ancient desk and then silently withdrew. Craggy looked up from the documents he had been reading.

"Ah, Duncan," he said genially, "good of you to come. Make yourself comfortable; I'll be right with you."

Chet sat in the nearest straight-backed chair as Craggy put his signature to several papers.

"Duncan, you joined the Agency as a volunteer," Craggy said.

This was hardly news; there was no other way to become an astronaut. Nobody was conscripted or drafted into the unit. In fact the rate of selection was approximately four out of every hundred who applied.

"Yes, sir."

"Well, that's fine. You see, Duncan, we need volunteers. There are times which call for the application of something beyond the usual direct orders. Special times when the man must be dedicated to the task in hand; he must volunteer to take risks which could not, in good conscience, be assigned him by order. You do follow me?"

"Yes, sir," Chet said, feeling somehow that he had just volunteered for something.

"Ah, splendid," Craggy said solemnly, "then can we count on you to join the team of Operation Immediate?"

"Operation Immediate, sir?"

"Yes, Duncan. A three-man team, all volunteers. We cannot accept married men on this one. We need young fellows, men with a minimum of personal ties, yet with enough experience to undertake an extremely important mission. Operation Immediate is the name which covers the three volunteers, their back-up and support unit and all the equipment necessary to achieve a manned landing on the southern hemisphere of Venus."

CHAPTER IV

"A manned Venus landing!" Chet's first reaction was high enthusiasm mixed with pride at being chosen. Then the sobering facts closed in on him and questions collided within his mind. To a layman, a trip to the moon might not seem different from a voyage to Venus, but a trained man knew all too well the enormous differences between the two. The danger was best illustrated by the fact that although moon landings were fairly commonplace, no human being had come within millions of miles of Venus.

"Can we count on you?" Curtis asked.

"Yes, sir, of course!" Chet's reply was automatic. "But may I ask where the training site will be and who is the chief administrative officer of the project?"

"Naturally. The training site will be here and Operation Immediate will be under my personal direction. Captain Borg has been assigned as aide and he will work with you."

Chet was surprised. Ordinarily a separate base would have been set up to prepare for a project of this magnitude. He guessed that a training period of twelve to fourteen months would be scheduled during which two or three unmanned shots would be launched to pave the way for the three astronauts. The idea of Craggy tying himself to this single project for so long a period of time seemed unrealistic.

"I didn't quite understand, sir. I'm just guessing, but

I suppose we'll be at it for a year or so, and your time . . ."

Curtis interrupted Chet with his eyes; they narrowed slightly although his voice was still quiet and his manner lacking excitement.

"The launching date," Curtis said, "and by that I mean the lift-off for Venus with the three-man team aboard, will occur in exactly forty-three days."

Chet felt it in his stomach. He became aware that he was standing up. He did not remember getting to his feet. Chet had the horrible fear that he would turn and run right out of the room. The shock passed in seconds and he heard Curtis saying, "Sit down, Duncan; we've got lots to talk about."

Chet sat down and shook his head.

"Forty-three days!" He still could not sweep away the stickiness which the news had created in his brain. "What are we going in?"

"As you know," Curtis replied, "information regarding the Agency is released to personnel on a need-to-know basis. Each man receives only such information necessary for him to function competently at his assigned task. Under the circumstances you and your crew will be cleared to receive all levels of information pertaining to Operation Immediate. You will restrict what you learn to the immediate members of your crew. Captain Borg and myself. As of now, everything which comes to your attention, including this conversation, is to be considered covered by the Secrecy Act of 1979. Is that clear?"

"Yes, sir." Chet was back to normal and he knew there was no point to asking the hundreds of questions which wriggled within him. Everything would be made clear to him in an orderly process.

"All right. So far I've spoken only to Captain Borg so I am not in a position to give you the names of your crew. You'll all be assigned to the same quarters. As soon as I've had a chance, by this evening probably, you'll receive your first in-depth briefing together. You're aware of the Mariner launch which is being put together?"

Chet nodded.

"Although we're retaining the Mariner classification,

this shot is scheduled to be the first of the N series. Mariner N-1. N is for nuclear. You'll be going up, first, second and third stage, on chemical rockets as usual. The command module is nuclear. We had planned it as an instrument shot but it was going to be carrying a fully-equipped module. Its design incorporates the fittings and space for a planetary landing vehicle and a service module. Dummy weights representing these were going to be attached since we hadn't figured on sending the whole package on an instrument shot. Now we'll simply replace the ballast with the real thing and we'll beat the Russians at their own game. Forty-three days from now is the precise time for a Venus shot. There is a few-day leeway, but after that the relative position of Venus and Earth will start to deteriorate and won't be favorable again for over a year."

There was a moment of silence.

"That's about all I can say at the moment but we'll get together this evening."

Chet stood up, this time voluntarily.

"Oh, and Duncan," Curtis called as Chet reached the door. Chet turned around, deep in thought.

"Thanks for volunteering," Curtis said.

"Yes, sir," Chet replied. He left. If he had volunteered, he said to himself, then the Mariner N-1 was a sailboat.

Chet spent most of the afternoon moving into the new quarters which had been assigned to him, getting used to them and meeting his new crewmates. Each had a room to himself and each room was the same, including Captain Borg's. A comfortable bed, a lounge chair, a desk, radio and television and telephone were in each room. The television set received all the commercial channels plus three closed-circuit channels which were under the control of the internal Division of Information; anything that should be seen could be piped into any room or group of rooms. As soon as they were settled, the three men got together in the living room which they shared. Captain Borg was not present. When Chet entered the room, the other two were standing in its center talking. One of them spotted him at the doorway.

"Aha! Here's our C.A. I'm Carter Parret. This is Quincy Smith."

"Hi, fellows." Chet acknowledged the introductions. "What's the 'C.A.' bit?"

"Captain, acting. That's what you are, isn't it?" Carter said.

"I haven't been assigned any rank," Chet replied.

"Well, then, change it to read Condemned Astronaut."

"What's that supposed to mean?" Chet did not think it was funny but he did not want to start things off on the wrong foot. He felt a bit edgy.

"What did they charge you with, selling secrets to the Russians?"

"Maybe I missed something. What are you talking about?" Chet tried to keep the impatience he felt out of his voice.

"You didn't miss anything. That's the way they operate. They never come right out and tell you what's bugging them. They just keep sliding you here and there to keep you off balance and suddenly, phoom!"

Chet could see that Parret was serious.

"Hey, would you mind coming straight to the point and telling me in English what you're talking about?"

"Aw, he thinks they put him on a suicide mission because they don't like him," Quincy said.

"Well, how else would you figure it? What do you think the chances of this operation are? I'll tell you what *I* think . . ."

"Cut it! Cut it out right now!" Chet was angry. If this sort of thing was allowed to continue, the mission would be aborted before it had a chance to get started. "We picked a pretty risky way of earning a living when we joined the Space Agency. Okay, so we're taking risks, but get this real straight: there are no suicide missions in the United States Space Agency." Chet wished he truly felt as strongly as he was making it sound, but he was not going to come apart at the seams and he would not permit anyone else to pull the ripcord. For the moment, Parret subsided.

Quincy spoke up. "I couldn't agree with you more. We picked the Agency, they didn't pick us, and I feel honored to have been picked for what may turn out to be a really tough job. Do you have any idea what people will say if we can pull this one off? I'll tell you

something, man"—he was actually quivering with the intensity of his feelings—"our names will be on all the history books of the whole world for all time."

"Listen, Smith," Parret said unemotionally, "Vincent Adler is an old friend of mine. That name ring a bell? He served with your unit for the better part of a year. You know what he says? He says you're medal happy. He kind of gives the impression that if they offered a medal for drowning, you'd jump into the ocean."

Quincy smiled coldly. "G-U-T-S. That's what it takes to stay in this business, laddie. Have you ever thought of applying for a disability retirement? I think you could prove your case. Right in there." He pointed to the other man's midsection.

"Knock it off, both of you." Chet decided it had gone far enough. He knew that his crew had been handpicked for the mission; their names had not been drawn from a lottery. Under the circumstances, he did not want to have to request a change of personnel, especially since time was so short. On the other hand, if there was bad feeling between two of them, it could become disastrous since their safety depended on close cooperation.

"Now you listen to me and listen to me carefully," he said loudly. The full force of his personality overwhelmed the two men and they gave him their attention.

"A great deal of hardware, a few million bucks and the future of two hundred and fifty million Americans and a billion Asians are going to be riding on the success or failure of just three men. I am one of those men. I can tell you I am not interested in suicide and I don't want any medals and I'm not prepared to undertake the hazards of this mission with two clowns who hate each other. I want to know two things. First, you, Parret. Are you willing and able to work with Smith?"

Parret backed down. "Sure," he said, "no problem. I've got nothing against him. I've got some gripes against the system but I can work with anybody."

"And you, Smith. Are you willing and able to work with Parret?"

Chet wanted to nail the thing down tight.

Quincy shrugged. "Why not? I just want to do the

job I'm being paid for. This is the one mission I've been preparing for all my life. If Carter will work with me, I'll be happy to give him my best." He smiled; not quite as coldly this time, but Chet did not get a feeling of warmth, either. Smith faced Parret squarely and stuck out his hand. "Tell you what," he said, "I'll withdraw that remark about guts if you'll take back my medals. Is it a deal?"

Parret shook his hand but their eyes avoided each other. "It's a deal," he said.

"I just want you guys to know that you've just stuck yourselves with each other because from now on there'll be no bickering between crew members. Just to make sure, I'm going to make that my first official order of this mission. I will remind you that this mission constitutes hazardous duty; I call your attention to the fact that this mission started officially for each of you this afternoon when you were assigned to this crew. And lastly, I'm going to ask you to remember the penalties which are provided for disobeying a direct order while on hazardous duty. I believe it starts at around twenty years of hard labor and runs up from there," he concluded dryly.

The first crisis of Operation Immediate was over. Chet did not believe that a good leader exercised his authority best by pulling rank. But he was a good enough officer to know that the authority vested in him by the director of the Agency in the name of the President was intended to be used to ensure the success of whatever task he was assigned. Oddly, he had so far not been handed a rank but he understood that he was to lead the mission and he had reacted as a leader. Clearly Parret and Smith had accepted his authority.

Realizing that the utter lack of detailed information was causing an uneasiness which bordered on alarm, Chet wisely decided to keep further conversation away from the impending task, at least until they had received more information and were put to work. So they talked shop until dinnertime. They discussed their experiences and the lighter side of life in the Agency but neither Venus nor the Russians were mentioned.

They were finishing their meal when the summons came. They were to report to Craggy's private con-

ference room. Carter and Quincy jumped to their feet instantly, anxious to follow the guide at once. Chet deliberately finished the glass of milk he had been holding. He drank it slowly, wiped his lips and placed his napkin neatly in front of him. Then he stood up and joined his two crewmen by the door.

"Ready, gentlemen?" he asked. It was a good performance. It helped calm them down so that they did not go running down the corridors and bursting into the conference room. They strolled casually to their destination, each man containing his excitement as the guide found himself having to slow down repeatedly in order not to get too far ahead of them.

Director Curtis was waiting for them at his place at the head of the table. To his right were Captain Borg and another officer who displayed the marking of commander's rank. The commander had a pantograph in front of him. A piece of paper was in place on its glass surface. Anything written or drawn on the paper, whether in black and white or in color, would be projected on the wall. Craggy performed the introductions; the commander's name was Pat Bradley. The astronauts took their seats on the left side of the table, Chet sitting closest to the director.

"Commander Bradley will give you the background material on Operation Immediate," Craggy said.

The commander coughed nervously and twiddled a pencil with the fingers of both hands. From the paleness of his countenance and his slight build, Chet guessed that he was a desk officer.

"Gentlemen," the commander began. "I'm afraid some of this is going to sound a little basic to you but I feel that we should start at the beginning."

A depiction of the solar system appeared on the wall screen, and the commander began to go through orbits and variances until the director coughed.

"Ah! Yes." Bradley had got the message. "The synodical revolution of Venus in its relation to Earth is what calls us all into this room. It has, in effect, created Operation Immediate. In forty-three days, Earth and Venus will be ninety days away from their closest. Mariner N-1 will take ninety days to arrive at its destination. So if we launch in forty-two days, Mariner will ar-

rive at Venus one day sooner than the closest point and it will have traveled wasted miles. If we launch in forty-four days, we will have missed the closest approach by one day. So forty-three days is best. Now, a few days one way or the other won't be fatal to the plan, but why not do things right, eh? Of course, if we miss this launch, gentlemen, it will pass beyond our reach for another nineteen months. That's a long time."

The director took over. He nodded pleasantly to the commander, who was industriously working out an involved mathematical equation. His figures, spilling all over the orbits of Venus and Earth, were projected clearly on the screen.

"Thank you very much, Pat. I think you explained the urgency of immediate action very well. Are there any questions, gentlemen?"

He looked around the room.

Chet spoke for the astronauts. "No, sir; not about the need for immediate action. I think Commander Bradley made that quite clear. But I would like to have some idea of the state of readiness of the equipment."

Pat Bradley was totally immersed in his equation. Craggy slipped a finger on the control panel at his elbow and flicked a switch, shutting off the projection light.

"Captain Borg has made the rounds; he's talked with the department heads and I think he is prepared to give you a preliminary briefing on what he has found out. Alex?"

"At this point," Borg said, "I can only repeat what has been told to me. In a few days I expect to be able to talk from my own knowledge. But this is the way it seems to shape up. There are two complete systems ready: N-1 and its backup, N-2. Since timing is so critical, they plan to have two birds ready to fly so if number one develops a hitch, they'll let go with number two.

"Since it's going to be a manned flight and we have only one crew, we're having the spare module installed in the space simulator room. You'll be doing your training in the real thing . . . a big advantage."

"Has this type module ever flown, Captain?" Parret asked the question without any inflection.

"Yes, it's been through extensive testing. It has been flown a number of times with a straight hydrogen engine. Now it's been modified to accommodate a nuclear-hydrogen power source. The major difference is that instead of using large quantities of fuel and a matching supply of oxidizer, you'll be utilizing hydrogen as a single supply of fuel. This will give you more than twice the specific impulse. The Mariner N-1 command module packs a thrust of over one million pounds. In electrical terms, that represents five times the total usable power generated by Hoover Dam. As far as the module itself is concerned, I am satisfied that it can be considered fully tested."

"Captain," Parret persisted, "has this type of power unit ever flown?"

"The truth is that no nuclear-powered rocket has ever been used in a command module. However, this power unit has been used very successfully in several other applications and, even in its present hookup, it has been extensively bench-tested."

"Sir," it was Parret again, speaking quietly but insistently, "in view of the fact that they're sending three live men up and not a bench, are you satisfied that this is a desirable first use of this particular engine?"

"I think it's quite clear that if we had all the time we wanted, we would probably want to make an instrument shot before going manned. But yes, I am satisfied."

Creighton Curtis thanked Captain Borg for his exposition. "I realize, gentlemen," he told the astronauts, "that there are hundreds of individual questions which you would like to have answered. I can assure you that there is an answer to every question. . . . We are leaving nothing to chance. But now, unless you have some questions relating specifically to what you heard here today, I will close the meeting. Tomorrow will be your last day of rest. As of the day after, you will be following a detailed schedule which will cover fourteen hours per day."

Chet had no questions. He was far from convinced that the operation was as precisely planned as Craggy made out, but he was willing to reserve judgment until

he had experienced a few days of training. That is where it would all come out.

"If I may say so, sir," Quincy Smith said, "I feel that all of us should stress the urgency of the situation. Whatever risks are involved must be viewed in the light of the absolute necessity of carrying out this mission."

Curtis was gathering up his papers and did not acknowledge the statement either by look or word.

"I have a question," Parret said suddenly, drawing the director's attention.

"Yes?"

"Well, sir," Parret said smoothly, "I fully understand the urgency of the mission; what I'd like to know, sir, is what percentage of success has been determined for this operation?"

A cloud passed briefly over the director's features. He paused, looked deeply into the astronaut's eyes and measured his words carefully. "The Agency has never officially or unofficially assigned a percentage of any sort to any mission, whether manned or not. No countdown has been completed until a consensus of success has been obtained. In other words, if a so-called percentage of success were to be assigned, then each and every launch, including this one, would be rated one hundred percent. Do I make myself clear?"

"Yes, sir," Parret replied. "Thank you."

Back in the living room of their personal quarters, Borg addressed Parret: "Carter, I get the impression that even though you volunteered you're not too happy with your assignment."

"No, I don't claim to be happy," Parret said, "but I don't really think that 'happy' is the right word. I'm never 'happy' or 'unhappy' about any assignnent. I'm an astronaut and I simply do what I'm told to. But I like to ask questions because it helps me set my mind straight."

Borg accepted the answer and was satisfied that there would be no disgruntled astronaut ruining the mission.

"All right, everyone, gather around." Borg suddenly became jovial. "I have an announcement of great moment—promotions, *Lieutenants.*"

He pinned a silver bar on Parret's collar, then Smith's. Smiling, he turned to Chet.

"Astronaut Duncan, this double silver bar entitles you to the title and pay of Lieutenant, Senior Grade. Warmest congratulations, good luck."

CHAPTER V

More than half of the underground area occupied by the Space Agency in the Santa Monica mountains was devoted to the training complex. It was designed to reproduce as nearly as possible any situation which the flight planners could conceive of. The command module of the forthcoming mission, the sister to the one which would actually be used, was installed in the complex. Its inboard fittings were exactly like the ones the astronauts would be using during their months in space. Its windows were removed and sophisticated television screens were installed in their place. All the instruments, gauges and read-out meters were hooked into the cluster of computers and servo-mechanisms which surrounded and almost hid the module. Its attitude could be arranged to match any needed position.

When the astronauts were aboard and the hatch sealed, their module could have been on a launching pad, or in earth orbit, or traveling through space toward any preselected destination. They ran through every possible exercise, were tested for any emergency. Training in the simulator went on and on.

The time factor was all important. Commander Bradley called it timing; now Chet understood more clearly what he had meant. The training chief would throw problems at the team. Each of the problems had a solution, a series of actions which the astronauts could take to bring things back to an even keel—if they had enough time. If they could speed up their thinking and apply the solutions, they would come through every test in good shape. Otherwise, they theoretically "died," just to prove the point.

The three members of the team spent so many hours in the training module that they got to know it intimately. Its interior was not much different from the

type they had used for lunar missions. It was somewhat larger and the instrumentation was more complex, but they all had reached the point where they could, with eyes closed, lay their hands on any desired switch or valve.

Aside from training in the command module, the astronauts spent many hours operating the training planetary landing vehicle. This would be their means of touching down on Venusian soil. Even more important, it was their means of leaving the surface of that planet and rejoining the command module, which they would leave in a parking orbit. This docking, at the completion of their mission, would be accomplished by using the controls housed in the landing vehicle. Although Chet, by reason of his rank, was scheduled to be at the main controls of whichever vehicle they occupied, all three took turns at every station so that, in the event of emergency, each could double for the other at any position.

They also became thoroughly familiar with all the equipment they would use: new motorized sleds, and the long gripping tools necessary because the heavier suits made bending very difficult. They even had to practice with the new food paste-packets, designed to be eaten in a spacesuit, helmet and all. Since the astronauts were not taking a mooncrawler, there would be no unsuiting at mealtime, once they were on Venus.

Navigation and communication absorbed much of their remaining time. Sealed in the command module or the landing vehicle, they spent hours talking to "Earth" with delays ranging from four and a half to six minutes, to accustom them to the time lag. They familiarized themselves with the five letter code they'd be using so that they were able to pick the combinations they needed and decode the ones they received in the shortest possible time.

