

Mistaken For Granted

I

PEOPLE CAN USUALLY get used to the weightlessness of space flight during the days or weeks it takes to cross from one world to another. In a long orbit it is easy to convince oneself that one's ship is not about to fall onto anything, even though the sensation of weightlessness is that of endless falling. There simply is nothing visible nearby to hit. Of course, travelers have had nervous breakdowns in spaceships too badly designed to let them see out.

To a physicist or an experienced space pilot, a bounce ride is just another orbit. Unfortunately most of the orbit is underground, like that of a baseball—though, as with a baseball, the underground part is not what is used. Traveling by bounce from, say, Ley Base in Sommering Crater to Wilsonburg under Taruntius X, the trip takes only thirty-five minutes and is never much more than two hundred miles above the Moon. But during the final third of it anybody can see that most definitely he is falling toward the ground.

Rick Suspee had gladly shown off his adaptation to free-fall during the long trip from Earth. He hoped, however, that no one was watching him now. In his mind he knew that the bounce-shuttle's computer was keeping track of position and velocity through its radar eyes. That the computer would light the main engines at the proper instant. That a second computer with a separate power source and independent sensors would fire a solid-fuel safety brake if the first engine failed to ignite. That a living, highly competent pilot with his own sighting equipment and firing circuits could take over if both the automatics failed. Rick's mind knew all that but the lower parts of his nervous system were not convinced. Traveling at thousands of feet a second on a downward slant low over the moon's surface still made him tense.

Annoyed and frightened as he was, Rick felt sorry for his stepmother as he glanced back and saw the expression on her face. She was petrified. He decided it would be best to talk, and luckily he had seen enough Moon charts to be able to talk sense.

"We're past the peak now, I think. That's Ariadaeus behind on the left, just into the sunlight. You can relax for a while—we're still more than two hundred miles up. Look for a white beacon flashing three times a second just to the south of our arc. That will be the Tranquility Base monument. We're out over the Mare now. Look—on the horizon ahead you can see Crisium and the mountains where Wilsonburg is."

The rocket swung slowly around so that its main engines pointed "forward." The braking blast was about due.

The mountains southwest of Mare Crisium were looming huge "ahead" and below. The Mare itself stretched beyond the horizon, which was much nearer than it had been a quarter-hour before. The pilot's calm voice sounded.

"Thirty seconds to power. Check your safety straps and rest your heads in the pads." The two passengers obeyed. The pad allowed Rick Suspee to see the stars beyond the rocket's bow, nothing else.

The braking stage was made at two Earth gravities, the computer applying changes of one percent or so in power and a fraction of a degree in direction every tenth of a second throughout firing time—none of these adjustments could be sensed by human nerves. The only change at touchdown was from two Earth gravities to one Lunar pull.

"You may unstrap," the pilot said, "but stay in your seats until we're inside the lock. I'll tell you when there's air enough for you to exit."

Rick watched the mobile rack trundle the rocket toward the side of the sixty-foot circle of smooth rock on which it had settled. The circle was the bottom of a craterlet in one of the hills over Wilsonburg. The bottom had been leveled and the side next to the upward slope of

the hill cut to a vertical wall. In this wall was the lock, now yawning open to gulp the shuttle.

The craft was through the huge outer valve in moments. The black sky and sunlit rock outside were cut off from view as portals slid shut.

The pilot spoke again. "You can start for the door now. There's a pound and a half of oxygen outside and it will be up to three before I get our own valves open. It's been a pleasure to have you aboard."

Rick was on his feet before the speech was over. His stepmother was more careful. She did not exactly mind weighing only twenty-one pounds, but she was not yet used to it and the ceiling was low. She was about to make some remark about inadequate gravity, Rick was sure, when she was distracted by what she saw outside.