With just under a week remaining, Chet and Quincy and Carter felt that they were as well trained as they were ever going to be. Which was not to say that they felt supremely confident about the forthcoming mission. They were well aware of the gaps.

When they were called to the final briefing, the

whole thing was an anticlimax. Although they each retained their private thoughts, the trio had settled into the inexorable pattern; there was nothing that could be added to their training. No questions were asked. What was known had been told them. What was unknown could not be told them. It was that simple. They were anxious to be on their way.

Curtis and Borg and Bradley attended the session, as well as several scientists and officers who would be manning the ground control functions. Craggy was his usual distant, coldly efficient self. If he felt any particular emotion as the final moment of this bold adventure rushed toward them, he filtered it through his impenetrable outer mask. The chief of the training complex presented a brief report which outlined the course and pronounced the team ready and fit for action.

At a nod from Craggy, Captain Borg rustled some papers and came up with the announcement that the Cape was reporting all systems "green" with no hitch expected. Lift-off was being planned right on schedule.

The supply officer revealed that all equipment, fuel, food and provisions, down to the last aspirin tablets and decongestion pills, were at the Cape in the correct containers. These were even now being loaded and stored in their appointed places.

Craggy thanked them all for their reports and for a job well done, then he delivered a short talk on the importance of the upcoming mission and he expressed his confidence that all would go well and that upon the return of the astronauts, the United States, indeed the whole world, would be grateful that old-fashioned American guts and ingenuity had provided truthful answers to the difficult questions of our times. Everybody could sleep better at night knowing that science was pursuing knowledge and not political gain; and now that nothing was left on the agenda and the astronauts would be leaving for the Cape at once, he would bring the meeting to an end unless there was something someone wanted to say. His eyes had almost completed a circle of the table, having drawn nothing but silence until Carter Parret's eyes met his. There was a brief pause. Parret looked as if he was about to say something. Then for an instant he seemed about to

pass but finally his lips formed a little crooked smile and he said, "Goodbye."

Within three hours, Captain Borg and the astronauts were landing at the Cape, where they got their first look at the big bird poised on its launching pad. It was a colossal structure that seemed to tower halfway to the clouds. Its service gantry nestled alongside and fed it hoses and wires while a beehive of white-coated workers crowded at its base. They stood for a minute, taking in the impressive sight; you could take part in four flights per year and train in between, but the first sight of your new vehicle always took your breath away. And this one was the biggest ever. They made a tour of the reinforced concrete bunkers which housed the launching and tracking and communication crews and shook hands as they accepted the good wishes of the men who would send them off. Via closed-circuit television, they met and said hello to the fellows at Houston who would be monitoring them.

They were called at four o'clock the next morning and informed that the countdown was proceeding without delay and that the seven-thirty lift-off would occur right on the button. They had breakfast and walked to the suiting room. Nobody seemed to hurry, yet there was not an empty minute: one step followed the other with quiet efficiency. Each man received a copy of the launch plan and a heavy book containing the details of the flight, a schematic of every piece of equipment and instructions for meeting every conceivable type of emergency. Finally they were fully suited and hooked into the portable support systems. Then they climbed into the back of a special white bus which was used only for this purpose and driven across the endless, empty concrete to the gantry—for reasons which it did not care to divulge, the Agency had prohibited any public news coverage. Agency cameramen recorded the proceedings without getting in the way so the trio made a swift passage from the truck to the gantry elevator. The three astronauts smiled through the thick plastic of their helmets and waved acknowledgment to the workers who shouted wishes of good luck, but

they did not break stride. Everything went with a mechanical precision which bespoke the years of training.

The elevator lined up with the open hatch and extended a small platform. Chet and then Carter, followed by Quincy, used this to climb aboard. From the moment they took possession of the command module, the three could not spare a single thought to the drama of the event. Strapped to their bunks, they each had hundreds of tasks to perform, gauges to read and record, instructions to receive over their headphones, valves to position, needles to balance. Through it all the steady countdown continued until one minute was left and everything was ready. And then the minute began giving away its remaining seconds and the familiar ten . . . nine . . . eight . . . sounded. This scene had been rehearsed so many times that there was nothing new about it, nothing to get excited about. Pure routine. And in a purely routine way, they received confirmation of ignition and the cabin shook and trembled, causing their voices to vibrate as they acknowledged the signal that lift-off had occurred.

Only the doctors back near Malibu, monitoring the pulse and heartbeat of the departing team, knew the tenseness and excitement aboard the rapidly disappearing N-1.

CHAPTER VI

They were in orbit, one hundred and seventy miles above Earth. Here they made two complete revolutions to make sure that everything was functioning and to make themselves more comfortable. They adjusted their suit temperatures, made sure the module was properly pressurized and answered a battery of questions thrown at them by ground control. If a weakness could be ascertained anywhere, even a hint that something might not be one hundred percent normal, the mission might still be aborted and their return to Earth ordered. Parret looked keenly for any sign of trouble. He could find none. Then they lay back and relaxed as ground control activated the mighty nuclear engine

and kicked them out of orbit into their long main voyage.

As the rocket shut off, telemeter readings checked their attitude, speed and direction; they were right on course. Within an hour they had stripped down to underwear and had put on loose-fitting coveralls. Then they had their first meal. They called it lunch since their last food had been breakfast, but from now on meals were whatever they called them, and boring besides. Boredom, in fact, would be their constant enemy and companion. No more than ten minutes out of every hour would be devoted to the regular checks which were required. No more than eight hours a day could be naturally used up in sleep. Checkers, chess and playing cards were available as well as a number of other games; and there was a tiny area called the "gym," which permitted some exercises, since muscle tone would be important when the time came to lug all the heavy equipment down to the landing area.

The command module was never quiet. Several electronic channels were in continuous operation, but the men were so used to the arrangement that, unless they deliberately focused their attention onto a particular sound, they were not even aware of its existence. One improvement over previous flights was the tape recorder which had been built in. Many hours of listening was available in light, pop and classical music as well as comedy and historical pieces. They decided to ration their listening because many more hours of voyage existed than were packed onto tape and they they did not want to play the tape over so many times that they got sick of it. At this early stage of the trip, they were able to receive commercial programs from home stations, both directly and by virtue of ground control selecting a program which they taped and relayed up.

Even when nothing was coming through for them, the gentle hiss of the open channels was constant. White noise was what radiomen called it.

Quincy had just returned to the main control room from the first nap enjoyed in space by a member of the Operation Immediate team, when a startlingly loud signal was received. The incoming voice filled the cabin.

"DMBVP. . . . DMBVP. . . . DMBVP. . . ." it said over and over.

The three men looked at each other and Chet reacted first. He reached swiftly for the five-letter code book and it confirmed what he had thought:

"DMBVP: use scrambler, channel 536, to receive urgent message."

As Chet read out the translation, Carter made the adjustment on the scrambler set and flicked its main switch. They could now talk to ground control directly and confidentially.

"This is Mariner N-1, Chet Duncan. Come ahead."

"Chet, this is Borg. Am I coming through?"

"Read you clear, Captain. What's up?"

"We've got this one from Jodrell Banks. No confirmation from original source but the Russians have sent something up. Looks like you're going to have company on your trip."

"All the way?" Chet's spontaneous reaction was one of pleasure. Company of any kind in space seemed better than none.

"We can't tell for sure, but that's what it looks like. You haven't seen anything, have you?"

"Not a thing. We'll look around and keep an eye on the long-range scanner but it doesn't show anything at this point. What do you think, Captain—are they shooting for Venus? Is it instrument or manned?"

"Oh, it's manned, all right. That much we can tell you. Apparently they've been parked. We're trying to latch onto them but right now we're relying on Jodrell. It won't be too long before you're out of scrambler range. We want to keep this down to a whisper until there's official word either from them or from us. No point to letting them know what we know. If you get any sign from them, use this channel back to us, if it's still readable. If we have to talk in the open, we'll call them 'Little Flower,' got that?"

"Little Flower," Chet repeated.

"Right. I'll get back to you as soon as we have something. Happy times, all of you. Out."

"Out." Chet switched off the transmit button.

"Well, I guess that settles it," Quincy said cheerfully.

"Settles what?" Chet asked.

"Why, whether the Russians have been pulling a sham. It doesn't prove whether they're right or wrong, but it sure tells us that they believe their own story. They wouldn't be sending cosmonauts up otherwise."

"Let me tell you what it proves," Carter broke in. "Absolutely nothing. Zero. At this moment we're not even sure they're heading toward Venus. If they are, they might be orbiting and returning without a landing. And if they do land it simply means that cosmonauts, like some astronauts, are not highly prized by the powers that be."

"All we've got to go on is a guess," Chet said, "but if one guess is as good as another, mine is that they'll be on the road with us. And my second guess is that they'll attempt a landing."

"How do you figure, Skipper?" Quincy asked. He was excited and intensely interested in the development. It gave the operation new meaning. They were not just on an exploratory mission. If the Russians were up here, they were in a race. Chet frowned as he thought deeply.

"Well, we know that this is the right time for a Venus shot, don't we? And we know that our cosmonaut friends have a touch for the flamboyant. You know, first to Sputnik, first man in space; now, maybe first on Venus. Sounds just like what they might do. Only we beat them to it."

"Beat them to it?" Carter snorted. "If you're right and they're on their way to Venus, how can you say we beat them to it?"

"What I mean," Chet said evenly, "is that they've had Venus on the mind for a long time. I imagine when they sent their probe, they were planning a manned shot as a follow-up. We weren't planning any such thing. This was to be an instrument flight, remember? In forty-three days, we converted it into Operation Immediate so even if we launched at the same time they did, I'd still say we beat them to it."

They argued back and forth for a while, discussing the various possibilities, but no one could be sure because their scanners showed nothing and until word arrived there was nothing definite to talk about. It was not possible to search the vast skies in every direction

with long-range radar; although it could be pointed in every conceivable direction, its main function was to sweep a cone-shaped area in front of them to make sure the way was clear for their speeding module. The short-range scanners created a bubble of security around them but it was a small bubble, a mere few hundred miles thick.

Captain Borg came through on the scrambled channel again. This time it was not as loud, nor as clear. The scrambler used up too much of the signal's energy.

"This is Borg. Acknowledge, please."

Chet activated his transmitter. "Right, Captain. Mariner N-1 reads you."

"Okay. It's official now. There are three of them in a big one. Could be carrying landing vehicle but no Russian word on its objective except that the target is Venus. Jodrell confirms they're out of parking and on their way. Is that clear?"

"I understand. The signal's kind of weak but we got you. Any instructions?"

"No change," Borg replied. "Just wanted you to know. From what we've worked out, their course will keep them separated from you by four, maybe five, thousand miles. We'll bypass the scrambler from now on but we'll keep switching channels. Next transmission will be on 2573. Repeat 2573, got it?"

"2573," Chet acknowledged.

"Right. At the end of each transmission, we'll give you the succeeding channel in code. At least we can keep them jumping. Anything new?"

"All green," Chet said casually.

"Fine. Then just stick to schedule and we'll keep you informed. Good luck. Out."

"Mariner N-1, out." Chet switched off the transmit circuit and tuned into channel 2573.

Now that their conversation was again private, Quincy spoke up. He was smiling broadly. "Boy, have we got it made! Don't you see? Like Chet said, they've been planning this one for a year, that's how important they think it is. And we've got the jump on them. We'll set foot on old Venus before they do."

"So what?" Carter was not impressed.

"The record book, man! First men to land on Venus:

Chet Duncan, Carter Parret, Quincy Smith. The Russians came in second. Get that? The Russians. No names, because who cares who got there second?"

"Aw, come off it." Carter's voice registered disgust. "Who gives a hang about a record book? The point is that the people of Earth want to know what Venus is like. Well, if the Russians want to waste a few cosmonauts to find out, I say let them."

"Now, now, children," Chet said, imitating a kindergarten school teacher, "quarreling is a no-no. We've got a great big job to do and we're going to do it like great big grown up men. Carter, why don't you sack out? Quincy and I will play chess."

"Good idea," Carter agreed.

He was about to get up when an amber light winked, indicating that a message was coming across on one of the standard channels. Carter waited in place as Chet punched a button and twisted a dial until the needle centered. There was a lot of static but a voice could be heard.

"Mariner. Mariner. Mariner. Allo Mariner."

Chet turned the transmitter to the same incoming wavelength.

"This is Mariner. Who are you?"

"Aha! Mariner!" the voice expressed satisfaction, "This is Venera. Leff-tenant-coll-onell Yarmonkine here. We are two days ahead of you but welcome you to Venus Road in name of Soviet scientists. If we kicking up too much cosmic dust, tell me. We change course for you."

That was a direct lie and the astronauts knew it. Venera, the Soviet module, was not ahead of them. It was not alongside them. It was somewhere to one side and to the rear, further from Venus than the Mariner was. Chet made sure that the conversation was being relayed back to Earth.

"Sure you're two days ahead of us, Lieutenant-Colonel Yarmonkine." Chet's voice was tinged with sarcasm. "Perhaps we can be of assistance on landing. Would you like us to set up a beacon when we get there, to guide you in? Or aren't you figuring on landing?" Chet was probing for information.

"We land. Very good. We finish and take vacation

before you find Venus. Are ten men on Venera. Small army, hah-hah. How many you got?"

"One for each of you, buddy." Chet was careful not to divulge anything. "How would you like to play a game of chess by radio?" he inquired brightly. A running game through space would give them something to do and might also help them keep track of the Soyuz.

"No chess." The answer was gruff as Yarmonkine dropped his attempt to bully the astronauts with banter. "No games. Is serious. Out."

The conversation was over. Chet closed down the channel. Whatever the Russian's point was, he had not made it, only coming across with two very inept lies.

Parret's evaluation of the episode was to confirm his long-held belief that the Russians were pathological liars and that their story about conditions on the planet toward which they were all rushing was an out and out fabrication In his view the Agency was foolish to take the Soviets seriously and the astronauts were bigger fools to undertake so hazardous a trip on such flimsy grounds.

Quincy, as usual, saw the conversation as proof that the Russians were anxious to be the first to land and were only trying to discourage the Americans. He felt Parret's attitude was only playing into their hands. They did not fool him, though. He was more determined than ever to see Mariner set down on Venus before the Russians could claim the record.

Chet balanced the two views, allowing both men to give rational vent to their personal feelings, making sure that disagreements did not degenerate into outright hostility.

Channel 2573 came to life, carrying the five-letter code. "GTREI, AALMT, RCISH." This was repeated twice.

"Well, I'll be," Chet said, as he found the combinations and read them out. "It's a message to me." He looked up in surprise. "Listen to this, 'You will immediately assume the temporary rank of Commander.' Number three switches us to channel 1116." He made the necessary adjustments after acknowledging receipt of the message.

"Now what do you suppose that was all about?" He

asked the question impersonally, as if merely talking aloud.

"That's easy," Carter responded. "Old man Venera, what is his name?"

"Yarmonkine."

"That's it. What was his rank?"

"Leff-tenant-coll-onell," Quincy answered, giving a pretty good imitation of the deep Russian voice.

"That's what it's all about," Carter explained; "they don't want you outranked. Lieutenant-colonel Yarmonkine will find that his counterpart is Commander Duncan. Pretty neat. Somebody down there's been doing some thinking. They even had it all set up in the code book." His tone of voice conceded a note of respect.

"Hey, how high up does it go?" Quincy asked with a grin.

Chet turned the pages of the code book and smiled, "Sorry, fellows, but captain is as high as it gets."

"Aw, that's too bad." Quincy shook his head in mock dismay.

"What would the Agency have done if the Russians had sent up a general?"

"To begin with, they wouldn't send up a general on a fool stunt like this." Carter could not resist getting his dig in. "But if they did, I suppose we'd get a clear voice transmission saying, 'Chet Duncan, you are now Acting Temporary Director of the whole feather-headed Agency.' Well, anyhow, congratulations, Commander. I guess it means extra pay for the whole time. But remember, you've got to get back to collect it." He got up. "It's nighty-night time," he said lightly as he made his way toward the sleeping bunk.

Week after week, Mariner N-1, which had seemed so large at first sighting, streamed through space toward its rendezvous with the planet next door. As it pierced deeply into the mighty void, it seemed to get smaller and smaller in relationship to the emptiness around it. The middle weeks passed uneventfully. Ground control, which was now so far away as to seem almost unreal, was receiving its information automatically and did not bother the astronauts with voice communications. The module was behaving beautifully. Less went wrong

than would be experienced in the average house with the same period. No fuse failures. No fluctuations of temperature. Not even the burn out of a single tiny bulb.

Because there was nothing to do and no way to alter the course of events, the astronauts did the only sensible thing: they accepted the lazy life and whiled away the middle weeks with exercise, games and tapes. Their only relief from the internal boredom was provided by Lieutenant-colonel Yarmonkine, who called to them once or twice a week. He obviously wanted to keep track of them; perhaps he and his crew also felt the loneliness of silent travel. In any case, there was no point to pretending the Mariner was not there. By this time, Earth was abuzz with the story of the great race. Details were sparse and given out grudgingly, but the world knew.

So, since there was no point to denying their existence, the astronauts always answered the Russians' call. He was brusque and domineering, always claiming to be far ahead of the Mariner. His attempted fraud was not impressive, however, expecially since he continually asked for their position. Chet fenced with him, teasing him.

"Why, Colonel," he said once in reply to the usual inquiry about position, "all our instruments are out so we have no idea where we are. But tell you what. You give us your position and tell us how far back of you we are and then we'll be able to plot our position. As soon as we do, we'll tell you, okay?"

This sort of fun usually resulted in the Russian breaking off the conversation with humorless abruptness. But he always called back within a few days. This had been going on for weeks before the cosmonaut realized that he had never even received such minor information as the name and rank of the man to whom he had been speaking.

"Leff-tenant-coll-onel Yarmonkine, here," he started off one call. "I wish to know your name and rank."

"If you're planning to take us as prisoners-of-war," Chet replied, keeping his voice even to mask the grin on his face, "I think, under the Geneva Conventions, you're also entitled to my serial number. But, Colonel, I don't think the twenty men you have with you will

be enough for the job." Chet had deliberately doubled the number which the Russian had previously claimed in order to let him know that his bluff wasn't being taken too seriously.

"Is politeness, comrade," the Russian answered stodgily, ignoring Chet's light-hearted approach. "Name and rank is simple courtesy, no?"

"You're absolutely right, Colonel," Chet relented. "My name is Chet Duncan, Commander, United States Space Agency."

From then on, it seemed as if the Russian treated him with greater respect. But there was no friendliness and Yarmonkine never gave up his claim to be far ahead of the Mariner.

As the middle weeks wore away and Venus began to loom large and round, the boredom and mechanical routine evaporated. The flight plan called for the Venus orbit to be achieved by remote control from Earth, with the astronauts to override manually in the event of error or failure. As a result, the trio began to spend many hours memorizing each figure and every reading which should appear in sequence. They rehearsed and discussed the procedure they would be following in the event it became necessary to assume manual operation.

Chess and checkers were put away with the other games and, as the time neared and excitement mounted, the four-hour stretches of sleep were not properly maintained. Rarely did any man sleep more than three hours at a time; they could not bear to be away from the center of things now that the mission began, for the first time, to assume proportions of reality. Venus was there. Oh, it was there all right, shining as big and much brighter than Earth appeared on their Lunar trips. The cloud bank reflected more light than did the oceans and land masses of their home planet. But what was beneath those clouds? Each man asked himself the same question. That was what they were here to find out. During the last week, the Russians did not put in a call to them. Parret thought it was because they did not intend to land and did not want to reveal that their flight plan called for a mere orbit. Chet guessed that the Russians were probably every bit as

occupied as the astronauts with preparations for touchdown. Quincy agreed with Chet.

On the day before the N-1 was scheduled to kick them into orbit around the shimmering planet, high above the dense cloud cover, the astronauts were fully prepared. They had just completed one of the few hourly checks remaining to them and had eaten a quick meal when Parret looked very quiet and thoughtful.

"You know," he said, "I've been thinking. Since the landing vehicle will be going down through the murk, there'll be no visual contact between it and the command module. Since nobody knows what's down there, wouldn't it make more sense if one of us stayed up here to keep an eye on things? I mean, that way communication would be assured and, if it should become necessary, a rescue attempt could be mounted."

Quincy was onto him like a flash. "Whom did you have in mind?" he asked with a blank expression. "Like, whom do you think it would make a great deal of sense to leave up in the module?"

Carter looked at him steadily without batting an eye. "I was not suggesting anybody," he said. "I was not proposing a person; I was presenting an idea. And I happen to think it is a good one. If you'd like to, you can stay here, for all I care. I just think someone ought to remain aboard."

"What? The first guys in history to land on Venus and you figure I'm going to stay cooped up in this tin box like I'm back at the training section? Think again, buddy." Quincy was indignant.

"Cool it, pal," Carter said. "First you beat my head in because you say I'm trying to stay aboard. Then you kick me in the shins because I tell you to stay here. Really! Can't I do anything right?" He turned to Chet. "How about you, Skipper? Would you stay up here and keep an eye on us?"

Before Chet could answer, Quincy exclaimed, "You know darn well that the skipper is in charge of all operations on the surface, not to mention his being chief pilot of the landing vehicle." He leaned in Chet's direction. "You see, this is how it works. Someone has to stay behind because that's the only thing that will make Carter happy. And we don't want him unhappy,

do we? Well, I won't stay behind and he knows that for sure. You can't stay behind. Well, then, who does that leave, eh?"

Carter turned pale with anger. His mouth opened but Chet cut him short by tossing him a copy of the master flight plan. Cater had to reach and fumble to catch hold of it.

"If you care to look it up," Chet told him, "it says in there that three astronauts will land on the surface of Venus. That means three. Which includes all of us."

Carter realized that Quincy's outburst had killed his plan so he moved to retrieve his position. "That's okay with me, Skipper. I hope you don't think that Smith was justified in what he said. I was only thinking that if in your judgment my plan was worthwhile, you could override the flight plan and—"

"I'm not thinking anything," Chet answered with finality. "I just know what the flight plan says. I know we agreed to it. I know nothing has happened to change the plan. And I know that we are all going in."

"Suits me," Carter said.

"Great!" Quincy exclaimed.

Peculiarly, although the changeover from the dull routine of the many weeks into the bustle of the final days had caused a stir of excitement and a loss of sleep, on the eve of their arrival all three had settled down to the task which they had in hand. They all slept blissfully when their turn came, and when the orbital countdown began they were at their places, alert, relaxed and ready. The rockets roared, slowing their approach, and orbit was achieved perfectly. The fellows looked at each other and smiled broadly. They were about to embark on the most dangerous portion of their mission. But the successful voyage which had covered twenty-five million miles had been capped by a beautifully simple functioning of all systems. So they forgot the dangers and were buoyed by confidence in their equipment and the scientists of the Agency who had engineered their exploration.

"Okay, let's close her down," Chet said.

Each man had a checklist clipped in front of him and they proceeded to follow it down, throwing switches,

opening and closing valves as they went. They were fully enclosed in suits and helmets. Now they strapped on the backpacks, plugged in and shut down the main cabin power. Solar rechargers remained active, as did the instrumentation. Most important of all, the radio repeater was brought to life. The landing vehicle would receive and transmit back to Earth through the two-way repeater, which was much more powerful than the portable equipment they would be using. Everything ready, they rose from their couches and followed Chet through the access tunnel and into the open hatch of the planetary landing vehicle.

Their intensive training showed in the manner in which they each went to their appointed places and brought the vehicle to full life. The inboard computer was checked against that of the command module and proved to be in perfect synchronization. The automatic release mechanism had been present to land them in the southern hemisphere. At last, the ready switch was closed and the three men sweated out the pretaped countdown which sounded; the computer was telling them how many seconds remained before final release.

They were off. Gently, smoothly, they separated from the module and started their downward spiral. Chet, at the controls, integrated his movements with that of the automatic machinery. At fifty-thousand feet above the surface, he would be taking over as the automatic controls released their duties to him. Down they came, nearer and nearer to the blanket of clouds. Wisps scuttled by the large windows, white and misty. Then they were in it and their windows were blinded by the pressing fog. The white turned dirty and they were descending through a layer of brown cloud which looked like the highly compressed smog of Los Angeles on one of its worst days, only darker and deeper and almost endless. It was here that they were first caught by the wind.

They had expected wind, and Chet had at his disposal controls with which to counteract a sideward force from any quarter. What threw him completely was the fact that the wind seemed to be blowing almost straight up at them. Not quite perpendicularly because even that could be countered by adjusting the

down-pointing retrorockets, but up from the surface at a slight angle which caught them and tilted them and against which Chet had no prepared defense. The howling force clawed at them and blew them upward and to one side. Hastily throttling down the retrorockets, Chet released a jet on the port side, hoping to push them sideways and maintain the vehicle in balance. For a moment it appeared that they might be tipped upside-down. That would be fatal. Landing and take-off had to be accomplished at right angles to the surface. In any other position the landing vehicle would be like a turtle on its back: still alive, but helpless to do anything but kick itself to a useless and weary death.

Heaving this way and that, bouncing up and down, trying to get some sort of control, no matter how thin, of the vehicle, Chet strained his muscles and forced his drowning senses to keep whatever track they could of the awful, crazy thrusts and leanings which he could not restrain. Through all of this they were blind. Vertical, horizontal, north, south, east and west could be detected only by instruments and there was no time to read instruments and react to what they indicated. They could only hang on, trying to feel the vessel and staying alert to regain control when the opportunity occurred.

Bouncing like a drunken yo-yo, they came through the lower level of yellow-pink clouds and burst into the dusty clear. About a thousand feet below them they could see the brown, cliff-strewn surface of the planet Venus. They could give it no more than a glance but Chet found that a visual horizon was a great help. Their descent was too rapid, the vertical wind having been replaced by a force which swooped and fell on them from every corner. He added retro-power to slow their fall and applied the lateral jets in an effort to maintain balance. He did a remarkable job, seemingly controlling the vehicle by the sheer force of his own aching muscles. The last few feet, however, appeared to contain a freakish vacuum caused by the rapidly shifting winds. Mariner fell groundward, bounced high as it hit the surface at excessive speed, bounced again lower as its momentum was dissipated and then, after a final shallow jump, remained on the surface, still, but shiver-

ing from the strain and the storm which howled against its skin.

Chet sagged, exhausted, fighting for breath. He was painfully aware of the gravity which tugged at his shoulders and threatened to buckle his knees. Then his physical condition reasserted itself and slowly he pulled himself together.

"Happy landings," he breathed to his crewmates.

"Well done, Skipper. Man, what a landing!" Quincy shouted.

"Really great, Skip," Carter said. "We made it. You've got your name in the old record book, Smitty. And now it looks like we can go back. We've done our job."

Chet needed a few more seconds to take command.

"What do you mean, Carter?" he asked wearily.

"Just take a look."

Outside the fierce storm caused the clouds to boil heavily; dust, pebbles, stones and small rocks were caught by the hurricane winds and hurled like buckshot indiscriminately in every direction. The landing vehicle swayed in the strong gusts. But Chet's attention was riveted on the thermometer. The temperature outside was close to five hundred degrees! The auxiliary thermometer registered the same.

"See what I mean?" Carter said, matter-of-factly.

"What are you talking about?" Quincy replied, his voice rising hysterically. "That's what we've got the hardshell, powered suits for. That's why they're refrigerated. We're not in the book until we set foot on the surface. Let's go out there and get to work."

"How long do you think you'd last out there, Quincy?" Carter sounded remarkably soft.

"Who cares?" Quincy shot back. "We're astronauts and we've been given a job. We'll do it if it kills us. Right, Skipper?"

Chet shook his head slowly.

"I'm afraid not," he said. "We came to discover firsthand what it was like here. Well, we've found out. It's as hot as our scientists have been saying. The Russians were pulling a bluff and we caught them. I don't know how long this vehicle will remain intact under these conditions. We'll let the external scrapers gather some samples and we'll get some atmosphere bottles going

here and on the way up, through the different layers. We should be able to blast our way straight up a lot easier than landing; after all, we won't have to worry about impact. But that's it. I think we've done what we set out to do."

The geological samplers were retracted and the atmospheric samplers were set to operate in tune with the sonar-type altimeter so that they would collect and isolate puffs of Venusian atmosphere at stated altitudes. It was clear that this would have to be a manual lift-off but they were prepared for that. The technique would be to blast off, using every bit of their puny power to climb above the heavy clouds. Once they were in the clear and away from the destructive force of the winds, they could easily locate the module by radar; they would lock it in and allow their computers to bring them together.

The landing vehicle was teetering dangerously by the time everything was in readiness for the lift-off. It shuddered and swayed and the dust and pebbles striking its outer layer made a horrible din. The astronauts hurried through the last-minute details.

"I'll give you a short count," Chet called out, "All set?"

"Yep," Quincy replied. He was disappointed.

"Let's go," Carter pleaded.

"Okay. Three . . . two . . . one . . ." Chet ignited the rockets and slowly increased their pressure. It seemed to take forever before their effect was felt. Then one of its three legs lifted precariously. Chet anxiously increased power; a particularly strong gust of wind now would tip them right over on their side. Then another foot raised from the surface, and, after an eternity, the third foot was clear and they could feel the vehicle clawing for height. They had achieved a scant three-foot clearance when a tremendous blast of wind hit them squarely on the side. They were swept laterally across the Venusian surface; they remained upright but were otherwise completely out of control. In desperation, Chet increased to full power, which gave them just enough lift to clear a rock-studded ledge toward which they were rushing at great speed.

The rockets could make no headway against the tur-

bulence which seemed to blow from all directions at once. They were pushed this way and that, never being able to attain a height of more than eighty feet. Chet knew that the rockets were not capable of a maximum sustained effort for very long; and, if they flamed out, a sheer drop into the maelstrom would kill them all. The vehicle was moving sideways from his right toward his left. About a hundred yards to his left, he could see the ground sloped sharply upward, peaking out no more than twenty feet beneath the landing vehicle's present height. From there, it dropped away sharply, creating a sheer cliff. Chet could not see all the way to the bottom of the cliff, but he formed an instantaneous plan. As he passed over the edge of the high ground, he cut power to twenty percent. The sudden decrease in thrust caused the vehicle to drop straight downward and as soon as they had dropped below the edge of the high ground, they were sheltered from the mighty blasts which had threatened to wreck them.

Gently, Chet increased thrust to slow their descent. He kept his eyes glued on the altimeter, adjusting the throttle to maintain a slow, safe approach. When they were ten feet from the surface, one of the vehicle's legs struck some protuberance and the craft tilted wildly, then the other scraped a rock, straightened them up and pushed them too far in the other direction. Grabbing wildly, Chet shut off the rockets and they dropped the remaining four feet. They hit with a thud, one foot coming to rest on a small ledge while the other two found relatively level ground. Instead of a ninety degree angle occurring between the rocket and the ground, the inclinometer showed that the vehicle was leaning at an angle of seventy degrees.

In the sudden quiet, each man was alone with his own thoughts. Each was grateful to be alive. With the high cliff sheltering them from the killer wind, they would have time to inspect the craft for damage and to plan their next move.

CHAPTER VII

"What's on the schedule, Skipper?" Carter asked casually. He lounged carelessly on his couch, one leg drooping over and resting on the floor.

"Well, we've got a small problem, it seems." Chet's understatement matched Carter's studied coolness. "Before we tackle such minor items as figuring some way to take off at this crazy angle and inspecting the old buggy to see if it can stand the strain, we will proceed with the risky business of filing a full report. Quincy, you contact the command module. Establish relay contact, check out the repeater and make sure that it's functioning. While he's doing that, Carter, you put the whole thing into five-letter code. Temperature, storms, aborted take-off, greenhorn landing, the works. I'll write up my own synopsis and transmit by clear voice. We'll take an hour out for inspection and that will give them time to digest our report and get back to us."

They all got to work; and in less than thirty minutes the channels had been checked out and the messages were on their way. Chet ended his with the announcement that they would take off following the inspection, if possible, and establish direct communication from the orbiting module. If the storm continued, or if the vehicle proved unable to take off, they would keep ground control informed of their situation. Nobody aboard the Mariner's landing vehicle was quite sure what that meant and none of them wanted to think about it.

Dragging the heavy powered suits from their stowage area, they helped each other get into the awkward armor. Each joint was powered by a small but powerful servo-motor which was activated by the pressure of the man's limb from within. As an arm moved straight, back, left or right, it pressed against the proper contact points; the harder it pressed, the greater the energy which the appropriate servo-motor delivered. Thus, a properly trained man could achieve motion roughly comparable to that in an ordinary spacesuit although his actions would be slower.

The vehicle's hatch was unsealed and drawn open and, gingerly, each man climbed carefully down the steel ladder. At the urging of Quincy and Carter, Chet went first so that his would be the first foot to touch the surface. Quincy went next, followed by Carter. They walked a few feet away; then they turned to look up at their craft. The ground was hard; the landing feet of the vehicle made no penetration of its surface. What they noticed at once, with great dismay, was that the tilt of the vehicle pointed it toward the face of the great cliff which towered above them.

While the others walked around, carrying out visual inspection of each leg, Chet studied the angle in silence. Had the lean been in the other direction, it might—he stressed *might* to himself—be possible to achieve an angular lift-off, relying on the directional jets to straighten the attitude once they were airborne. But this way, there was a better than even chance that, before it could be straightened out, the landing vehicle would lift off and go crashing into the cliff side. He stared long and hard at the vehicle and the cliff behind it, burning every detail into his mind so that when he was back in its cabin manipulating the controls, he would have an accurate understanding of the margin available to him.

"Hey, Skipper, take a look!" Carter's voice came through the earphones and Chet looked for him. Carter and Quincy both stood on the small ledge which supported the out-of-balance landing leg. This was the leg whose raised position accounted for the cliffward lean of the vehicle. Chet walked over, his suit humming and creaking as it powered his motion. As he reached the ledge, Quincy jumped off to make room for him. Quincy landed and crunched over onto his back as he lost his balance. His teammates looked at him and, in spite of the seriousness of the occasion, they could not repress a laugh as they watched his ungainly attempt to regain his feet. It took an extraordinary coordination of arms, legs and trunk to get the suit to lift its wearer to his feet. By the time he was afoot and steady again, Chet had climbed up on the ledge and was peering at that section of the leg to which Carter was pointing.

Around its entire circumference, an ugly crack ap-

peared. How deep did it go? Was it a surface fault, or was the supporting leg nearly cracked in two? Carter rapped the metal with his armor-clad knuckles. Chet did the same, although it occurred to him that they were both acting like housewives at a market who thunk a melon before buying it, without quite knowing what to listen for. The rapping produced a loud clinking which the microphones picked up clearly, but neither of them had any idea what it meant. It sounded solid enough, and yet, would it continue to sound solid right until the second it split in two?

High above them, they could see the swirling dust of the great winds roaring straight off the top of the cliff and plunging away into the distance. Their earphones picked up an electrical crackling which they took to be lightning somewhere in the vicinity, although they could see nothing but the redness of the dust. Chet called them back into the capsule. They left the cargo platform where it was so that it could be hoisted back into its bay if they decided to attempt a lift-off.

Back in the cabin, they sealed the hatch and pressurized the interior before opening their faceplates and switching off their portable refrigerating units. Before discussing the various possibilities open to them, Chet moved to the main console where a light informed him that in their absence a message had been received and taped. He positioned the tape for replay and they all sat stunned as they listened to what ground control had to say. To begin with, ground control simply acknowledged, without comment, receipt of their message.

Then it continued: "A report from Venera, Lieutenant-colonel Yarmonkine commanding, whose point of origination was verified by Jodrell, says that the Russian crew have effected a soft landing in the southern hemisphere of Venus. The report describes tropical jungle scenery, breathable air and habitable land. They say they are comfortable without life-support systems of any kind and are currently conducting tests. Please advise when possible. End of message."

The astronauts stared at each other registering varied expressions of angry disbelief.

"Look at it!" Carter shouted, pointing at the ther-

mometer dial. "All we have to do is throw open that hatch as we are now and we'd be fried in a couple of seconds! Those lying swine!"

Chet did not attempt to stem the outburst. To the contrary, both he and Quincy added a few choice thoughts of their own.

They decided to divest themselves of the heavy armor in order to conserve its power pack and they put on, instead, their softer spacesuits. They left the helmets off for comfort. Carter sat at the communications console and operated their radio direction finder; in a complicated set of switching, he managed to lock onto the orbiting module and got it to operate its own, more powerful receivers and direction finder. If they could pick up the Russian signal, either finder was capable of exposing the general direction of that transmitter. If they could both pick it up, then simple triangulation would pinpoint the Russian signal base. Sensitive as the equipment was, it could achieve nothing under the conditions which surrounded the planet. The very sensitivity of the equipment was a handicap amidst the electrical uproar caused by the storms. They received static in every degree and varying volume, but nothing else.

Carter switched off his own and the module's finder.

"I'd like to get my hands on that Yarmonkine guy!" he exploded.

"Right now we've got to make a decision," Chet said soberly. Then he outlined what had been going through his mind. Even assuming that the Russians had managed a soft landing in habitable country, and that was assuming a great deal, the hard fact was that the landing vehicle was in trouble. And the only way to get it out of trouble was to lift it off the surface. Once aloft, they could rejoin Mariner and from there be in a much better position to evaluate things.

Even Quincy agreed that this made sense. He was not willing to entertain a thought about returning to Earth but he could see that a return to Mariner would be wise.

The problem which faced them, as Chet explained it, was the lift-off. He believed there was not sufficient room between them and the side of the cliff to effect lift-off and a straightening maneuver before crashing

into it. It might be possible, but only if they could manage a slow, delicate lift-off, a dangerous stunt in itself. And in that case, they would rise above the cliff's protecting top and into the winds at a crawl which would leave them at the mercy of the storm. They simply could not lift-off slowly, straighten the attitude and accelerate sufficiently to stand a chance of bulling their way through the winds.

There was an alternative. They might try to reverse the sequence of things. Suppose they started by employing the side jets, the ones in the direction toward which they were leaning. This should take the weight off the two legs which were on the ground, and place it on the one on the ledge, leveling the vehicle. If, at this time instant, the main rockets which had previously been ignited were to be immediately plunged to full thrust, they might provide just the jackrabbit start needed to feed the vehicle into the windstream with sufficient velocity to break through.

"Sounds good," Quincy commented. "Tell you what—I'll handle the side jets and when I get her where you want her, you kick in the main rockets."

Carter remained pensive. "If we do it that way," he said finally, "the cracked leg will be taking the added weight. As we start to straighten up, if we do, the bad one will get the strain."

"I know," Chet replied calmly; "that's why I think we should talk it over before a final decision is made. You see, the danger of crashing into the cliff is obvious. It's a known quantity. The other way solves that problem but substitutes an unknown problem. Is the leg badly cracked? If it is, and if it buckles, well . . ."

"I don't think we have a choice, Skip," Quincy said. "After all, the cliff is there. As you say, it's a known quantity. What do you figure our chances are of getting away without either crashing it or being windblown head over teakettle?"

"Frankly, no better than ten percent. Fifteen at the outside."

"That's what I mean. If the leg holds, what do you figure our chances are of getting off?" Quincy pressed.

"*If* the leg holds, I'd say our chances are excellent."

"Eighty percent?" Quincy urged.