"Rick! Look! There's Jim! He hasn't changed a bit. I don't see Edna, though—"

Rick picked out the man easily enough from the dozen figures at the foot of the ladder outside. He was the heaviest and obviously the oldest. Rick gave less thought to the whereabouts of his aunt. He was noticing that none of the group were wearing spacesuits. Yes, the air had to be all right outside. This realization was supported by a slight pop in his ears as the shuttle's air pressure changed slightly. Evidently the pilot had opened both valves of the vehicle's airlock. Rick headed rapidly for the exit, leaving his stepmother to follow more cautiously.

The top of the ladder was forty-five feet from the floor of the big lock. Rick accomplished the distance in a single jump—at least, he meant it for a jump. In terms of energy, this was about the same as an eight-foot drop on Earth; in time, it took rather more than four seconds. Which was enough to let Jim Talles step forward and catch him, the catch being embarrassingly necessary because the four seconds were also quite long enough to permit Rick to complete the best part of a unintended somersault. His Moon coordination not good as he had supposed—he had left the top step with more spin than he realized. His uncle's first words were a tactful reproof.

"Watch it, lad. Carelessness can be dangerous on the Moon. I take it your mother is aboard?"

"Sure is. I—I guess you're my Uncle Jim. Uh—hello." Rick could not decide whether he was more frightened or embarrassed. It had been a weird sensation on the way down, something like that of a diver leaving the board to do a jackknife and deciding too late to turn it into a half-twist. That was bad enough—but still worse, Rick felt, was the fact that the five young persons accompanying his uncle were all about Rick Suspee's own age. None had laughed or even smiled, but he could imagine what they were thinking. For about the five-hundredth time since his fifteenth birthday he told himself to stop showing off. Then he took a closer look at the five teenagers.

One, on second glance, appeared almost too old for that category. He was about Rick's own height—five--and-a-half feet—but stouter, sturdier. His broad shirt-front was covered even more solidly than Rick's own by competence badges, many of which the Earth boy could not recognize—naturally enough.

A quick glance showed that all the others were similarly decorated. But Rick saw with relief that none exhibited nearly as much badge area as he did. Maybe they would be impressed enough by his Earth-gained skills to be able to forget, or at least discount, the slip he had just made. For one thing, none of them could possibly hold an underwater rating. Rick's scuba badge had been earned so recently that he was still gloating over it.

"Jim! It's so wonderful to meet you at last!" His stepmother's voice pulled Rick from his thoughts. She stood at the top of the ladder, Jim Talles posting himself at the foot to cover possible accidents. An unnecessary precaution. Mrs. Suspee's methods of showing off were more subtle than her son's. She descended slowly and carefully, reaching the bottom quite safely. She embraced her brother-in-law with an enthusiasm Rick suspected was due to her relief that the bounce ride was over. Then she asked about Edna's health and whereabouts, delivered messages from her husband and sundry friends, and finally allowed Talles to shepherd the party out of the lock chamber and make introductions.

"Edna couldn't get off the job," Jim Talles said. "But she'll be home by the time we get there. The kids here with me will be hosting Rick a lot"—Rick gulped; these would be just the ones he'd played the fool for—"and will probably show him a good deal more than I could. This is Aichi Yen, chairman by earned competence of the group known officially as the *Fresh Footprints*. Usually they call themselves by less formal names." Talles indicated the oldest member, whose badges Rick had already particularly noticed. His face, to Rick, seemed rather nondescript. His hair, cut short in the common Moon style so as to give no trouble inside a space helmet, was jet black. His eyes gave just a suggestion of the ancestry implied by his name although the color of his skin suggested suntan much more than Earth's Orient.

"This is Marie D'Nombu." A girl certainly not yet sixteen nodded in greeting. She was several inches shorter than Rick and Aichi but her shirt was well covered with badges. Her lips were parted in a good-humored smile, and Rick wished he were sure she was not laughing at him. "Orm Hoffman—Peter Willett—Audie Rice." A tall, unbelievably thin boy of Rick's own age, a fourteen-year-old with a shy expression and skin almost as dark as Marie's, and a girl about twenty pounds more massive than Marie acknowledged their names in turn. All were looking more at Rick's shirt than at his face.