"That's reasonable."

"Well, there you are."

"I vote with Quincy," Carter said. "Lean in to her and go for a vertical lift-off."

"All right, then," Chet continued, "let's get with it. Quincy, you handle the side jets, I'll take the main rockets. We'll try to keep the strain down to a minimum. I'm not going to wait until we're at ninety degrees. Quincy, keep your eyes pasted on the inclinometer. As soon as it marks eighty-five degrees, I'll hit the rockets and take over full control from you. We won't be vertical, but we'll clear the cliff and still have maximum acceleration."

It took a few minutes to get their helmets in place and their suits pressurized. When they were ready, they strapped themselves in position a little tighter than usual and Chet gave a short countdown. He ignited the main rockets, keeping them at minimum power as Quincy applied the side jets.

The landing vehicle came to life and the astronauts could feel it trembling as it responded to the power. Almost imperceptibly, the two good legs released their touch with the ground and the inclinometer crept from seventy to seventy-five degrees. Carter, who was hard-headed and, he thought, devoid of superstition, crossed his gloved fingers. He could do nothing else and already he could taste the sweet sensation of rejoining the Mariner and heading back home.

When the needle had just passed the seventy-nine degree mark, a violent shudder swept the craft; it was followed at once by an awful crack which echoed through the cabin and made the earphones shriek. The vehicle started to fall on top of the crumpled leg. Chet and Quincy reacted almost instantly; without prearrangement or even time for a shouted order, they both did exactly the right thing. Quincy shut down the side jets and Chet applied full power to the main rockets. The two good legs fell back to make contact with the surface, momentarily straightening the vehicle; it took a couple of long agonizing seconds for the main rockets to take hold. In that time, the craft once again tilted wildly toward its missing leg so that as the thrust began to exert itself, the inclinometer was registering

a tilt of forty-five degrees; this time away from the cliff.

Throughout the confused wobbling, first toward the wounded leg, then away from it and finally in a sickening swoop back toward where it first stood, Chet fought to maintain a grasp on the changing conditions. As the main rockets began to impart motion to the craft, it was falling even further and added speed at this point would cause it to go whistling over the surface of Venus in an almost horizontal plane. Over this rugged terrain with its impossibly high crags and unexpected outcroppings, such blind, high-speed careening would be suicidal. Reluctantly but without hesitation, Chet killed the power as all three braced themselves for the crash.

Once the power was shut off, the landing vehicle fell the rest of the way gracefully but heavily. It came to rest on its side with a great noise, like a sigh, sweeping from stem to stern.

Untrained men, realizing the enormity of the disaster, might have cowered in helpless fear, awaiting the inevitable end powerlessly. But as soon as the landing craft had come to a stop, the astronauts unbuckled themselves and were on their feet. Using the side upon which they had come to rest as their floor, they began to organize things. The hatch was only a few feet above the surface of the ground and Quincy volunteered to undertake an outside inspection. Together they erected the portable air lock around the hatch, then they packed him into his armor and sent him on his way. While he was gone, Chet and Carter surveyed the interior. Their main electrical power was intact; the hull had not cracked and was capable of maintaining full pressure and air-conditioning. Quincy called to them to try the cargo bays. Carter pushed the switch and Quincy reported that the bays had opened properly. The platform could not be lowered in its usual way, but he instructed Carter to release the top cables only, very slowly. This caused the heavily laden platform to fall away at the top, as if it were hinged. When it was almost parallel with the ground, he ordered the lower cables to be paid out and after a period of careful jockeying, he

announced that the equipment was now at ground level and available for use.

When Quincy rejoined them, they pooled the results of their investigations. So far, not one word about the disaster had been uttered; there was not one statement of dismay or fear. That would come later. At the moment they worked efficiently, with the care of scientists. The first order of business was communications. Quincy reported that of the four main antennae, three were in good shape and appeared operable.

Chet tried, and found that he was able to make contact with the module. Then he activated the repeater and called direct to ground control. They all knew that the electrical power reserves on the landing vehicle were almost depleted. They were not meant to be used continuously over prolonged periods. A relatively short hop down to the planet's surface would ordinarily have been followed by a shutdown of power while explorations were underway. Then a short upward journey to rejoin Mariner would end the call on its power supplies. Mariner, with its huge solar batteries, was capable of recharging the landing vehicle almost indefinitely but, of course, it had to clasp it to its bosom to do so.

Luckily, they were able to raise ground control almost at once and Borg himself was on the horn immediately. It was reassuring to hear his voice as they talked back and forth in delayed spurts. Curtis was also in the control room and, as soon as their report was in, he and his staff began a detailed study of it while Borg continued the conversation.

Captain Borg asked them to stand by and transmit a special signal when the command module was directly overhead. Chet tracked it and sent the signal as requested. In a few minutes Borg was back to them. He was all business. He did not waste time expressing sympathy or regret. He let them know that the best opinion of the Agency experts was that attempts at salvage would be useless. Under the conditions, repairs were not feasible. The usual baling-wire and matchstick ingenuity of Americans was no match for the overwhelming difficulties which surrounded them. Chief among

these was lack of time. On the other hand, things were not hopeless. There was still an escape route.

The Russian signal had been triangulated and was now coordinated with that of Mariner, which had revealed the position of the crippled landing vehicle. The Russians were still reporting livable conditions and their position appeared to be not too far from where the astronauts were located. The best guess was that they were no more than a hundred miles apart.

Borg supplied the coordinates which should enable the astronauts to locate the Russian base. And the final order, repeat, *order* from the Agency was to the effect that the astronauts must abandon their vehicle and make their way overland to the Russians. One last note: if the astronauts should by some unlikely chance find that the Russian signal base was actually unmanned and transmitting prerecorded information, they were to attempt to interfere with its transmission and substitute their own.

"At the end of this," Borg's voice went on—he spoke slowly, distinctly, and appeared to have difficulty controlling the even flow of his words, "it will be repeatedly transmitted several times on tape. We are all expecting to hear from you when you have joined the Russians. Good luck and best wishes."

There was a click and the repeat tape started the whole message over again from the beginning. Chet turned it off. They did not need it.

"Well, how do you like that?" Carter was simmering " 'Goodbye, fellas. Don't call us, we'll call you. Just go die someplace.' Man, that's about as chicken as you can get. They didn't even ask for our opinion. Borg signed off that way because he didn't want to listen to our side of things. Well, we can just call him right back and tell him that we are not complying with his order, repeat, order, jazz."

It was only now that first reaction to the disaster began to seep out of the men. Nobody had a good answer to the predicament they were in. They could not undo events and although they might have admitted to themselves in a quieter moment that the Agency was right, they did not like anything about the situation. Nerves were short and tempers tight. Each

man reacted according to the way the abrasive events rubbed against his personality.

"Oh, you're beautiful!" Quincy looked pityingly at Carter. "Go ahead, call them back and tell them you're not going to obey orders. Tell 'em you're much too important to obey orders. And then tell them that you're going to stay right here until you grow wings so you can fly home like a big fat bird."

The two were at it again and they stormed and ranted at each other with more vigor than ever before. Carter was quite serious about remaining where he was. He was not making much sense because he had no clear idea of how that would help his cause. He could survive only for as long as the power continued, and that would not be for long. Chet tried a couple of times to inject a thread of reason into the argument but neither Carter nor Quincy were ready to listen to him. Now that Quincy had some direction in which to unleash his pent up energy, he wanted to be off and away in a headlong rush for the Russians. He claimed that they could make it in an easy three or four days, although he gave no details as to how he had arrived at that figure. When pressed as to his own plans, Carter blustered that they would be much better off trying to right the fallen vehicle. If they suited up and used the power supplies attached to the motorized sledges, he argued that they could last for three weeks; in that time, surely they would be able to find some way to right the craft and then they could be away.

When they could make no headway against each other, and the first rush of ungovernable temper had been spilled, Chet took over firmly.

"Let me tell you how it's going to be," he said in a tone of voice which let them know that he was not prepared to argue. "We can't stay here for a number of reasons but most of all because our orders call for us to make the Russians' base. Contrary to what you may believe, Carter, the Agency would like nothing better than to have us return safe and sound and triumphant."

"Well, what if we do get there and find an unmanned signal-module?" Carter persisted stubbornly. "What do we do then?"

"That's a chance we'll have to take," Chet replied, "because we have no alternative. This Colonel Yarmonkine was on our tail all the way across. That much we know. I believe they landed somewhere. Whether they're telling the truth about conditions, I don't know. But I believe they're on the surface and our only chance is to find them."

Then Chet turned his attention to Quincy who, seeing the skipper siding with him, seemed anxious to dash out of the hatch and make for the Soviets at a run.

"Do you believe there is a manned Russian base on Venus?" he asked.

"Of course!" Quincy answered with great conviction. "But even if there isn't and we have to die, we might as well go in a great cause. If we find an unmanned signal station and show them up to be frauds, who is the world going to remember? Us or them? I say, let's go."

"Will you get off this dying kick!" Chet snapped irritably. "I'm not talking about anything but completing the job and returning safely. Right now the Russians seem to be the answer. But let me give you an idea of what we're up against."

He crawled over to the chart table and extracted a chart which contained nothing but a large circle overprinted with longitudinal and latitudinal lines. Taking a pencil with him, he returned to the two teammates. Consulting the records he had been making, he explained, "This empty circle is all we really know about Venus. It isn't much but we do know that we're here," he marked a spot in the lower hemisphere, "and we also know that the Russian signal is coming from just about here. Now all we have to do is get from here to there. So we're a bunch of guys who just got through making a twenty-five million mile trip, and all we've got to do is travel a measly hundred miles."

"That's exactly what I've been saying," Quincy agreed.

"Not quite," Chet put him down. "How do you propose we get there?"

"Why"—Quincy looked surprised—"we've got the motorized sleds, oxygen, food, powered suits. We use those, what else?"

"Gung ho, just like that," Chet said scornfully. "What

I meant was, how do you propose to navigate those measly little hundred miles. Got any idea?"

Quincy glanced at his commanding officer as if questioning his sanity. "How? We take that little piece of paper you're holding. We plot a course. Like a straight line because we don't know what obstacles lie in the way. We move along until we have to make a detour. Then we plot our detour and go around whatever it is. We get back on course and keep repeating the same thing until we're there."

It must have seemed remarkably simple to a man who was used to navigating across the vast reaches of space.

"I see." Chet acted as if he had never understood the principles of navigation. "But how will we know if we're following a true course? The sledges don't have computers on them, you know."

"You don't need a computer, for heaven's sake, to take you across one hundred miles. So it's strange country. Give me a sextant and a compass, even a small one, and I'll bring you in right on the button. Provided, of course," he hastened to add, "your coordinates are right in the first place."

"But Mr. Smith," Chet continued relentlessly, "what is your compass going to do? Let's suppose you had a real big one, what would it tell you?"

"Aw come on, Skip." Quincy began to sound a little impatient with the game. "You use the compass as a bearing on magnetic nor—oh my goodness!" He broke off abruptly. He had seen the light and looked sheepish.

"Yes?" Chet urged him on.

"Venus has no magnetic north!" he blurted. "At least, not enough to activate a compass."

"So let's skip the compass," Chet suggested. "you've still got your sextant. You won't lose the button if you use your sextant, will you?"

"There's no sun," Quincy said miserably.

"And no stars," Chet rubbed it in, "so our job's going to be a little tougher than that. Unless somebody has put up some signs, we're going to have to rely on ourselves for navigation."

Now that everybody understood the problem, Chet laid out the solution. "To begin with, we'll dismantle

the gyrocompass and install it on one of the sledges. To keep it spinning, we'll have to use up some of our electrical reserves but once we've set it due north, it will keep pointing there with pretty fair accuracy. But we've got to have a back-up system. Anybody have any ideas?"

The way Chet approached things invariably softened Carter's outlook. His initial fury was always cooled by Chet's matter-of-fact reasonableness. He was drawn into the discussion. "I know one way, skipper. It's a drag but I think it'll work. If we took an accurate first sighting on north and then plotted our rate of progress we'd know how far we had gone when we hit the first obstacle. Then we would figure an angle of deviation which would get us around the obstacle, and plot it. We keep strict record of our speed and the time traveled, and it would not be difficult to plot a course which would bring us back to the original one. A watch and a protractor would be all that we'd need to know when to make the zag and when to make the zig."

"That seems awfully old-fashioned," Chet protested. It was, of course, the exact procedure he had in mind.

"No, Skip, it would work!" Quincy urged. "One of us would have to be detailed to keep track of speed and time, but if we kept an accurate record, we'd make it."

"Then that would provide our back-up, wouldn't it." Chet brightened visibly. "We could check the gyrocompass against our recorded progress and between the two we should be able to plot a fairly reliable course."

They were both so anxious to convince him that they became partners. Chet was relieved they had united and now the details could be attended to. The cargo platform contained three sledges. On a trip of this scope, facing totally unknown hazards, Chet decided that only one sledge would be used. The power units from the others were transferred to the one they would be taking. The gyrocompass was installed and supplies were packed aboard and strapped down.

When they were through, the sledge was overloaded but they all agreed that one sledge would make the trip easier. It was, after all, powered only in the sense that

a hand-held lawnmower was powered. One did not have to push it or pull it directly, but it required deft manipulation. It could run away, or bog down or, worse yet, it could perform an agonized backroll which would require the combined strength of the three to overcome.

On a rotation basis, one man would wrestle with the sledge, one would be entrusted with the vital record-keeping and the other could merely trudge along, picking up the pieces which needed picking up, putting them together, and *thinking*. They would all be asked to contribute physical energy to the trip but each, in turn, would be given an opportunity to think. It could turn out to the the most vital function of the undertaking.

So, bit by bit, the trip was put together. Chet noted with satisfaction that the preparation called his crewmates' attention to the job at hand. There was no bickering over philosophies or plans. The conflict between the two was resolved by the work it took to prepare for the next leg of their odyssey in space. He knew the truce was a temporary one but he couldn't waste time in trying to predict the next crisis. They were cooperating now and things were going forward. His acting as referee as well as commanding officer had one side-effect which even Chet was not able to understand fully: it kept him so busy that he had no time to consider his own position. And this was more merciful than he knew.

CHAPTER VIII

Anywhere on Earth, the trio clumping along in their powered suits would have appeared as giants: huge robots who moved in a human, yet robot-like manner. On Venus they felt like dwarfs. Quincy could not escape the thought that he was, in fact, a very close relative of a crab—the armor on the outside, the soft stuff inside.

Carter, who had drawn the first turn at sledge-handling, was too occupied with his labor to turn his mind to anything but the physical task. It took a fine sense of coordination to make the suit work smoothly. Maneuvering the sledge was a tricky job, too. The combi-

nation was possible only because this fine sense was one of the qualities all astronauts had to possess in order to be accepted; and each had been trained since his first day with the Agency to bring those skills to their peak.

As they started off, Chet assumed the navigational chores. It was this, more than anything else, upon which their lives depended. No one spoke of it in explicit terms because it was too important to trust to words, but they all understood that they had set out to find the Russians or perish. Perhaps both, for if the Russian base was unmanned, and their area uninhabited, nothing could save them. But if they could not locate the Soviets, then it would make no difference whether Russians, or oxygen, or cool temperatures existed on Venus. As a final, crushing blow, failure to arrive at their destination would mean not just a loss of life, but a complete waste because then the Russians claims would not be tested.

Nobody spoke of these things as the Venus trek began because no purpose could be served by concentrating on the depressing aspects which could not be helped, but these thoughts lurked beneath the surface of the three minds. What the team needed as it took the first step of its desperate journey was a break. Something in their favor. Like ancient navigators embarking on unchartered waters, their spirits sought the reassurance of some sign of good luck. And they got it.

What pleased them and brightened their morale was that their plotted course led them away from the towering cliff. Had they been faced with that forbidding obstacle before they were properly on their way, their courage would have been cruelly tested because it was obvious that they could not climb straight up such a cliff. And with the primitive means available to them for navigation, a detour at the outset might have caused them to become hopelessly lost.

As it was, their course took them across an area which, from a great distance, appeared to be a plain. It turned out, however, to be unlike any plain they had ever encountered on the moon or anywhere else. It was almost impossible to find six square inches of ground which were level. There were no high hills or giant

outcroppings to disturb the eye, but the surface was rough and stony and crevices opened which were deeper than light could penetrate. They could look into them and not be able to tell how far down the crack went. Most were narrow enough to be stepped across but even these had to be carefully tested at the edges to make sure that the heavy sledge would not cause a cave-in and get trapped.

Some of the fissures emitted wisps of smoke so that a haze hung low near the surface; it was these wisps of smoke which brought the realization that the storm had abated. Chet smiled when he first became aware that the smoke was not being blown about but swirled lazily not far from its point of origin. He called Quincy and Carter and brought this second piece of good luck to their attention. They looked back at the high cliff which was now some distance behind them and noted that the great sweeps of dust were no longer spewing off its edge; but they could not spend too much time absorbing the good news. They had reached an area where the cracks grew wider and ran in every direction. Many were too wide to be walked across and some were yards wide.

When they came to a crevice which was too wide to be straddled, they looked left and right in order to determine in which direction it narrowed. Chet laid a piece of rope on the ground to indicate the direction in which they had been traveling; then he waited while Carter and Quincy took the sledge down to the narrow part, crossed over and made their way back again until they were opposite him. Finally, they would point the sledge in line with the rope and check the gyrocompass to make sure it read the same as it had before the detour. When this was done, Chet would pick up the rope, creak down to the narrow point and make his own crossing. This procedure was followed every time they came to one of the wide fissures. It was time-consuming and tiring but it ensured their remaining on course.

Every hour, they would change jobs; one hour of navigating, one hour of sledge wrestling, followed by one hour of walking and thinking. They kept conversation to a minimum simply to conserve their energy and to

allow themselves to concentrate on their work. It was while Quincy was at the "think" position that he suddenly shouted, "Hey!"

Both men stopped in their tracks and turned cumbersomely to look at him. They saw nothing out of the ordinary.

"What is it?" Chet called into his microphone.

"I've had this funny feeling and now I know what it is," Quincy reported.

"What?" Chet asked.

"I'm hungry!" Quincy said plaintively.

Carter, who had been tense and anxious, exploded into laughter.

"Is that all?" He grinned. "I thought you'd seen a two-headed monster."

Chet surveyed the area and saw two large boulders about a half mile ahead. They were leaning into each other, creating a rough arch. "Let's make it to those rocks," he said. "We'll take a break there; in case we need it, they'll provide shelter." He was mindful of the fierce storm which had greeted their arrival.

Because of detours, their zigzag route covered the half mile in thirty minutes. It occurred to Chet, but he did not mention it to the others, that they had covered half a mile at the rate of one mile per hour. They would have to do much better than that. They left the sledge pointing in the correct direction, removed some food, and then walked over to the boulders and sat beneath the arch. It did not take long to push a couple of tubes of pasted food and one of water into their mouths. As the nourishment began to take hold and new energy coursed through their bodies, they rested and talked, formulating plans. Finally Chet announced, "Before we start off again, I'd like to try the radio and see if we can pick up any sign of the Russians. Maybe we can draw a bead on them."

The little rest, their first on Venus, came to an end. They got to their feet and creaked their way over to the waiting sledge. The radio produced nothing. If there were any other human beings on Venus, the radio could not pick up evidence of them. Distant lightning produced ear-crackling static. Chet plugged his earphones directly into the receiver circuit and almost got

his eardrums shattered as a result. He unplugged hastily and listened to the remainder of the effort through the microphones on the outside of his helmet. The loudspeakers on the sledge recorded nothing but static. So they took their positions, Quincy at the sledge, Carter navigating and Chet "thinking," as they started the hike. They reset their watches to indicate that this was their afternoon stint, establishing time as they were accustomed to it.