"Rick will come with me for now," Talles told the young people. "It was good of you to trouble to meet him here. I'll be glad to see all of you at my place around ten P.M. and as long after as anyone can stay awake. I know you're busily scheduled now—so thanks again for coming."

Aichi Yen shook hands with Talles and, as an after-thought, with Rick, then nodded to Mrs. Suspee and disappeared into a nearby tunnel mouth. Three of the others did the same. Marie altered the pattern by speak-ing

"I'm glad to meet you, Rick. I've been looking forward to it ever since Chief Jim told us you were coming. I've read, a lot about Earth. I've tried to imagine what it's like to be able to go outdoors with no special preparation unless it's raining or something like that. I hope you'll tell us about wind and rainbows and glaciers and such—"

"I can try. I've never seen a glacier, though."

"Well, that makes us even. I've never seen a radical trap."

"What's that?"

"I'll tell you tonight if the Chief hasn't beaten me to it. I'm supposed to be in class now. 'Bye." She was gone on the track of the others.

"Those seem interesting youngsters," Mrs. Suspee re-remarked as the girl disappeared. "I'm not sure I approve of that flaunting of badges, though. It seems like show-ing off. I was hoping we'd be away from that sort of thing on the Moon. We get enough of it at home."

"If the badges are properly earned, why not display 'em?" responded her brother-in-law. "There are a lot worse things than letting the world know what you can do well."

"Well, Jim, I won't argue. And you'll notice I didn't forbid Rick to wear his badges here, even if I did hope they'd turn out to be out of style." She gazed off to her left. "I think those must be our bags over there. Do we take a cab, or do you live close by?"

"Our place is about eight miles away." Talles seemed amused. Smiling, he added, "We walk, and carry our baggage."

His sister-in-law looked at him, stupefied. Rick, too, was startled. The bags weren't heavy, especially on the Moon, but—

"There's no public transportation here. We could probably work out some arrangement for getting the luggage delivered, but it would inconvenience a lot of people."

"I hadn't thought of that." Mrs. Suspee frowned. "I suppose this is a sort of frontier town, in a way."

Talles laughed. "Maybe it is, but that's not why we walk. You're on the Moon now. You weigh about a sixth of what you did on Earth. You need exercise, plenty of it, or your muscle tone goes down, your circulation falters, your bones start getting soft. A good rule of thumb is ten miles of fast walking every day for each hundred pounds of body mass. If your work doesn't give you time for that, you get a doctor to pre-scribe some specific exercises and you do 'em faithfully. All right—traveling!"

He picked up his sister-in-law's luggage—a forty -pound-mass bag in each hand—and started off

down the same tunnel that had swallowed the *Footprints* members. Rick took his own, much lighter load, and he and his stepmother followed his uncle.

The tunnel ran about eight feet wide and ten feet high for some thirty yards. An airtight door about three yards in opened manually rather than by photocell or pushbutton. Talles carefully closed it behind them. A similar barrier graced the farther end of the passage. Once through this, they found themselves in a much broader though not much higher passageway. Well lighted, crowded with people, it was lined on both sides with large windows filled with sales displays. Except for the ceiling it gave the impression of a street in a shop-ping district.

"Not so frontier after all," remarked Evelyn Suspee.

"We don't think so," replied Talles. "But remember the freight charges back to Earth before you stock up on souvenirs."

Mrs. Suspee was finding the hike less dull than she had expected. And less tiring than it would have been on her home planet. The trip was long, of course. In spite of the low gravity, one could not walk much faster than on Earth. When Rick tried, his feet spent too much time off the ground and left him with poor control or none; and after a near-collision with another pedestrian, who glared first at him and then at his uncle, the boy was more careful. Talles advised him that there were pedestrian speed limits, quite strictly enforced, in the tunnels; if he wanted to try the leaping "run" cultivated by Moon-dwellers, there were caves devoted to athletics.