For the next two and a half days, they maintained a rigorous schedule with efficient regularity, traveling for twelve hours a "day." Chet estimated that their forward progress had almost doubled to almost two miles per hour, and he was satisfied that they were doing as well as possible.

Although the ground grew rougher and rockier than it had been, the fissures appeared to be diminishing. They spent less time marching parallel to wide crevices, seeking a crossing, and this was good as it conserved their energy and their precious power packs. On the other hand, they had to do more looping around rocks and boulders which were now strewn in their path. These maneuvers did not take up as much time, nor did they waste power in the same manner as the long detours, but the almost continuous need to turn this way and that greatly aggravated the navigator's task. Although they all took turns at navigation, Chet kept a close eye on this particular task no matter who was charged with its function. He knew that if they strayed from the course they were done for. As the commanding officer of this expedition, he took it upon himself to oversee this most vital duty. He did not, however, give up his regular turn at sledge-handling.

Chet kept track of time and made sure that a schedule was maintained. Ten-minute breaks, lunchtime, dinner and camping for the night were all done in accordance with his watch. The biggest burden, by far, was none of these; what made him sometimes feel that his temper must explode was the ceaseless need to ride hard on his teammates. In opposite directions. He felt as if this might tear him apart. Quincy had to be constantly restrained; when a ten-minute break was called, he would argue that there was no need to pause. Was

anyone so weak that he could not go on for another few hours? Unnecessary delays bothered him. Meals could always be postponed and the night camp put off because, according to him, they were marching toward glory and should lose no time achieving the immortal feats for which they were destined. Survival was not the important thing; it was the record book which counted.

Quincy's attitude created a frustrating problem because Chet found himself agreeing with a great deal of what the glory-seeker said, but never for the same reasons. Thus his attempts to keep Carter in line were hampered. Carter grew moody and sullen, muttering incoherently to himself. Time and again, Chet would pick up some words in his earphones and strain to detect whether it was some broadcast coming in from the distance or whether one of the astronauts was saying something to him. From the mixture of grunts and groans and half-spoken words, he came to realize that Carter was talking to himself. At times he seemed to be playing the part of the leader of the mission. His arms would jerk and he would point to some rock, half-hidden in the murk, or to a particularly dense billow of smoke and caution his companions against these phantom beasts which had been sent to destroy the expedition. Occasionally he would mumble some order which indicated that he was about to lead an attack against the gathering pack and kill them before they had a chance to close in. Suddenly he would lapse into a whimpering, whining apology for having intruded onto their rightful property. He begged the beasts to understand that he personally did not want to be here but that the other two had forced him to come along when he really wanted to be back on the spaceship, heading toward home. He promised that, if given time, he could persuade the others to join him in a peaceful return to Earth.

None of this was spoken clearly or in logical sequence but Chet was able to recognize the gist of what was going on. Apparently Quincy was totally oblivious to what was happening for, during their rest periods or at meals, Carter spoke rationally although he continued to argue that the effort they were putting forth was

useless. It was at these times that Chet wished Quincy would shut up. Chet tried to get Carter to understand that their labors were far from useless.

He insisted that their chances of survival were really quite good provided they did not waste their energy on fanatical rushes. He did not go along with Quincy's do-or-die ideas and felt that they should husband their resources and continue an orderly march. Then, even if they should face ultimate disaster, and he made it quite clear that failure was a possibility, their lives would not be spent in vain. Every step of their journey was being recorded and future astronauts would some day find these records and add them to the store of knowledge which in some dim future day would enable mankind to know his universe.

Quincy kept agreeing enthusiastically, going way beyond anything Chet had been expressing, and he would wave the glory flag at them, urging them to plunge forward to victory or death. He gave the impression that, somehow, death might even be the more desirable end, for it would only magnify the victory.

During lunch on the third day, they became aware of a change in the wind which had been sweeping in on them from the four points of their useless compass. The dust and tiny pebbles which had been coming at them from left and right, front and back, began occasionally to rise straight up toward the lowering clouds. It did not spiral upward as if caught by isolated whirlwinds; instead it rose straight up in a column. Between breakfast and lunch, they had noticed that the ground which they were passing over had taken a slight slope upward. The haze had deepened and the line between the ground and the overhead clouds was confused and indistinct. Although their immediate surroundings were easily seen, and the territory to their rear was still reasonably clear, the combination of haze and rising dust limited their forward visibility to something less than a mile.

They ate in unaccustomed silence and although Chet felt that the quiet might herald trouble, he was relieved to be able, for once, to take nourishment and rest without experiencing another of the nerve-shattering arguments. He finished his uncomplicated meal quickly,

checked the log to make sure that their progress was duly recorded, and stretched himself out full-length on the hard ground. He was tired and closed his eyes. When he opened them moments later the roiling cloud cover seemed much lower than before. He powered himself to a sitting position and looked around. Quincy was leaning against the sledge, staring moodily at the ground. Chet checked his watch. Ten minutes still remained; he thought he would read the gyrocompass before it was time to resume the trek. As he approached the sledge, he noticed that Carter was not anywhere near it, so he turned to Quincy.

"Where's Carter?" Chet called out.

"Oh, he left," Quincy answered casually.

"What do you mean? Where'd he go?"

"He went on ahead," Quincy replied. "What are you so excited about?"

"Listen. We've always got to pry him loose just to get him moving again. Didn't he say anything?"

"No, he just got up and started walking. Right after you lay down. I figured that since he was at the think position this leg, he just wanted to move out early and scout ahead. It seems to have closed down out there."

Chet looked at the direction in which Carter had disappeared. Visibility was less than a half mile now. The man was nowhere in sight.

"You stay right here!" Chet ordered. "Don't touch a thing. Don't move the sledge." He bent down and switched on the relay radio. "Plug yourself into that and keep your ears open. I'm going to look for Carter. So just stay here and listen."

"Sure, Skip." Quincy said, sounding hurt and a little worried. "I would have stopped him if I thought you'd get upset but I thought he was finally getting the spirit of things. You don't think he—"

"I don't think anything right now," Chet snapped. "Keep listening."

Chet took off at once, hurrying into the haze. When he could no longer see Quincy and the sledge, he called out, "Do you read me, Quincy?"

"Loud and clear, Skip," the reply came back reassuringly.

"I'm going to be calling Carter. Get the direction

finder on me. Keep track of where I am but don't move the sledge."

"Gotcha, Skip."

As Chet moved ahead, he kept calling Carter's name with his transmit volume turned full on. There was no answer except once when Quincy broke in to tell him that he was easy to keep track of. His voice startled Chet, causing him to jump, and he told Quincy to stay off the air unless he had a vital message to report.

The uphill slope became more pronounced and he leaned slightly forward to maintain an easier balance as he took longer strides. He glanced at his watch. He was seventy-five minutes away from the sledge. The wind was at his back and seemed to have an upward force which tended to lift him off his feet. He was grateful for its force and direction because it made him lighter and his progress was easier. When he peered ahead and squinted to see as far ahead as possible, he thought he saw a wall in his path. At first he could not be sure whether he was looking at a curtain of dust and smoke but as the distance between him and the barrier narrowed, he became certain that the obstruction was solid.

The closer he approached, the clearer it became. He stared in awe, forgetting for the moment to call out Carter's name. It was not a wall, but a gigantic escarpment which rose like some fantastic battlement up from the ground. Up, up it rose, a cliff which reached into the clouds and disappeared behind their cover without giving a sign of hesitation or of reducing its bulk. There was no way of estimating its height. He judged the bank of clouds to be about fifteen hundred feet from the ground and the extraordinary straight-sided mountain plunged into them and out of sight.

He looked to either side and the phenomenal bulk stretched to the horizons through the haze. He must have gasped at the enormity of the barrier because his earphones came to life.

"This is Quincy. Is anybody trying to reach me?"

"No. No, it's all right, Quincy. I've just come upon a . . . hold it a minute. I'll be right back to you." Chet spotted what he had first taken to be a boulder which had rolled to a rest at the bottom of the cliff. A

second look revealed the inert form of Carter, lying on his back. Chet hurried over and looked into the clear face mask. Carter's eyes were closed. Chet tapped the side of Carter's helmet and shouted his name. The astronaut's eyes flickered open but he gazed vacantly, unseeing.

"Quincy, I found him," Chet called.

"Good. Anything wrong?"

"I'm not sure. You got the direction finder on me?"

"Sure have," Quincy answered. "You're two points to port."

Chet made a quick calculation. He figured he had covered just short of two miles, so that if he had been traveling at an angle of two degrees from the direction in which the sledge was pointing, he must now be standing about three hundred and sixty yards from where it would hit if it came straight on.

"Quincy, this is very important. I want you to bring the sledge in a straight line, just as it's pointed. Keep careful track of the gyrocompass. In about two miles you'll come to a mountain which comes straight out of the ground like the great wall of China, only this one goes all the way up. When you get there, Carter and I will either be there to meet you or a few yards to your left. But if we're not there, don't move. Just call, okay?"

"Right, Skip."

"Oh, and Quincy, we won't need the relay over this short a distance, so unplug from the sledge set and let's go on direct. Call me when you're unplugged."

There was a momentary pause and then Quincy came through again. "How am I doin'?"

"Coming through just fine. Start ahead. I'll see you in a while."

"Coming at you, Skip."

Chet returned his attention to Carter, who by now was blinking rapidly. Chet knelt by his side. He adjusted his transmitter knob to ultra short distance and did the same to Carter's. This gave them privacy, since their conversation could not be picked up from any point more than twenty-five feet away. "Carter! Can you hear me?"

Carter's eyes blinked more rapidly and then squeezed

tightly closed twice in a row and finally focused on Chet's face.

"Hi," he said foolishly. "I guess I must have passed out."

"I guess you did," Chet answered sympathetically. "Are you okay?"

"Yes, I'm all right, Skipper," Carter said. "Isn't that one gosh-awful bastion?" He pointed at the towering mountain.

"Sure is. Say, Carter, how did you get here? I mean, what impelled you to cut out like this?"

"Well, you see, I . . ." Carter groped for words; he looked crestfallen and close to tears.

"Quincy thought you might have gone ahead to scout the area," Chet said kindly.

Carter brightened and smiled wanly as he accepted the help. "That's about it, I guess. You see, there was . . ."

"I imagine you must have been looking up this mountain instead of watching where you were going," Chet said blandly, "and you simply tripped and fell. Are you sure you can get up?"

"Sure, Skipper, sure. Thanks." Carter sat up and then creaked slowly to his feet.

"Quincy will be along shortly," Chet told him. "We're to meet him just down the pike a piece. By-the-way, you better switch your transmit to long-range."

Carter looked down at his transmitter knob and again felt grateful to his tactful leader.

"Quincy, where are you?" Chet called.

"Coming at breakneck speed, Skip," Quincy answered cheerfully. "Must be doing a mile and a half an hour."

CHAPTER IX

Creighton Curtis, Captain Borg and Commander Bradley met informally in the director's office: Craggy, Alex Borg and Pat Bradley, the three people most personally involved in Operation Immediate. None of them could escape into saying—or believing—that the lives of those entrusted with the mission did not count because of the

weight of the grander scheme. They all knew Acting Commander Duncan and Lieutenants Parret and Smith not merely by those coldly stated ranks but as Chet and Carter and Quincy. The difference was a subtle one but it packed a world of difference. Whereas Acting Commander Whatsis Name and Lieutenant Whatever might be written off as expendable units, Chet and Carter and Quincy were flesh-and-blood; young and eager and warm. Now the three men who had either chosen them or trained them shared a secret responsibility.

"I think we can all feel a little better," Craggy said, "because I am now firmly convinced that the Russians are indeed on the surface of Venus; and, more importantly, that conditions are pretty much as they have been claiming. Which means that our team has an avenue of escape. If they can reach a habitable area they should be able to hold out almost indefinitely. Of course, there are still a number of things that aren't clear."

"Let's start building a little house," Pat Bradley said quietly. "We'll put together our thoughts one on top of the other. Then when we come to the gaps, maybe the structure we have created will show us the outline of what we don't know and allow us to guess at the answers. To begin with, are we justified in believing that the Russians are telling the truth?"

"I'd say so," Curtis replied. "They've never admitted even the smallest failure unless there was no way out. Now they tell us that one of their men is near death and that their crew needs antibiotics. They want us to supply the medicine. To me, this means they are aware our team is on Venus. That's why they are asking for our help. If their story about the tropical paradise was phony, our boys would expose their lie. I am certain they would rather let their man die than risk such exposure; therefore I think we can absolutely accept their version of things."

"I agree completely," Bradley said. "I just wanted to be sure that we were unanimous. Now, what else can we be sure of?"

"Well, we've got their location pinpointed," Borg announced. "Jodrell Banks gave us their figures and now

the Russians have confirmed the site. This means that Chet was given the correct coordinates."

"What it all boils down to," Curtis said, "is a matter of navigation. If Chet and the boys plot a true course, they'll come out of it all right. At least we were able to get that information to them."

Bradley shook his head slowly. His little house had to be built of facts, not wishes. "It's not just a question of navigation," he said flatly. "None of us has any idea of what they're facing. They have to cover roughly one hundred miles. On their way to Venus, they made that distance in just about one quarter of a second. But on Venus itself a hundred miles might take a lifetime."

"True," Borg agreed.

There was not a great deal that could be added; and certainly nothing could be done but, in general, they all agreed that the situation seemed improved. The fact that the Russians were there and the area in which they were based could support life was good news indeed. The frustrating thing was the total lack of communication with Chet and his mission. The silence was understandable because only the landing vehicle was equipped to operate Mariner's radio relay and the equipment was not portable; but it was, nonetheless, most frustrating. How simple things would be if they could talk to Chet and give him the encouraging news that safety lay just a few miles ahead. What a morale booster that would be! They all realized that a renewal of hope at the right time could make the difference between life and death.

Finally the three men got down to the real purpose of their meeting. Curtis put it squarely. "What do we tell the Russians?"

"What *can* we tell them?" Borg countered. "We don't really know anything, do we?"

And now Pat Bradley, the scientist with the quietly logical mind, the one who was a stickler for facts and truth, put forth his suggestions.

"I would tell them," he said, "that our crew is supplied with Septrin, which is far more effective than penicillin, and the man who is currently suffering from an allergic reaction to penicillin can take it with safety. I would tell them that our boys are approximately

fifty miles away and that we are sending Operation Immediate instructions to deliver the Septrin to the Venera crew."

Borg sounded surprised. "It would not be exactly true," he remarked.

"To the contrary," Bradley insisted calmly, "it might be precisely true. It is most likely that our boys are not more than fifty miles away. And there is nothing to prevent us sending them a message. Of course," he added, "they might not *receive* the word, but it would be true that we *sent* the instructions. The point is, I would like the Russians to wait for our fellows. I would not want them to panic and attempt a flight back to Earth before Chet and his crew can get there. I think it would be better if the Russians received orders from their own headquarters to stay put."

"Good point," Curtis said. He scribbled on the pad in front of him. He had hardly expected this mousy little intellectual officer to come up with a hard, practical plan. And yet Bradley had acted very much in keeping with his usual approach to problems: first, define the desired end, then apply the means which would most likely produce the solution.

"Tell me, Pat," Curtis asked, "how do you account for the enormous differences between the Russian report and conditions as our boys found them?"

"Well, of course, that's not my department," Bradley answered defensively. But as soon as he had made it clear that he was delivering personal opinions rather than scientific conclusions, he spoke at length on how such opposites could occur. To strike a note which would set the proper mood, he began by pointing out the extremes which occurred right here on Earth. Two expeditions, one landing in the Arctic and one in the Sahara Desert, would send back extraordinarily conflicting reports about conditions on this planet. There were places here, less than a hundred miles apart, which could also produce startlingly different concepts of life on Earth. Mt. Everest, five and a half miles above sea level, had a far different atmosphere, temperature, vegetation and topography than a spot, say sixty or seventy miles away at sea level.

Now speaking easily, Bradley laid out his views.

"On Venus, conditions are not exactly the same as on Earth but there are similarities. For instance, it appears that at its poles glaciers of ice, caps five miles or more thick, exist. Since Venus rotates so slowly, its atmosphere does not mix as efficiently as ours does and therefore heat is not transferred at all well from the equator to the poles. Thus an extremely hot equator and icy poles are quite possible. This stationary heat and lack of rotation would cause a vertical mix to occur so that winds might blow straight up, rather than across the surface in some areas. At the glaciers' edge, the ice would melt and cause streams to run toward the hot regions, Here they would evaporate and carry water vapor into the clouds. At the poles it would snow. On Earth, one finds more oxygen at sea level than at high altitudes. On Venus, the reverse could be true."

Curtis and Borg listened attentively as Bradley spoke. Finally Curtis asked a question: "Are there mountains on Venus?"

"That's not my department," Bradley answered automatically and the three of them laughed. "I mean, really," he said when he had recovered his solemn composure, "I'm a computer man, not an astronomer, but as far as I know, nobody claims to know very much about the terrain on Venus. I was only trying to give you some idea of how one team could find oxygen while another suffers in carbon dioxide. How a tropical paradise and a super-hot equator could exist on the same planet. The explanations I gave are theories. There may be other circumstances which account for the difference. I can only join you in hoping that Chet and Carter and Quincy will be back to give us the facts."

"You can say that again," Borg said enthusiastically.

"Amen," Curtis breathed.

CHAPTER X

Chet and Carter chatted while they waited for Quincy to arrive. Chet could see that the junior officer was still tense but that was understandable; actually he seemed to have recovered remarkably. Together they walked along the foot of the giant escarpment in the

direction of the planned meeting with Quincy. They timed their three-hundred-yard jaunt in order to get to the appointed spot just in time to greet Quincy, but they had to hustle the last hundred yards when they saw the sledge coming lickety-split, maintaining a bee-line from the horizon to the cliff's edge. Quincy was puffing as he pulled up.

"Everything okay here?" he panted.

"Yes. Everything's okay," Carter replied.

"Well, do we go straight up or around it?" Quincy asked cheerfully, indicating the endless barrier.

Chet stepped back a few feet and studied the awful bulk. "Frankly, I haven't given the matter any thought at all," he answered, "but we're not going to make any decisions today. I declare the balance of this day a holiday. With pay. We'll make camp and rest. After we've had some sleep we'll be in better shape to tackle problems."

There was no argument. Even Quincy seemed grateful for the decision. Chet knew, although the others had perhaps not yet realized, that the solid wall which confronted them might be their death sentence. Attempting to scale its sheer sides was out of the question. The reserves of power upon which their lives depended were shrinking to the danger point. The mountain could not be endless, of course, but where did the nearest crossing point present itself? A few miles to the left or the right? Or the thing might continue for hundreds of miles in both directions. Only one thing was clear: they were all too played out to wrestle with the dilemma at the moment.

"We don't want to establish camp too close to the cliff," he said. "Things may blow over it and we squash kind of easy." He looked back out over the sloping plain. "There doesn't appear to be much shelter out there, either."

"Why don't we use the cave, Skip?" Quincy suggested. "Looks like it would be cozy."

"What cave?"

"That one over there," Quincy replied, pointing to a place on the cliff about fifty yards to the right of where they were standing. From where he stood, Chet could see a fold in the face of the wall where it met

the ground but he could not be sure that it represented an opening.

"What makes you think that's a cave?" he asked.

"I saw it as I was coming in," Quincy answered. "I don't know how deep it is, but it's a cave, all right. I forgot that you hadn't come here by the same route, so I just assumed you had seen it."