Part of the walk was through residential tunnels, not quite as wide as those in the business districts but interrupted more often by parklike caves where grass, flowers and even bushes grew under the artificial light. Rick noticed that each of the doors along these tunnels was marked by a small lamp; some white, the rest blue except for a very few that were red. He asked his uncle about them.

"We work around the clock here, Rick. The periods of sunlight don't match human biological rhythms, and few of us see the sun much anyway. It's more efficient for facilities to be in use all the time rather than shut down sixteen hours a day while people play and sleep, so we live in shifts. White light over a door means the family is up for the day, though of course they may be out at work or school or what have you. Blue means they're asleep. Red means the unit isn't occupied. No matter when you walk the tunnels you'll find about as many people in them as now. All but the smallest businesses are always open, and the mines, schools, and other productive facilities are always operating."

"I'd think if you overslept, you'd have a hard time finding out whether you were late for today's work or early for tomorrow's," remarked Rick. "Looking out the window would tell you nothing. I suppose you use twenty-four-hour clocks, though."

"You've touched a sore subject," his uncle replied. "As a matter of fact, we don't. We still have the A.M. and P.M. distinction. I know it's silly, but every time the change is proposed in the settlement council it's defeated. People just don't like the idea of going to work at half-past seventeen. Of course, the same thing holds true on Earth. And because they want to start work earlier in summer so they can have more recreation time before dark, they make laws changing the clock settings. I admit it doesn't really matter whether you start your time measurement from local mean apparent midnight or any other moment—but changing the zero point back and forth with the seasons I insist is pretty silly. We're just as human here, so I don't suppose we'll ever graduate to the twenty-four-hour clock."

Rick's aunt was at home when they arrived. She was a taller and quieter woman than Evelyn Suspee. At least she seemed quieter to Rick, but that may have been because his stepmother did not give anyone else much chance to talk. She monopolized the conversation all through the standard guest-arrival routine of settling the visitors in their rooms and feeding them dinner.

Rick would much rather have listened to his aunt and uncle talk. After all, that was what he was here for, wasn't it? To learn more about the Moon and the people who dwelled on it?

He bit thoughtfully into his cutlet of fishmeal artificially flavored and imported from Earth like practically everything else eaten here. Three generations of colonization had seen the steady growth of youth organizations on the Moon devoted to hiking, exploration, technical innovation, and the like. Although autonomous, they were loosely joined into a confederation that set standards and established goals.

The trend had inspired a resurgence of similar youth clubs on Earth. There the emphasis was on ecology, space science, and—where still available—outdoor living. The FEA—Federated Earth Adolescents—had agreed to send a representative to exchange ideas and knowledges with a typical Lunar group. Largely because he had an uncle on the Moon interested in the youth movement, Rick Suspee had been chosen as the emissary. His stepmother had elected to accompany him, at her own expense. She wanted to see her sister, Edna, after a separation of many years, and to meet her sister's husband, Jim Talles.

Rick earnestly hoped he would be up to the responsibilities wished on him by the FEA. He glanced across the table at his husky, curly-haired uncle by marriage. Rick felt sure that the man would help him. Talles was the kind of person who inspires confidence. He had no children of his own, and it was perhaps in compensation for that lack that he devoted himself to the affairs of young people.

About an hour after dessert and coffee, the *Footprints* members began to arrive. Marie D'Nombu was first by perhaps five minutes, and within another half-hour ten of the group were crowded into the small Talles living cave. Since Aichi Yen was among them, Rick was still a little uneasy about speaking up. Marie quickly took care of that situation. Somehow she managed to take the conversation away from Mrs. Suspee without actually interrupting, then smoothly induced the Earth boy to talk.

Jim Talles was wearing another of his amused smiles. He knew Marie and her brains. He listened with approval as the girl pulled Rick into the chatter by making remarks about Earth that simply had to be corrected—remarks not really silly but indicating reasonable misunderstandings. The question of going out in the rain, which she had left unsettled back at the lock, was straightened out, and incidentally gave Rick a much better idea of just what "outdoors" meant to these Moon folks. They called it "outside." He himself described scuba wet-suits as opposed to spacesuits, and even Aichi made a slip in physics there when he remarked that it must be harder to swim in Earth's heavier gravity. Jim Talles wondered whether this had been done on purpose to make Rick feel better about his mistake at the rocket ladder. If so, Marie must have inspired it; Aichi would never have thought up such a thing by himself.

Marie herself helped Aichi Yen out of his confusion by getting him to describe his present outdoor work, and this interested even Mrs. Suspee for a while. A physics student, Aichi had worked out what he hoped was an original computer technique for untangling meaningful radio signals from noise. He was going to give it a test in about a week, when there was to be an eclipse. He would be picking up signals from Earth and the Sun simultaneously, a mixture of complex natural and even more complex artificial waves, and would then spend several happy weeks with his records in the school computer lab. He had set up his receiving equipment in a small crater quite some distance from town so as to avoid still a third set of interference patterns.

"We'll get you out to Aichi's site when the action starts, Rick," Talles put in. "I suppose you're in a hurry to get outside, but if you can wait a few days there'll be more to see and something really to do. I don't suppose you've ever seen an eclipse of the Sun, and by waiting you can charge two batteries on one line. Besides, there are things I think you'll want to see inside, like the mine where I work, and it will be handier for me if we take care of that first."

"And maybe he can come to the school with some of us," said Marie. "There are a lot of people there who don't know as much about Earth as they think they do. Rick can straighten them out. All right, Rick?"

"Sure. I don't mind the wait. How long a ride is it out to Aichi's setup?"

Talles smiled. "It's in Picard G, isn't it, Aichi?" "Picard GA, to be exact."

"Yes. That's about thirty miles, as I remember, but you don't ride. The *Footprints* really meant it when they picked their name, even if it was two generations ago. You can walk that far, can't you?"

"Oh, sure. It's just that I didn't think I'd be allowed to hike outside. I don't have any experience with

space-suits, and I figured there'd be all sorts of regulations about who could go out in them."

"There are," admitted his uncle. "You'll be compe-tent, though, before you go out. That's my responsibil-ity," he added hastily as he saw the worried look on the faces of two or three of his young guests. "I probably won't be free to go, and you kids will be expected to keep an eye on Rick just as you would on any new-comer short on experience. But I won't let him go un-less I'm convinced he has the basic lessons thoroughly learned. So relax." Aichi Yen and the others did relax, visibly. They had known for some days that the guest from Earth would accompany them outside, but they had been quite uneasy over who would be held respon-sible if he managed to kill himself. Jim Talles had been letting them stew in that pan out of curiosity, to see whether they would try to duck the load. He was, after all, one of their teachers even if he didn't belong to the school department—he was the official adult adviser of the formally incorporated youth union known as the *First Footprints*.

"Great!" Rick enthused. "A badge for spacesuit com-petence will really mean something back on Earth. Which one is it?" For the first time he began examining in detail the pictorial and geometrical decorations of the others.

"There isn't any for suits," Aichi said quietly. "I don't think there's anyone on the Moon who isn't com-petent about them—at any rate, no one over five or six years old."

Marie took the edge off the remark. "I guess it's sort of like umbrellas or raincoats on Earth," she said. "Or maybe you can think of something that's an even better example—maybe swimming. I suppose everyone can do that even if they don't all have scuba ratings."

"That's not quite right." Rick followed the change of subject gratefully. "A lot of people can't swim, and there are six different water competence levels before you get to scuba, and a lot of others in watercraft man-agement—" He held forth uninhibitedly until Marie ex-ercised her tact once more.

All in all, it was a good evening. These Moon people seemed a pretty good bunch, Rick decided before he got to sleep.

The next few days confirmed that opinion. Rick spent two of them at the Wilsonburg school, where class routine was altered to make him the center of attention. He spent a day with his uncle in the mine that was the main reason for Wilsonburg's existence. He passed a solid twelve hours with Jim Talles becoming familiar with spacesuits, until he could don one without hesita-tion or error, check it our properly, conduct emergency operations at reflex speed, and explain how electrical accumulators and Daly oxygen cartridges worked.