No, he had not seen it, but now, leaving the sledge where it stood, Chet led the trio on an exploratory junket. They hurried over to the opening and peered in. The fault which created the hollow was an impressive one. On both sides, the separation in the face of the cliff was straight, as if it had been hand-hewn. The straight walls soared up for a distance of twenty feet and then arched toward each other, meeting in a point. It was certainly a good camping site so they all went back to the sledge and carried what equipment they needed, including self-contained helmet lamps.

Returning to the cave, Quincy was eager to explore the cavern but Chet insisted that they eat first. He was as anxious to discover its limits as any of them but he knew that they had been through a hard day and he was not planning a casual look around. He wanted everybody to be at their best, so in spite of Quincy's impatience, they sat down and squeezed a couple of tubes of food into their stomachs and had a mouthful of water.

Although their meal was by no means a feast, the nourishment revived them and even Carter felt the tenseness within him easing.

"Now that we all feel better, let me see if I can't knock down these feelings of well-being," Chet began light-heartedly. "It seems we've got ourselves a problem."

"*No!*" Carter's voice reeked with sarcasm. Chet was glad to hear it because it sounded as if his spirit was returning. Sarcasm was far more desirable than the whine of despair.

"First of all, let's take a look at what we've accomplished," Chet continued. "I think we should all realize that three days ago we were hit by the type of disaster which every astronaut most fears. Nobody talks about it much because it's sort of like asking yourself what you would do if you found yourself in the middle of

the Atlantic without a boat or a life jacket or a radio. You could swim, of course, but for how long? That's why we don't talk about it. Well, in spite of the shock, we're pretty well organized and we're still swimming, so to speak. Now the big plus in our favor is that we've actually covered twenty miles. We've zigged and zagged five times that far but we are, in fact, twenty miles nearer our objective. So I just want you to realize that our efforts, far from being useless, have produced some real progress."

"Well, hooray for us!" Quincy chortled. "Shall we hold the medal ceremony right here or do you think Craggy will want to present them to us personally?"

"Let's hold off on the medals," Chet replied. "Our problem right now is this monstrous mountain. We can divvy up and scout for a passage in both directions, leaving one man at the sledge, but that means separating the team, each man on his own. I don't like the idea."

"Neither do I," Carter said fervently.

"Of course we can do it," Quincy announced optimistically, "but I'm not too hot about the idea of wandering around on my own. I mean, this place is lonely enough as it is."

"I don't know yet," Chet answered frankly, "but I feel we should all be thinking about it. We've got till morning." He stood up. "Cave exploring, anyone?" he called.

They joined him at once. Putting their helmet lights in place, they each sent a beam of light ahead as they made their way cautiously toward the rear. The cave narrowed and became tube-like. They had to bend to get through some low spots but they were able to walk upright most of the time, which was a boon since the rough floor and twisting walls made passage in their awkward suits difficult. Bumping and sliding, they followed the rocky tube which snaked first left and then right and started slanting upward, first gently and finally so steeply that the astronauts were on all fours, using their hands and feet as they climbed its path.

They were moving in single file, grunting and huffing at the strain, when Chet stopped short.

"Hey, fellows, switch off your lights for a minute," he called.

There was a momentary silence in the darkness and then he said, "Sure enough. There's light up ahead. Looks like we're breaking through. Come on!"

They scrambled forward, slipping on the loose, dry dust in their haste. Then they could see that the tube bent sharply upward and broke through the surface as if it were a manhole. They looked up and could see the familiar cloud cover which seemed unnaturally bright after their experience with the dark. The sides of the narrow shaft were rough and studded with rocks and ledges so that climbing up was a fairly easy task although it required a lot of work.

Chet was first out, heaving himself into a sitting position and then withdrawing his dangling legs to make room for Quincy and then Carter. They stood around the opening from which they had just emerged and surveyed the scene. The hole had come out almost in the center of a flat shelf which was some twenty feet wide by ten long. On all sides of this ledge, the massive cliffs continued their sheer ascent into the clouds. At the rear of the shelf, where it met the great wall, the fault continued, slanting its broken pathway up into the folds of the hideous cliff.

They stared at it, fascinated by its promise of escape. They could trace its course for about two hundred yards, but then the cleft twisted behind an outcropping and was lost to view.

"Well, we can get that far for sure," Quincy remarked, pointing to the place where it disappeared.

"What if it just peters out?" Carter asked.

Nobody bothered to answer that one and Chet made the decision for all of them. "We'll take our chances with it," he said.

Carter led the way back to the main cave, where they would make camp for the night. In the morning they would start the climb. Now that a way out of their dilemma had presented itself, they began to admit the seriousness of their position before the discovery of the tunnel.

Although they had only been on the road for three days, everything was beginning to wear out: their nerves, their physical capacities and their power supplies. Yet it appeared that eighty percent of the journey lay a-

head of them and a long forced march at right angles to the direction in which they had to go could have had fatal consequences. Now this cave with its tunnel and pathway slanting toward the clouds had come to their rescue. But it also raised some difficult questions. Chet felt that the questions should be settled before they slept so that they could awaken in the morning to a definite plan. When their physical energy would be at its highest, he did not want to waste it in talking.

"Thanks to your sharp eyes, Quincy," he said, "we've got a break. We're going to have to take full advantage of it because we may not get another one. To begin with, we'll have to abandon the sledge."

Both men looked at him in horror. It was obvious that the sledge would have to be abandoned because there was no way at all for it to negotiate the perpendicular tube through which they had to pass. And beyond that, the steep climb up the path of the friendly fault was beyond the capability of the powered carrier; yet it had never occurred to them to abandon the thing which had come to symbolize their only security. Chet noticed their consternation.

"Okay, Quincy, if you want to bring it along, be my guest," he said.

"Well, I don't see any way . . ." Quincy was backing down.

"You, Carter?" Chet pressed.

"Not me, Skipper. If it won't carry me, I'm not going to carry it," he joked nervously.

"I see what you mean," Quincy offered. "Still, if we leave everything here, how . . . for instance, how do we navigate without the gyrocompass?"

"We don't," Chet replied simply. "We're going to follow this pass all the way to the top and once we're there we will rely on that old-fashioned directional guide known as a sense of direction."

"If we reach the top, we'll have passed into, maybe beyond those clouds," Quincy reminded him; "how are we going to retain any sense of direction then?"

"Instinct," Chet said. "One way or another we are all going to be foot-slogging every inch of the way. When we get to the top, we'll pool our memories and our

observations as well as our feelings and we'll make a decision at that time."

"Skip, because of your ineffable wisdom and because of the great trust I place in your decisions, but most of all because I can't think of anything else to do, I'm with you. We leave the sledge here and proceed on instinct. Now what do we take with us?"

That was the question. When they had abandoned the landing vehicle, they had to leave behind much they considered vital. Their supplies were short as a result; what could they leave behind now that they were about to abandon the sledge?

They used the main power pack to recharge their suits, then they rejuvenated their air-purification systems. These systems kept circulating the air they exhaled, sweetening it and removing the impurities while preserving what oxygen had not been absorbed. As a result, the relatively small amounts of oxygen which were metered into the system made it into a breathable mixture. Without this recycling, they would have had to carry a great quantity of air with them; as it was, they made sure their portable tanks were full. These actions were inevitable and did not add anything to their load so there was no need to debate the items.

Once this was done, the difficult part began. Everything was taken off the sledge and laid out for inspection and selection. Food tubes and water; portable power packs; medical supplies; extra lamps; auxiliary radios and electronic equipment; spare parts for the suits; instruction portfolios; emergency oxygen tanks. Everything was unpacked and it was astounding what a large area was covered by these supplies when they were laid on the ground. Looking at the collection, the astronauts faced an awful problem. Taken all together, it was really a bit less than three men should have to face a foreign wilderness with. Yet it was a great deal more than could be hand-carried. Every item was judged and discussed at great length. Some were placed together in an area reserved for things that must be taken. Others were placed in a group which was declared doubtful. Everything which was reluctantly placed in the pile to be abandoned was put there only after long consideration, and then only with the understanding that

after the first sorting everything would be picked through again.

The medical supplies, in one self-contained carrying pack, came under the most severe debate. Quincy argued that under the conditions which existed outside their suits it was most improbable that any of the medications could be applied to an injury. He asked them all to accept the gruesome truth that anyone unfortunate enough to become disabled was doomed in any event and therefore it would be senseless to burden themselves with medicines they could not use. Carter agreed with him.

Although he was no longer hostile and did not revert to the whimpering attitude he had shown before, Carter seemed to have resigned himself to the death which he figured they must all suffer. Whenever anybody suggested leaving something behind, he agreed almost automatically since he did not really believe that anything could help them in any case. But he did not voice these feelings. He simply agreed.

All final decisions fell to Chet and he decided that the medical supplies had to come along. To leave them behind, he felt, would be an admission that failure was to be expected; he truly believed that if they stuck together and applied themselves intelligently to the task, they would ultimately arrive at the Russian base. If this was so, then somewhere along the line they should experience conditions which would support life, and there the medical supplies might prove invaluable. It would be unthinkable to reach such a place and then have to abandon an injured man simply because they had thrown away the means to heal or cure him. The medical supplies were placed in the must-be-taken group.

Other items could not be selected on such a philosophical basis. Since it was obvious that some things had to be left behind, one could not feel that everything so delegated was an admission of defeat. But after the first sorting, and at the end of the second, one thing became clear: three men, even when overloaded, could only carry the bare minimum needs of two and a half men. Chet saw this and understood it but decided against putting it quite that bluntly. It was impossible

to see far enough into the future to make a truly sensible plan. Nobody knew what lay ahead. Because their suits, when fully charged, could last no more than ten days, they decided on this as a unit against which to measure all their needs. So ten days' worth of food was allotted to each man. At that, they decided to cut down to two meals per day to save weight.

It was late when they were done but at least all decisions had been made. The supplies were packed and attached to various harnesses and nets which could be clipped to the outside of the suits. They would need to keep their hands free for the climb. Finally they sat down and treated themselves to several extra tubes of food and all the water they wanted. Then they slept.

Unlike the night before their lift-off from the Cape, the team did not sleep well. Instead of the excitement, there was the leaden feeling that the odds did not favor them. An incredibly tough job lay ahead of them; they were on the verge of their last major effort because they would not be capable of mounting another one. They were tense and fidgety and anxious to get underway.

Thus they were up and about earlier than usual and once again they stoked up on extra nourishment although none of them felt particularly hungry. Then they pulled the sledge into the cave, just inside the door where it would be protected from the direct force of a sudden storm and yet easily visible to any wandering traveler who might poke his head inside in the years to come. Since all their recording tapes carried the same basic information, Chet asked one of the two to leave his on the sledge so that anyone finding the camp and its array of equipment would also have a record of how it had come about—in case they never got back.

Carter quickly put his tape in the center of the empty sledge. Then all the power was shut off, even the gyrocompass.

Their equipment swinging and clanging from its harness, they switched on their lamps and proceeded toward the rear of the cave and into the tunnel. Their progress was slower because of their burdens, but they started out with the confidence of travelers who had passed through the route before. Soon they had lifted

themselves out of the manhole exit and stood again on the small shelf. Chet extinguished his light and made for the cleft. Carter and Quincy followed.

Slowly, testing for handholds and loose shale, he inched his way deliberately upward. Not a word was spoken as everyone concentrated on the difficult climb. Occasionally, a series of jutting rocks provided a staircase which enabled Chet to take three or four steps in a row, but most of the time he had to find a grip for his armored fingers, and then raise one leg to the next level, bring the other leg up, pause, seek another fingerhold and repeat the process.

At times the V-shaped cleft which enclosed them seemed to ascend almost as steeply as the sheer cliff sides; in other places, it took a more level course, cutting deeply into the mass of land. Whenever Chet reached a place where his view was obstructed, he would lift himself above the boulder which stood in his way. He would hold his breath until he could see again that the pathway continued. At any point, the great fault could end and they would be defeated.

At one point it seemed as if his worst fears were about to be realized. The path ended and above it the cliff rose vertically. He looked back and saw Quincy and Carter toiling their way up the path he had covered. They were not crowding each other, so that each could make his way without the feeling that a slipped foot would crash into his buddy. He hesitated before pulling himself a notch higher and then he saw the opening. Another cave, much smaller than the one below, created an opening and he moved into it, crouching awkwardly. He had to bend so low that he was in danger of toppling over and considered crawling on his hands and knees, but fortunately the tunnel, it turned out to be, was a short one and soon he was out of it and into the light on the other side. Mercifully, the cleft continued.

Since the climb had begun, the only human sounds to be heard were the grunts of the straining men as they toiled in a concentration of silence. The next natural tunnel did not come as quite the same shock to Chet. He began to feel that, somehow, luck was with them, and he confidently expected to walk straight through

and emerge on the other side. His optimism turned out to be well-founded, for not only did he do just that, but the cavern was larger than the first one he had crouched through. He could stand up, the ground was fairly level and the exit on the other side was shining with light. He waited for his teammates to catch up.

He had caught his breath by the time Quincy got to him. "I figure this is where we eat," he announced.

"Yes, yes," Quincy panted, "and rest, too, I hope."

Carter joined them.

"This a good spot for lunch?" Chet asked him.

"Sure," Carter agreed laconically.

Chet got the feeling that if he had asked him whether this was a good place to turn themselves into elephants, he would have agreed in exactly the same manner. They helped each other unbuckle the heavy harnesses and then they stretched and flapped their arms around, enjoying the freedom of movement.

Stomping about in relief at the shedding of so much extra weight, Chet walked over to the exit and stuck his head into the open. He just wanted to make certain that the pathway continued.

"Looks like we're heading into dust," he called. Quincy walked over and joined him in the inspection of the outdoors.

"Yeah," he said slowly, "it is dust. I guess that's what made it look brighter; must be reflecting the light."

"When we're at ground level," Chet mused, "I'll bet we look up at the clouds and we can see them only through a whole layer of this stuff. If I'm right, then we can figure on it getting thicker for a while."

"Then what?"

"I don't know," Chet replied, "but my guess is that when we get through this, we'll hit clouds. Real clouds."

"You mean water clouds?"

"Maybe."

Carter did not bother to join them. He could hear their conversation in his earphones but he did not enter the conversation; he sat, resting, looking fixedly at the ground. When the others came in to eat, he reached mechanically for his own food and they all took their nourishment in silence. When they were finished, Chet reviewed the progress they had made. In

view of the hard work, he believed it important to keep in mind the fact that they were not on a treadmill but that every weary step was bringing them that much closer to their destination. Those dust clouds outside were evidence of the progress they had made. But he also cautioned them to stick a trifle closer together. Since it was quite possible that their visibility would be impaired, he thought it best if they would all check with each other every five or ten minutes. Everybody would simply call out his name. That way nobody would straggle and get lost and they could all move ahead without being nervous that one or the other was in trouble.

They did not much relish putting the weighty harness back on, but they helped each other and when they were ready, Chet led them to the exit and resumed the climb.

The next few days were spent in dust. It did not change their situation except that they could only see clearly a few yards in any direction. They kept calling their names regularly; Carter was always last and several times Chet had to ask him specifically to come in. He always did, apologizing for his lapse.

The way was unbelievably difficult. They had to follow the natural fault because there was no alternative. It led them from the tight confines of the deep V-cut, where their shoulders and bulging harness rubbed against the sides and they felt straight-jacketed, out into narrow ledges whose sides fell away in the emptiness below. They passed through dozens of caves, some of which required them to crawl. They no longer marched strictly by Chet's watch. Now they stopped only when they had reached a suitable place. Sometimes this would not be until an hour or two after the watch told them they should be resting. On occasion, before the time was right, they would find a roomy cavern and decide to make a meal there rather than risk being caught out on impossible terrain for the next few hours.

Every movement of their powered suits used a share of the electrical energy stored in its power pack. If the suit had to walk a man in even strides along fairly level roads, its energy supply could last ten days. But every added exertion it was called upon to perform required

the expenditure of a like amount of power. Each man was carrying some seventy pounds of added equipment. The motors, whirring and spinning, had to move this extra weight and they used large amounts of electricity. And this combined load of astronaut and equipment had to be heaved up and over barriers. Their power supplies were being drained away at an alarming rate as their tedious climb continued.

Their bodies, too, were subjected to the strain of negotiating the ceaseless uphill wilderness. Although the suits were power-assisted, their every movement was directed by the aching muscles of the man within. Their constant heavy breathing caused the oxygenators to work overtime and the result was that the air they breathed kept being returned in a staler and staler condition. They had to adjust the oxygen flow in order to make the mixture breathable, but this caused their supply of that precious gas to be used at a much faster rate than they had anticipated. At a time when their bodies were using up large floods of energy, they had cut themselves down to two meals a day and this soon began to tell as an appalling weariness settled over them.

Chet kept an eye on the diminishing supplies but there was nothing he could do about it except encourage the others to move when they wanted to rest and to hoard their food when they wanted to eat. He did not call their attention to the rate at which their supplies were being consumed because he knew that Carter, in particular, might well give up the fight. Parret was in such a despondent mood that he moved with them as if he were a robot and Chet wanted to spare him further discouragement.

On the fifth day, as they camped for lunch, Chet noted that they had less than two days of power left. Instead of commenting on this, he asked them to observe the clouds. Whereas ragged layers of dust beneath them obscured the path they had traveled, above them the clouds seemed dustless. And much brighter. One particularly bright patch almost suggested that the sun lay in that direction. If this was so, the remaining cover could not be very thick, for under a heavy bank no area would be brighter than the next.

Carter politely looked where he was asked to look

and made no comment. Quincy, too, was strangely silent. When he was through eating, he came over to Chet and Carter and gave their entire suits a careful inspection. Carter submitted to the procedure meekly, but Chet asked him what he thought he was doing.

"Just checking, Skip," he answered thoughtfully. Then, leaving his two companions where they stood, he wandered over to the exit and stepped just outside, keeping his back toward them. Chet wondered at the odd behavior but he clamped a tight control over himself to prevent his bringing yet another problem into the open. If Quincy cracked, Carter would just dissolve; and Chet wanted to make the best possible use of the remaining two days. Grimly, he started to gather the harnesses when his earphones picked up a sudden rasping fit of coughing. He looked up sharply and, seeing Carter at his side and motionless, he swung around to observe Quincy, who had not changed position. The young astronaut's shoulders convulsed in reaction to the spell of coughing but he managed to speak.

"Come over here, Skip," he croaked. "Take a look at something."

Chet hurried over anxiously. Quincy sounded choked but there was no panic in his voice and he quit coughing although he kept clearing his throat. Chet looked out over the clouds but saw nothing unusual. Then his eyes sought the continuation of the trail and found it leading steadily into the brightness.

"What is it, Quincy?" he asked, scanning the entire panorama. "I don't see anything that shouldn't be there."

"No, I mean me, Skip," Quincy said. "Look at me!"

Chet twisted to peer at the astronaut by his side and he gasped. Quincy's faceplate had been unbolted and it was swinging wide open on its hinge.

"Quincy!" Chet shouted.

"That's right, Skip"—Quincy smiled—"it's kind of hot out here and the air stinks; smells like acid. But it's delicious."

CHAPTER XI

As quickly as he could, Chet had opened his own facemask and he reacted to the pungent air as Quincy

had. He alternately choked and coughed and laughed as tears streamed down his face. But the tears were caused by coughing and he was very happy.

"Hey, Carter," he yelled when he had recovered control and his breathing had settled down, "you can open up and get rid of that suit of armor."

Carter came over slowly and looked first at Chet and then at Quincy, but he made no move to unbolt his facemask.

"Come on," Quincy urged, "it's great. Wow!" To demonstrate, he took a deep breath and immediately started coughing again. It took a little getting used to. Without saying a word, Carter raised his hand and started to loosen the bolts. When he opened the facemask, he held his breath and then carefully and cautiously sipped at the new atmosphere. As a result, he did not suffer a coughing spell and took the change quite calmly. His controlled approach was obviously the correct procedure to follow but Chet was not pleased at the total lack of excitement and enthusiasm which his friend displayed. If finding a breathable atmosphere could not snap Carter out of his depression his spirits must be at an even lower ebb than they appeared.