Talles had planned a further program to keep Rick occupied up to the time of the hike to Aichi's site. But like so many plans, this one ran into trouble. An accident occurred in the mine.

Not a catastrophe. No one was killed. No one was even seriously endangered—except Rick. And he was nowhere near the place.

His danger arose from the fact that his uncle went on full-time emergency duty, and the schedule in the Talles household collapsed. His aunt had to work as usual but Rick had never gotten her hours straight. His mother continued her irregular round of visits and shopping trips. His young friends had their own rather tight schedules to keep. So Rick was left pretty much on his own.

As a result, he got his sleeping hours out of step with the planned starting time for the hike. And his mother, in one of her rare moments of firmness, insisted that if he didn't get a good night's rest before going, he wouldn't go. She was unhappy about the trip anyway. The idea of her only child walking miles out on the Moon's surface with only a few layers of fabric between him and vacuum frightened her even more than the bounce ride.

Rick was perfectly willing to sleep, but could not. He was like a six-year-old on Christmas Eve, embarrassed as he would have been to admit it. He went to bed, but had given up all hope of actually sleeping when he did doze off. When he woke up, of course, and looked at his watch, his first thought was to dig a hole in the ground and bury himself.

He was to meet the group at North-Down Lock at eight. The watch said five minutes to eight. And the place was an hour's walk away.

In the hall outside his room Rick paused. There was no time to eat, he decided. The snack of a few hours before would have to last him. The group must be at the lock by now—maybe if he ran he would get there before they left. It might take a while to get the whole crowd into spacesuits. Running would have to be done carefully, he knew. It was dangerous in the tunnels under Moon gravity—especially so for someone with his background—and there were stringent laws about when and under what circumstances one could run within the settlement.

His stepmother never understood why he didn't call the lock. For years afterward she would irritate him by returning to the subject and trying to make him explain. His uncle, of course, understood so well that he never even bothered to ask during the investigation later on.

In fact, Rick never even thought of the phone. Moving quietly and hoping that his aunt slept as soundly as his stepmother, he headed for the front door. For just an instant he was tempted to rouse his stepmother and ask why she had let him sleep so late; but that would have wasted time. He slipped into the corridor his Moon friends called a street and hopped, leaped, and skipped toward North-Down, awkwardly threading his way among the people.

He was not stopped for speeding, though several times he was the target of irritated frowns.

He would probably have made the trip in less than half an hour had he not mistaken a turn and wasted more than ten minutes getting back to the proper route. It was eight forty-five when he reached the recessed doorway that was one of the entrances to the North-Down Lock area.

Sensors responded to his arrival, triggering a flashing light—green, since there was safe pressure on the other side of the door. Rick, as he had been taught, flicked the "acknowledge reading" switch located high on the door frame. Then he activated the door switch itself. Despite the need for power economy, doors on the Moon that opened into areas even moderately likely to tap vacuum were motor-driven. The chamber Rick entered was not normally exhausted; it was a sort of combined garage and locker room. However, it did have a large direct exit to the surface for getting out unusually large pieces of equipment. When so used it became an airlock chamber.

On every Moon-dweller's mind there was always the possibility of leakage or outright valve failure in any outer room. Rick was aware of that threat, just as the school kids he had met a few days before had been aware of rain and cold on Earth. It was the Big Difference everyone was told about. But awareness was not the same thing as the reflective self-protection of a native.

With the door secured behind him—by a strictly manual latch, activation of which shut off a warning hell—he made his way to the main personnel exits. His fervent hope was that the group might still be there.

The place was empty. Even the lock chamber, visible through the transparent wall, was unoccupied. The outer door was closed, and the red light on its frame backing the green one at the inner seal signaled that the chamber was carrying normal pressure. This implied that the lock had last been used by an inbound person or group, a possibility that did not occur to Rick. To him it was clear only that his friends had left without him. He did not blame them. He knew that much to be done on the trip was too tightly scheduled to allow delay. But he was bitterly disappointed.

Just which mistake he made next is still being argued. The fact that he, or more accurately his stepmother, had fallen out of step with the Wilsonburg clocks was minor. In truth, Rick was actually eleven-and-a-quarter hours early for his meeting rather than forty-five minutes late. And for the worst mistake, still to come, it is hard to blame anyone but Rick alone. Pierre Montaux is blamed by many, including himself, for letting Rick get away with it, but . . .

Pierre happened to be on duty at the locker room when Rick arrived. Hearing footfalls, the boy glanced back over his shoulder and saw the middle-aged attendant. They had never met before. Rick had had his suit check at another lock, and Pierre had not been on duty the only time the boy had been to North-Down to learn the layout.

"What are you doing here, lad?"

"Sir, I seem to have missed a group going out to Picard G. Could you tell me how long ago they left?"

Montaux shook his head, at the same time making the negative hand gesture habitual to people who spent much of their time in spacesuits. "I've just come on—been here less than five minutes. I was a little late get-ting to work myself." For that, incidentally, no one ever criticized Montaux. He eyed the array of badges on Rick's shirt, estimating his general competence level by the area they covered without actually reading any of them. After all, for anybody of Rick's age to be unqual-ified was rare enough, and for anybody unqualified to try to go outside was unheard of. "How long ago would they have left?" Montaux asked.

"Only a few minutes. We were meeting here at eight."

"Then they can't be far ahead. If your suit is ready you can catch them easily. I'll do your tightness checks."

To Rick's credit, he never tried to blame Pierre for the misadventure on the strength of those remarks. Some people would have claimed that without Pierre's suggestions, it never would have occurred to the boy to go out. But exactly that had previously occurred to Rick, and he never denied it. Probably the one biggest mistake, of course, was made when he walked silently to the numbered locker his uncle had told him would contain his suit, and pulled it out.

He donned it quickly and correctly under the atten-dant's eye—and who, Jim Talles asked the world later, would have foreseen that the earlier training session thus would turn out to be a mistake?

If Rick had been slow or clumsy, if Pierre Montaux had had the slightest grounds for suspecting Rick Suspee never before had ventured into vacuum . . . But there was nothing to warn Pierre. The suit went on smoothly. It fitted correctly. Rick attached helmet and gauntlets properly, did the proper things to seal them. He made the proper signals to request tightness check, said the right things over the radio for the communi-cations check. He strode over to the inner lock door, deftly operated the cycling switch, and waited until the inner light flashed green before opening the portal. There was nothing to show that he had not done it all a score, even a hundred, times before.

Montaux let him through, checked the manual seal on the inside after the door closed, and gestured a "pro-ceed" through the transparent wall. The outer door's light was now green. Rick operated its plainly labeled opening switch, went through, closed it, and disap-peared from the sight of Pierre Montaux. And, for many hours, from the sight of mankind.

Rick felt uneasy, certainly. He knew that neither his mother nor his uncle would have approved. But it did not occur to him that the *Footprints* members might not approve either when he caught up with them; otherwise he might have turned back right then. It did not occur to him, either, that he was in any real danger. The crowd could not be far ahead, and the way would be plain enough. After all, he had spent hours with the maps in his uncle's study. He could have drawn from memory one showing the way to Picard GA.

He looked around to orient himself. Wilsonburg lies mostly under the hills southeast of Taruntius X at about 51.3 degrees east and 7.6 north on the standard Lunar coordinate system. The nearest point of Mare Crisium is about fifty miles to the northeast. The North-Down Lock opens on the broad but irregular plain of Taruntius X; as the names imply, North-Middle and North-Up open higher on the slope bordering the same plain. From where he stood, Rick could see about ten miles across the slightly rolling and heavily dimpled sur-face to the western hills, and even farther to the north-west and almost around to north, where the same mass of hills that contained Wilsonburg rose to block the view. His path, he knew, lay to the north past the foot of those hills to a valley that led to Picard-G and which should be visible, if map contours meant anything, from where he stood.