All power in the suits was switched off and then the suits were removed. The sudden change from the air-conditioned interior of the protective armor to the heat of the outside air made it seem even hotter but they were free and able to move about normally and it was a great relief. As they were undressing, Quincy explained that he had kept careful check of the temperature and his oxygen tab had indicated that the external atmosphere might well support life.

While Chet was involved with the worry of their failing power supply and Carter tagged along not caring much about anything, Quincy had decided that they might be able to survive without their suits.

"So you see," he concluded, "I did not want to get anybody's hopes up unless I was sure. I checked both your thermometers and oxygen tabs and they agreed with mine. So I thought I would go outside and sneak a little whiff before I sent off the fireworks and started the celebrations."

As soon as he was free of his suit, Quincy acted like

a ten-year-old. He danced about, hopping and skipping as he flapped his arms and leaped over imaginary obstacles. In his long underwear he presented a ridiculous sight.

"I think that was a very brave thing to do," Carter said in a dull voice. He was not addressing anyone in particular; he seemed to be merely talking aloud. "You might very well have been killed. You did it to save us. If there had been poisons . . ." He shook his head as his voice trailed off.

"I hate to drag you down," Chet said loudly, "but you're using up a whole afternoon's worth of energy and we don't have that much to spare."

Quincy had worked off his excitement and he sobered up. He joined Chet and Carter, sprawling luxuriously on the ground. This atmosphere was a big break; just the sort of thing they had hoped might come their way. But it was not an unmixed blessing. If the air continued to be breathable, and there was no reason to suppose it would get anything but better as they climbed higher, then their oxygen problem was solved. If the temperature also maintained its present level, and there was good reason to suppose that it might drop even further with altitude, then they would no longer require refrigeration. If they could get along without oxygenators or refrigeration, then they did not need their powered suits and in that case, their power supply problems were solved. All this was to the good.

The problem that remained, and, in fact, intensified, was that from here on everything which they carried would have to be transported by sheer muscle power without the aid of power-assistance. They were still very short of food. Now more than ever the medical supplies had to accompany them. Radio was no longer necessary for communication between them—they could talk and hear normally—but at least one radio set had to accompany them in order to attempt contact with the Russian base. Since the only radio they had was built into their suits, this meant that one set would have to be ripped out, with its antenna, microphone, earphones and power supply. They shortened the harnesses to make them fit around their bodies and they stripped off the long electric underwear, replacing it

with the loose coveralls they had worn while in the powered suits.

Quincy got one of the radios out and managed to find a place to hang each of its components on Chet's harness. When they were all buckled up and laden, they resumed their climb. The temperature hovered around a hundred and ten. It was possible to survive in that heat but it was not possible to be comfortable. They were drenched with perspiration before they had gone two hundred yards but the damp discomfort was the least of their problems. The loss of bodily water had to be made up and their tubes of water were pitifully inadequate. Within their powered suits, all moisture was purified and recycled; out here, escaping moisture evaporated and was lost.

During his basic training with the Agency, one of the survival techniques which Chet had been taught was to travel only in the cool of night when caught in an area of searing heat, camping by day. Here the separation of day from night was an artificial change in their routine; change dictated only by Chet's watch, which could not make things cooler.

Chet kept them on the trail for three hours, by which time they reached another in the series of tunnel-caves. It was noticeably cooler inside and he made the decision to camp for the night. They took off their harnesses and rested for a while before reaching for the food. Sitting or lying was a great deal more comfortable without the stiff armored suits and Chet looked forward to a good night's rest. He felt they all needed it. He squeezed the paste directly from the tube into his mouth and the simplicity with which this could be accomplished made him feel that life was getting a little easier. There was moisture in the pasted food. Not of a type to quench thirst, but enough for his body to detect and separate and put to good use. Except for the thirst, he felt more comfortable than at any other time since the trek had begun. He suggested that they share one tube of water between them. Quincy agreed but Carter declined his, saying he did not need it.

"Yes, you do," Chet insisted, holding the tube out toward him. "We all do. For everyone's good we must

each maintain ourselves in the best shape possible. That takes water. Here," he urged.

"Give mine to Quincy," Carter said, keeping his eyes averted. "He did a very brave thing today. He saved us all."

"Aw, come on, Carter," Quincy bellowed to hide his embarrassment. "Take your share so we can all get ours!"

Reluctantly, Carter did as he was told but they noticed that he barely took a mouthful before passing it on. The discussion turned once again to what should be taken and what should be left behind. This was nothing about which one could really claim to be experienced. Things that seemed vital turned out to be expendable, but only after a great deal of mind-searching. Of course the suits were to be left behind. There was no argument against that. Yet these suits had borne them to where they were and abandoning them seemed callous somehow.

One part of Chet's mind clung to the idea of hanging on to things. The other probed the possibility of leaving almost everything. The struggle to achieve a balance between the two opposing lines caused agony. Working within these two opposite pressures, Chet made the new list. Quincy was not in complete agreement, yet he accepted the decisions. Carter took no part in the discussions, merely saying yes when the decision was yes and shaking his head mournfully when the answer was no.

Once all the decisions were made, they turned in. Chet fell alseep almost at once. In his new-found comfort he dreamed of Earth; not with longing, but as if he were really and truly there. Driving, answering the telephone, walking in and out of offices; he had problems but they were real ones to which answers could always be found within the structure of the Agency. It was an active but restful sleep, and when he awoke he was refreshed. He stretched and yawned and rose on one elbow. Quincy was just beginning to stir.

"Top of the morning," Chet croaked with a dry throat. "Shall we be up and at them?"

"Sure, sure," Quincy moaned sleepily. "We'll hit them again harder, harder. But not now, okay?"

In spite of their desires to drift from reality back to the coziness of sleep, they struggled awake. Once they got themselves to understand that they were on the planet Venus and involved in a climb for their lives, they were able to come to grips with things.

"Where's Carter?" Chet asked.

"I just woke up," Quincy protested. "How should I know?"

Carter was nowhere in sight.

His harness lay in a pile near the entrance. From there a trail of equipment led back down the path they had traversed the previous day. Several tubes of food, placed strategically so that the next one could be seen from the one before, lay along the path. They followed the conspicuous trail. Tubes of food, water, a glove and other personal items led them to a ledge. It was narrow, no more than three feet at its widest point, but it constituted a bridge across which all three had made their way. Left and right, the sides plunged into the awful dust-filled depths. The bridge ended in a flat area which led to a tunnel. Right in the middle of the bridge, the last few items of Carter's possessions lay in a heap. His coveralls topped the pile.

Chet and Quincy called his name, their vocal chords resenting the strain suddenly thrown against them. They coughed, cleared their throats and called again. They stepped over the little pile, walking into the tunnel and beyond it, calling and listening for an answer. But they both knew. They called and searched for an hour before they conceded victory to the wastes which surrounded them. They returned slowly, picking up each piece Carter had discarded. When they arrived back at the cave, they put the items in a pile by themselves.

"The fool! The idiot! The stupid pinhead!" Quincy stamped around the rock-bound clearing with his fists clenched. Chet could see tears streaming down his cheeks as he continued calling his missing partner a boob, a dolt, an imbecile. When he had quieted down and subsided into gentle sobs, Chet spoke to him.

"He really thought he was doing it for us," he said.

"Yes, I know," Quincy replied. "That's what makes it so hard to take. I'll admit we always had our differences,

but, holy smoke, I figured we would all make it or all not make it."

"It had nothing to do with you," Chet assured him. "Carter was never happy about this mission. Since he was opposed to it from the beginning, he might have somehow started to blame himself for our troubles."

"But it wasn't his fault!" Quincy said strongly.

"Of course not," Chet agreed, "but when a man starts to collapse under a strain, it's not a question of thinking. I mean, his logic told him that he shouldn't be here; and yet here he was. Maybe he drifted away from logic and decided to pull himself out."

"I wish he hadn't," Quincy replied simply.

"I know," Chet said.

There was nothing further to be said. Conversation could not bring Carter back. Words might help soothe their own grief at his passing but the pressure of time was still upon them and if Carter's sacrifice were to be made meaningful, the survivors would have to take immediate advantage of the supplies he had bequeathed them.

So the journey was resumed.

Chet found that being left alone with Quincy eased his burden of leadership. Within twenty-four hours the situation seemed to have changed subtly from one which entailed a leader and his crew to something more closely approaching that of two brothers undertaking a difficult project. Chet was still the "older brother," to be sure, and he was still in charge, but they needed each other's company and they worked closely together. They pushed themselves harder than before, but now Quincy was no longer grandstanding with his challenges to push forward, skip rests and set records. He did not bait Chet with suggestions that they could be there by now if only they had hurried. Both of them were aware that "there" was an imaginary place which had no more substance than the equator back on Earth. Or the North Pole. Places like that existed, but only if you really had the patience and wit to find them and knew you had found them once you were there.

With neither pushing nor hindering the other needlessly, they made excellent progress along ridges, through tunnels and up the deep clefts. As they climbed, the

air got purer and they coughed less. They found it still intensely hot but either they were getting used to the heat or perhaps it was somewhat cooler than when they had first taken off their air-conditioned suits days before. And then they came to the plateau. It was U-shaped, fairly smooth surfaced and sloped gently upward as it headed into the great fault within the cliffs. At the point where they climbed onto it, its width was close to two hundred yards; from there, it narrowed slowly but they could not see its end.

Quincy was encouraged. If nothing else, the plateau promised an easy crossing. Unhampered by the awkward suits in which they had begun their journey, this easy country could be covered at the truly fantastic speed of three miles per hour. If it continued, thirty miles a day was within their grasp. Chet's reaction was more reserved. On both sides, the cliffs still rose into the nearby clouds without the slightest sign of a break. It was always possible that some tunnel would lead them through the great range and beyond it to the other side. Perhaps that was where their goal lay. But if they had to reach the top of this formidable mountain, then making three miles per hour along almost level ground was not, in itself, as helpful as it seemed.

Their differing points of view did not alter things; the plateau had to be crossed so they swung into an easy gait. They did not stop until lunchtime. A hike of this scope might be looked at by a city man as an arduous task. To the astronauts, it was a lark, not calling for periods of rest.

Since they had not been exerting themselves, they felt no need to lounge around after they had eaten lunch so they were on their way within thirty minutes. Within two hours they could make out the solid wall which marked the end of the plateau. As they approached closer, they could make out the entrance to a cave where the level ground met the cliffside. They were still so far away when they first spotted it that they realized it had to be much larger than anything they had yet encountered.

When they reached it, they estimated that its mouth was the width of a football field. Quincy was about to walk right into it, but Chet held him back and pointed

into its gloom. This cave was quite different from the others they had used. Vapors, similar to what they had encountered twenty miles below, before they had seen the mountains, filled its interior. They stood in the safety of the outside air as they tried to discover the source of fumes but they could not distinguish any point of origin. Standing on the brightly lit plateau, they stared into the vapor-filled darkness and could see nothing but a general fog within the cavern.

They carried no oxygen. No masks. No cozy helmet to protect them from poisonous gases. Chet stepped back and, tilting his head, he studied the cliffs above and to the side of the cave. They were unclimbable.

CHAPTER XII

"Well?" Quincy looked questioningly at Chet.

"I wouldn't know," Chet replied, fighting to hide the sinking feeling in the pit of his stomach. So much effort, muscle-tearing work, spirit-cracking defeats. Carter's sacrifice, all ending at the entrance to a gas-filled cave. He felt his lip quiver at the emptiness of his heart.

"Well, it's a cinch we can't stay out here forever," Chet finally said with determination in his voice.

"Yeah, but what worries me," Quincy replied, "is that we *can* stay in there forever. I mean forever and ever."

Chet took off his harness and placed it on the ground at one side. He removed the lamp from the chest brace of the harness and pinned it on his coveralls, slipping its power pack into a hip pocket.

"I'm going in there," he announced.

"Oh no, you're not," Quincy began. "If anyone's going—"

"Hold it!" Chet cut him short. "No time for argument. You stay right where you are; I'm going in but I'm going to be holding my breath. I'm going to see if I can discover anything. Then I'm going to dash out here before I have to breathe again, so don't stand in the way or I'll come right through you. Maybe, if we keep doing that over and over again, like snorkeling, we'll find a way we can go through."

"Why don't I come with you?" Quincy offered.

"Because I need a back-up," Chet lied. "If I need resuscitation or something, I want to know you're here to supply it. So keep alert but don't get in my way when I come charging out." He took a few deep breaths.

Then he walked swiftly into the cave, switching his lamp on as he went. The vapors were not thick as he stood in the middle of them, but his fast entry made them swirl so that only split-second vision was available. Not enough to do any good. His lungs signaled their first warning, then he felt a sensation on the skin of his face which was vaguely familiar but which he could not place. At first he shrank from it; a throbbing at his temple made him get ready to make a desperate dash toward the outdoors but first he touched his fingers to his cheek. Then he hustled out to his friend and took long, lung-filling breaths.

"What did you find?" Quincy asked anxiously.

"Look at my face."

Quincy inspected it closely. "You're sweating," he announced.

"I don't know. I don't know," Chet said, sounding very puzzled. "Here, let's check it out for sure."

He reached for a tube of food and withdrew it from a pocket in his partner's harness. He thrust the metal container into his friend's hands. "Look at it," he said. "It's dry, isn't it?"

"Yes, naturally," Quincy replied.

"Okay, let's see."

Taking another deep breath, Chet went back into the cave and waved the tube around in the moving vapors. When he returned to Quincy's side, he held it out to him. "Look," he said. "I never changed my grip on it."

Quincy was beginning to think that his commanding officer was starting to wilt under the strain. Then he saw that a thin film had formed along the entire surface of the tube. The metal was completely fogged over with a fine mist. Chet ran his finger over one length of it and, when he removed it, a drop had formed at his fingertip. He held it up to his friend's nose. "What does it smell like?" he asked.

"Nothing," Quincy answered.

"Right. Nothing. Do you know what I think it is?"

"Water?" Quincy hardly dared ask the question.

Chet ran his finger several times along the tube, gathering as much of the material as he could. "Let's find out," he said, plunging his finger into his mouth and sucking it.

"What is it?" Quincy asked anxiously.

"It's a lollipop." Chet smiled.

Quincy laughed; then he pointed to the cave. "Then you think that vapor is—"

"Steam," Chet confirmed, "steam and water vapor."

They did not rush blindly into the interior; they approached it with cautious confidence, but Chet was right. A number of cracks on the floor and in the walls near the entrance leaked a thin, hot mist which gathered in the still air. Looking from inside the cave toward the entrance they could see that, as it seeped into the outdoors, the hot, dry air sucked it into nothingness instantly. It was hardly useful to them in its present state, but steam could come only from water. Somewhere on this grim planet water existed. It might save their lives, enabling them to exist long after their food ran out. If they could find it.

Beyond the area of steam, Chet saw the cave narrowing and sloping upward as many of the previous caverns and tunnels had done. It was dry. They found it difficult to leave the newly found moisture, useless as it was. Although the vapor filled a sizable area, there was not enough of it, nor the means to condense it, to satisfy the requirements of even one man. It was a symbol, nothing more, yet hard to leave behind.

For two more days they climbed, never once breaking out of the rocky interior. During periods of rest and nourishment they economized by using only one lamp; they slept in total darkness. At all other times both lights were needed as they heaved and lifted themselves along the twisting route. They did not discard the used water tubes, for if they should locate a supply of the vital fluid they could split the tubes and fashion the soft metal into usable cups. So they saved the used tubes. It was Chet who thought of the need for a utensil and it was typical of his foresight.

Just before stopping for their evening meal, Chet and Quincy came to a place from which the only exit was

a roughly circular hole in the ceiling. They hoped that this would lead outside but they could see no sign of daylight and found themselves in still one more tunnel. This emptied into a large cave and Quincy let out a whoop. There was steam in the cavern. But more than that, from one of its sides, a rivulet of water bubbled forth and ran straight across their path, disappearing into a dark hole on the opposite side. They rushed toward it and Quincy stuck his fingers in the small stream, then he pulled them out quickly, moaning and blowing on the reddened skin. The water was boiling even as it ran. Somewhere above, rain or snow had fallen and seeped into the interior. Volcanic heat, or perhaps the high temperatures caused by the squeezing of the planetary matter, had brought it to the boiling point.

It could be caught and cooled. That was what counted. True, they could not be sure where the tunnel would lead. True, they had no source of food and their supply was almost gone. True, their radio was useless within the tunnel and not much more hopeful outside it. But here there was water and water alone could stretch their survival for weeks.

Chet realized the enormous pressure under which he had labored only when he experienced the light-heartedness which followed the discovery of a stream of boiling water. They made better time from then on. Their progress was not markedly better but it was much, much happier. In other caves, and sometimes in the tunnels, they came across more steam, more water. Once, as his light shone ahead, Chet stepped into a shallow stream of it and jumped out shouting at the pain and laughing at the pleasure.

It was long past their usual time when they finally bedded down for the night in a tiny cave which featured a steaming stream along one of its sides. They converted every used tube they had into a receptacle for water and filled them with the heated liquid. From one patch of soft metal, they constructed a small funnel. In the morning the water would be cool enough to drink and they would pour the surplus into empty tubes which could be capped and carried. Until then they

slept in carefree comfort, allowing the worries of the coming day to drift out of their deep, damp dreams.

Water. When they awoke they drank water. And they stored it. And they splashed what they could not use of the cooled liquid on their faces. They ate and drank and joked and then they followed the nervous beam of their lamps until they thought their power packs were failing for the beam grew dim. But when they turned them off for a moment to test whether the packs would surge back to strength, they noticed that they were no longer in total darkness; and then they could make out the walls of the cave, on one side where the outside light was reflected around the bend. Not bothering to turn on their lamps, they ran toward the lighted bend, stumbling in their joy, shouting and yelling against the stolid sides of the cave. Then they were able to see the beautiful archway of light and they dashed through it, laughing and slapping each other around and dancing like madmen.

The astronauts, dazzled by the light, almost drunk with delight, clapped and howled for a full minute before they suddenly hushed and stared around them. Incredibly, they had so taken for granted that they would be in the midst of a bare, rock-studded region that in the joy of bursting out, they had not even noticed their surroundings.

They were in a forest . . . a strange fernlike jungle, not quite like any on Earth and yet not containing anything alien to Earth—at least as far as they could see at first. Through the tops of the wide fronds and thick-leafed branches they could see the eternal layer of cloud which did not quite reveal the sky or sun, though it was much brighter than the dusty sky at the base of the giant plateau.

They were on top of this strange higher level, so abruptly rising from the normal hundreds-of-degrees hot true surface of Venus. How did this upthrust come about?

Chet had speculated, as they had neared the top, that once an asteroid or unstable moonlet had crashed down on Venus. The impact, the shock, may have created the vast dust clouds that still swirled about the planet tens of thousands of years later. The impact may have

altered the planet's rotation so as to cause its slow retrograde action so out of the ordinary for planetary motions. And the mass of this other world, small as it had been in solar terms, may have sunk mainly into the core of Venus but still left a now wind-worn mesa dozens of miles above the normal Venus plain, so that it was in an area of lower temperatures and above the vicious killing dust storms of the surface. Either way, things could live here, which brought up a thought. They dropped to their knees, searching for signs of insects or other animal existence. They could find none. There were ferns, all sorts of fungus types such as mushrooms, algae and other growths which looked familiar; and leafy things which looked like plants but grew like trees. But not an insect or bug, nor any sign of walking or flying life. They were on their knees for an hour, searching, picking, calling each other's attention to one find or another. Then Chet straightened up and slapped his forehead.

"The radio!" he cried. "Let's try the radio!"

At first, the set brought nothing but white noise and the faintest of distant static. Chet tuned through the various frequencies and suddenly there it was—the Russian locater beam came through steadily and clearly.

Then Chet telescoped the flexible rod and switched to the built-in antenna; this was a loop rig which, tiny as it was, was able to deliver some of the capabilities of a directional antenna. He listened carefully and found that even with this reduced pick-up, the signal came through strongly enough to be readily identifiable. Rotating the set manually made the signal grow louder or fainter. At its loudest one could assume that it was at cross angles to the broadcaster's point of origin. Whether it came from some point in front of the set or behind it could not be determined but Chet was absolutely certain that it did not originate in the cave from which they had so recently emerged and therefore it must be coming from some place ahead, through the labyrinth of greenery.

Now the astronauts unlimbered their folding knives, which were a cross between an oversize pocketknife and a dwarfed machete. These proved their worth in cutting through the more stubborn tangles. Chet had no

idea whether they were heading toward a robot signaler or a Russian manned base with all the hardware needed to return Earthward. He was confident that if he was to find an impersonal piece of machinery, he and Quincy would be able, somehow, to bend it to their will and transmit a signal which could be picked up by warm-blooded human beings back on Man's planet.

If a signal could be transmitted, a rescue craft could be dispatched; it would arrive in four or five months and even if it could not provide lift-off facilities, it might bring supplies to tide them over until a full-fledged rescue could be achieved. At least action would be underway. With these thoughts in mind, both astronauts kept a sharp eye out for plants they knew to be edible. Unfortunately, they had never been trained as botanists and their survival training had not anticipated Venusian vegetation. Some mushrooms were edible, of course, but even the best contained little nourishment. And the worst were either sickening or fatal. Chet decided mushrooms did not rate much time so they concentrated on seeking other plants upon which a four or five month wait could be based.

Water was no longer a problem, for much of the country they were passing through was marshland and moisture was everywhere—not in lakes or rivers but in the growing things and under their soil. But food and water were merely items with which to stifle the brain while movement toward the tantalizing signal continued. Even amid the excitement of nearing their goal, Chet understood the need for a sensible economy of energy and he finally called a halt in a mossy clearing. Lunchtime. Or was it dinner? They did not take note. It was, simply, a time to rest and renew their energy.

"Where did all this greenery come from?" Quincy asked, when he had squeezed a tube of food into his aching stomach.

"Probably right from Mother Earth," Chet answered slowly. "Since Venus is so close, it must often pass through the atmospheric wake of the microscopic debris from our green planet. And where even the slightest opportunity, climate, dampness exist, such an area must be constantly seeded from this interplanetary wake. Up here may be the only spot on Venus where the condi-

tions existed—and the Earth spores did the rest. You'll notice how all the things growing here are spore-generated—no fruit trees, nothing complex beyond fungi and ferns."

"That would explain the lack of bugs and beasts, too," was Quincy's opinion. "But how about bacteria?"

"Oh, quite likely they too would be space-borne with the same cargo of spores. We'd better watch out for that," Chet warned. "But right now what concerns me is that signal." Chet kept twisting his radio through a small arc.

When he had the radio pointed correctly, the signal came in very strong. There was no question about whether they were heading toward or away from it. It could be so strong only if they were very close to its point of origin but it could not tell them whether they were heading directly toward it, or skirting it by a few yards. If it started to grow weaker, they would know that they had passed its site and then they would have to backtrack and embark on a search pattern. Chet knew this and kept alert for the slightest sign of fading.

"Chet! Look!" Quincy stood frozen and pointed through the tangled strands.

"Hallelujah!" Chet cried.

They were there.

In the center of the clearing, a landing vehicle stood poised, its snout pointing purposefully toward the clouds. Around it lay an organized camp with supplies stacked neatly in orderly piles. Three pup tents had been erected but they had been staked out crossways to the astronauts' line of vision and thus they could not be looked into. No signs of life were visible and Chet figured the Russians must be on some mission in the surrounding jungle—until he looked closely at the landing vehicle. Beneath it, he caught a movement.

"Look!" He prodded his partner. "Isn't that a man under there?"

"It sure is," Quincy responded.

A figure was lying stretched full-length between the vehicle's legs. The figure moved, as if struggling to reach one of the supports. Then Chet saw that a ladder dangled nearby and this was what the figure sought.

Neither Chet nor Quincy bothered with their knives

as they tore through the remaining greenery and burst into the clearing shouting.

CHAPTER XIII

They knelt beside the sprawled figure, who looked up at them with tortured eyes.

"Americanski?" he gasped.

"Yes, we're Americans," Chet answered. "What's wrong?"

"They sent you with medicines?" The Russian was running a high fever; his skin was burning and his eyes were glazed. It was obvious that he was marshaling all his strength to focus on the newcomers and communicate with them.

"I've got medical supplies," Chet replied, "if that's what you mean. What seems to be the problem?"

"Penicillin no good," the Russian croaked; his lips were dry and cracked from his runaway body heat. He waved weakly in the direction of the tent area. "They dead," he whispered. Then his eyes rolled up and back into his head and he passed out.

The astronauts removed their harnesses so that they could move more freely. Chet took the container which held their medical supplies, broke the seal and examined its contents. He was not a doctor and therefore could not possibly diagnose diseases. His training had been limited to the treating of injuries which could be seen and understood. One thing he knew was that the most powerful antibiotic ever developed was Septrin. It was a combination of a newly-discovered chemical and sulfanimides. Each was a potent bacteriacide but in combination their action was multiplied manifold. It had the ability to penetrate quickly into those tissues which harbored infection and it produced no allergic reactions.

Chet had no idea what the sick man had meant when he said, "Penicillin no good." It could mean that penicillin had not worked against the disease which was consuming him, or that his system could not tolerate the drug. In either case, Septrin could be administered safely. Whether it would do any good or not remained

to be seen, but at the moment Chet had no alternative. Septrin was the only antibiotic he had.

Quincy prepared the Russian, exposing an area of the man's upper rear thigh. Chet filled a syringe with one and a half times the normal dose, pushed the needle into the unconscious flesh and squirted the Septrin into the cosmonaut's system. For good measure, he followed this up with a tranquilizer. He figured if the cosmonaut had been living in the camp alone except for the company of the two corpses, he must have been almost out of his skull with worry, and the high fever must have depleted his physical reserves. Better that he should sleep while the Septrin fought his battle against the invading bacteria. They made him as comfortable as possible, wetting his lips and covering him with the blanket that he had been dragging around with him. Then they stood up next to the landing vehicle.

"What do you suppose is wrong with him?" Quincy asked.

"That's not my department," Chet said and they both chuckled at the stale joke which evoked memories of Pat Bradley. "But I'd guess that if all this stuff"—he pointed to the surrounding greenery—"drifted here from Earth, a few billion bacteria probably made the journey with it. We'll know in a few hours if we're doing any good."

When they had concluded an inspection of the camp, the astronauts came to the conclusion that the sickness, whatever it was, had struck just after the Russians had completed the construction of their base. Their main equipment was stacked neatly but it was not unpacked. Two of the pup tents contained the dead bodies of the cosmonauts. Around them, empty syringes and half-used bottles of pills testified to the vain struggle against the killer bacteria. Reaching beneath the light clothing, Chet and Quincy removed the identification tags of the deceased men. Then, using tools from the Russian store, they each dug a shallow grave and proceeded with a burial ceremony, paying honors to brave men who had challenged the unknown and lost.

"I wish Carter were with us," Quincy said, biting his lip.

"In a way, he is," Chet replied solemnly. "He's here because we're here. He died to make it possible."

They could not afford the luxury of sentiments, no matter how noble or deep-felt; there was so much to be done, puzzles to be unraveled, pieces to be put together. Chet acted to break the mood.

"Let's take a look at the landing vehicle," he said.

They climbed up the ladder and into its hatch. It was quite different from their own. A bit roomier. And everything was distributed differently, but they could distinguish certain of its equipment. The communication console, in particular, seemed to present the least problem. A glowing blue eye indicated that the power was on. Chet sat in front of it and studied its layout. All the identifying labels were in unintelligible Russian, but he guessed at the main transmit switch and threw it on. Then he increased the volume to highest gain and spoke clearly into the microphone.

"This is Commander Chet Duncan, United States Space Agency, calling Earth from the Russian base on Venus. Come in please."

He repeated it several times and waited, then the loudspeakers in the cabin crackled to life, pouring forth a spate of Russian.

"Let's get someone who speaks English on the horn," he said with calm authority. The loudspeakers fell silent for a few minutes and then a voice which carried only the faintest accent came through.

"Hello, Americans. This is Soviet Space Headquarters, do you read me?"

"Just fine," Chet replied. "Please connect me with the United States Space Agency."

Again he waited out the long time-delay. More than five minutes later the reply returned in a single, shocked word, "What?"

Chet repeated his original request and waited again.

"This cannot be done. You are using a Soviet radio frequency and you will transmit directly to us. We will relay information to the United States authorities in the proper channels. Proceed with your report. Who are you and where are you transmitting from and everything else you can tell us. Over."

"Okay, buddy," Chet replied firmly, "we're wasting

an awful lot of time. This is Commander Chet Duncan of the United States Space Agency. I'm broadcasting from the Soviet base on Venus aboard the Soviet landing vehicle. I will transmit the rest of my report only when Director Creighton Curtis or Captain Alexander Borg are able to convince me that they are receiving this broadcast and are in direct communication with me. You can accomplish a conference hook-up with the greatest of ease, if you want to. Until that happens, my friend, you will hear nothing more from this location."

He flipped off the transmit switch and turned to Quincy, who was smiling broadly.

"That ought to shake them," he said.

At the end of the time-delay, a few sputtering protests came back but Chet did not respond to them and silence followed. An hour passed before the loudspeakers came back to life.

"Command Duncan, this is Soviet Space Headquarters. Director Curtis and Captain Borg are on this circuit now and wish to speak with you." There was a short pause.

"Hi, Chet, this is Curtis. We're plugged in." The voice was familiar.

"Chet, Borg here. Will you tell us what condition you people are in and whether you are in a position to effect a return."

"There you are, Commander," the Russian voice cut in. "You may proceed with your report, please. Are you in contact with our cosmonauts?"

"Before I begin my report, I require an immediate answer to two questions," Chet said cagily, "and I must tell you that any delay will be regarded here as failure to respond correctly. First of all, who is Craggy? And, second, when I say, 'That's not my department,' who am I? Over."

Chet timed the delay carefully. He did not want to give the Russians time to seek out answers. Nearly six minutes later, exactly the delay occasioned by the vast distances between them, Curtis' voice came through. He was chuckling. "I'm Craggy, Chet, and you're Pat Bradley. That was good thinking but we're all in this together now. We're receiving and transmitting on iden-

tical frequencies. Our circuit is independent, we can't be cut off. You can go ahead."

Chet proceeded to deliver a thumbnail sketch of the events leading up to the moment. He gave no details, simply listing his landing vehicle as "inoperable" and Carter Parret as "missing, presumed dead." He mentioned the long, difficult trek but did not refer specifically to the strange cliffs or the steam-filled caverns. He felt that all details could wait for a thorough debriefing session back at headquarters. He knew that the American team had far more information on the structure of Venus than the Russians, who had been confined to the one location. It was not up to him to release any information which did have a direct bearing on the recovery of the space crews. So he described the camp and explained the conditions he had found and what steps he had taken.

"That's all I can tell you at the moment," he concluded. "We'll need some time to see how our Russian friend shapes up and what can be done at this end. I suggest that we be given the time to look around and get things organized. We'll call you back in exactly six hours."

Curtis and Borg thanked him, wished him the best and asked no questions. They understood the complexity of the work which faced him and they did not wish to add to his pressures. The final voice belonged to the Russian.

"Thank you very much, Commander. We will await your call but we will be monitoring continuously. If you need us, we will be here. Out." The Soviets, too, were in a cooperative mood. They were in a delicate position. Their radio was being used, their base was functioning as headquarters on Venus, and yet the American astronauts were in charge. The entire world was anxiously awaiting word from the planet next door and only the Americans were capable of providing that word. So the Russians decided to cooperate with as much grace as possible.

Quincy found the food. There were powdered eggs, sausages and cans of broth. Also a stove. Within minutes, he had laid out a feast and he and Chet wolfed down an incredible meal. To top it off they both en-

joyed a cup of strong Russian tea. They kept a wary eye on the cosmonaut and when he stirred, they rushed to his side. Although still far from well, his condition was obviously improved. The carefree sleep while the massive dose of Septrin was hunting down its prey had cleared the glaze from his eyes. Chet suggested some broth and the Russian accepted eagerly.

He turned out to be Leff-tenant-coll-onell Yarmonkine. Chet identified himself, introduced Quincy and brought the cosmonaut up to date as regards the radio communication. The broth brought new vigor to the Russian but Chet insisted that he lie still. He administered another shot of Septrin, a normal dose, and then announced that, from now on, the drug could be taken by mouth in pill form. The cosmonaut rubbed the puncture points and smiled ruefully.

"That's good," he said. "More better."

One question had been burning itself into Quincy's mind and he could wait no longer. "Your landing vehicle," he blurted, "does it work?"

Colonel Yarmonkine looked extremely grave but he nodded.

"It work," he said, "but no good. Need rescue."

"Well, can it take off?" Quincy asked impatiently.

"It take off."

"Do the controls work?"

"Yah."

"How about the computer? Is it okay?"

"Computer work good."

"Well, then, why do you say 'no good'?" Quincy exploded.

"Because, my friend"—the cosmonaut pointed to the clouds—"Venera go broke. No more orbit. It makes crash!" He slammed his hand hard onto the ground. "You got landing vehicle okay?" he asked.

Quincy shook his head and slapped the ground. "It went broke," he explained.

"On the other hand," Chet said quietly, "we have a perfectly good Mariner. You have a landing vehicle. We have a space craft. Mmm-h. Does that suggest anything, Quincy?"

What it suggested was perfectly clear but how to accomplish it was beyond their ability. The computers

in the two vehicles bore no relationship to each other. Mariner was not constructed to receive a Russian landing vehicle and the Soviet craft did not have the fittings to achieve a docking with the American capsule.

Quincy suggested that perhaps it would be best if they sat tight and asked the Agency to send up an unmanned Mariner bearing a landing vehicle which could be deposited by remote control. The Russian base was not short of food, and some of the growth must prove edible, he argued, so they would simply have to sweat out the ninety days and then return to Earth in style.

Chet quashed that suggestion at once. He reminded Quincy that if the rescue craft left Earth at that very moment, it would take a hundred and twenty-five days to arrive, by which time Venus would be fifty million miles further away from Earth that it had been on the day of their arrival. Their outgoing trip had taken them ninety days. If they waited for a rescue craft, the return would require three times that . . . *if* the rescue vehicle were poised on its pad ready to be launched at once. It was out of the question. The only solution was to reach up, somehow, and latch on to Mariner.

It was radio contact time and Chet climbed into the cabin, leaving Quincy with the colonel. He called Earth and waited for the reply. When it came, he began his second report, starting with news of Colonel Yarmonkine's improvement. Then he outlined the facts which constituted their problem and put forth his recommendation that a transfer to the orbiting Mariner should be attempted.

Both sides were apparently on the ball because each had assembled a standby staff of experts, all of whom knew their own equipment thoroughly. In the United States and the Soviet Union they sank their teeth into the problem and worried it like a pack of terriers. Chet was told that they would be back to him in a couple of hours.

Yarmonkine had drifted off to sleep again. Quincy felt the Russian's brow and was satisfied that the fever was being reduced. He walked over to where Chet was standing, near the ladder. From here, they would be able to hear an incoming signal.

"It's funny," Quincy said. "We need the Colonel to take us a hundred and fifty miles and he needs to hitch a ride for the next thirty million miles. So we're equals."

They chatted, standing in the soft wind, hearing the gentle rustle of the waving plants and the outrageous snoring of Colonel Yarmonkine. Then the call came and they both went scampering up the ladder.

A rough plan had been worked out. It would take a couple of days to get it completely analyzed and programmed but the general idea was to get the three of them into the landing vehicle, lift off and achieve orbit. Any orbiting pattern around Venus would do. There was a frequency, and how to obtain it was carefully explained by the Russian, which was compatible with Mariner's relay mechanism. If they could trip it, then all signals, remote-control operation and communication, would pass through a single source and into the Agency's main control room. Chet was told where to find the Soviet spacesuits and he was asked to check them out.

He found them and reported that they seemed in good order.

"Oh good!" Curtis replied in due time. "Then once you've tripped the relay, all you have to do is get into some kind of stable orbit and transmit a continuous tone signal as loud as you can. We'll handle the rest of it from here and we'll bring Mariner in to you. We'll be able to bring it in real close, but the colonel will have to fly the last few yards manually. Since both vehicles will be stabilized in the same orbit and at the same speed, it shouldn't be too tough. When you're within a few feet, you'll use a lifeline. We'll open up the main vehicle reception hatch on Mariner and you can make the crossing by using a bottle of oxygen as a jet. First man in fastens the line and for the others it's a cake walk. Once you're aboard, we'll reel you back in."

Both astronauts noticed that Craggy was doing his best to make it sound like a Boy Scout picnic. Oddly, after what they had been through, they were almost ready to accept his point of view. Chet acknowledged the message and then, following the instructions he had

been given, he tuned to the specified frequency and triggered a signal to Mariner's relay.

They waited in silence until Craggy's voice boomed in at an awful volume. Chet adjusted the gain immediately to a reasonable level.

"You've done it! Good! We're working everything out right now. Get the colonel in good shape and we'll keep in touch."

The increase in power meant that Mariner was now the link between Earth and their base on Venus. It made them both feel much more comfortable.

When Yarmonkine awakened he said he was hungry. Quincy suggested broth but he sniffed in disdain. There was a tin of black Russian bread. That and sausage was what he wanted and he was stubborn about it.

"It builds blood. Very good," he insisted. Chet motioned with his head and Quincy supplied the bread and sausage. The colonel put away nearly a pound of sausage and a half loaf of the strong bread. The astronauts thought it was foolish to eat so much so soon after a weakening illness, but the colonel laughed off their worries, washed the meal down with three cups of tea, gulped two Septrin pills and within five minutes was snoring louder than before.

Next day Yarmonkine walked unsteadily around the camp. His legs were still a little shaky but he was coming back fast.

Chet and Quincy busied themselves collecting samples of soil and rock and plants. They held the collection down to a meager pile since it would have to be transferred to Mariner by hand. Yarmonkine acted like a vacation-bound tourist snapping pictures of everything in sight, including the astronauts. Quincy borrowed the camera to take a couple of pictures of the colonel, who struck a stiff, unbending pose. Before Craggy's final call came through, Yarmonkine pronounced himself fit. He thumped his barrel chest.

"Could fly all way back, if want."

Thirty million miles was a long way, but Chet believed the Russian could probably handle the first hundred and fifty. He told Craggy that they were ready. The colonel spoke briefly to his own people in Russian,

then he turned his head and, still on the air, he said, "I tell them you good guys."

With Yarmonkine's help, they suited up and assumed their positions. Chet, at the communications console, began the transmission of the signal tone. The colonel ignited the main rockets, keeping the power subdued while he checked his instruments. Quincy had nothing to do; he was a passenger.

"We go two hundred mile straight," Yarmonkine announced, "then we push her to orbit, okay?"

"It's okay by me," Quincy said fervently.

"Yes, Colonel, push away," Chet murmured. "It's time to be getting home."

The rockets roared to full power and the landing vehicle rose toward the clouds. Three of the first six men to touch Venus began the long trip home.