Maybe it was, but so were several other notches and valleys. Choice would have to be made. He made the most obvious one, but first tried his communicator.

"Marie! Aichi! Any of the *Footprints*! Are you in range? Can you hear me?"

He waited only a few seconds. He had not really ex-pected an answer. He would pick them up—or they would pick him up—when he got around the spur of the hills.

He looked about him once more for other direction criteria. The Sun was too high in the west—about fifty degrees—to be a precise guide, he judged. The same was true of Earth, which was too close to the Sun to be seen easily, anyway. The stars? He moved back into the shadow of the

sheet-metal roof that kept direct sunlight from the "porch" of the lock and found that he could see the brighter ones. The Big Dipper looked just as it did from home, and the Pointers guided his eye down-ward and leftward to Polaris just above the horizon—of course! He was much closer to the Moon's equator than Boston is to Earth's. One of the notches in the far hills lay directly under the star, and Rick, after examin-ing as well as he could the ground between himself and that distant valley, set out toward it.

Evelyn Suspee woke about nine-thirty with a feeling of guilt. She had meant to get Rick up in time for his trip. Finding that he had already gone, however, she put the matter out of mind. She did not mention his depar-ture to Edna, who seemed too concerned about her hus-band's absence at the mine, anyway, to worry about much else. As a result, no one missed Rick until he had been gone for eleven hours.

The *Footprints* group arrived at North-Down about a quarter to eight. No one knew quite what to do about Rick's failure to show up. By their own standards any-one who missed an appointment "inside" had only him-self to blame—it was different, of course, outside. After discussion and some grumbling, it was decided that maybe Rick's tardiness was not his fault entirely, and that his home should be called to find out why he had skipped the expedition. Evelyn Suspee was in when the call arrived.

It took her several seconds to grasp that Rick was unaccounted for since leaving the Talles home. The re-alization had the principal effects of a firecracker—much noise but little else. Emerging from the explosion of words, though, was Mrs. Suspee's assumption that Rick was somewhere outside.

Marie D'Nombu, on the other end of the circuit, had not thought of any such possibility. She did not think it a likely one now that it had been suggested. In any case she felt sure that calming Mrs. Suspee was more impor-tant at the moment than eliciting mere truth.

"Wait, please," Marie urged. Soothingly she contin-ued, "Let's say Rick did get here eleven or twelve hours early. Even so, I don't see how he could possibly have been stupid enough to go outside by himself. Besides, they wouldn't have let him. He must have realized his error about the time—probably then he wandered off into town. Maybe he hiked over to the mine to see what sort of trouble Chief Jim was having. We'll call him—Rick could still be at the mine. More likely he's simply lost somewhere in town. They didn't start building tunnels on a nice regular plan here until a few of the early lodes had been followed pretty far, and a stranger can get mixed up pretty easily, I'd think."

Marie's words calmed Rick's stepmother considera-bly. She had had trouble more than once herself finding her way back to the Talles unit from the shopping areas.

At Marie's request, Mrs. Suspee called her sister to the screen. Edna had overheard most of the conversa-tion and understood the situation. She assured Marie that Jim Talles was still at the mine and gave her his visiphone combination. The girl broke the connection and immediately called Talles.

It took several minutes to reach him. He was far out in one of the work tunnels, available through portable relay equipment. This had voice connection only; he could not see who was calling and did not at first recog-nize Marie's voice.

The girl concisely reported the state of affairs. Talles' first reaction was to worry more about Mrs. Suspee than his nephew. He agreed with Marie that the boy was probably somewhere inside Wilsonburg and was grateful for her efforts to convince the woman of that.

"I think I can get away from here shortly," he said. "Maybe in half an hour. Meanwhile, find out who was on duty at North-Down when Rick got there, and see if the kid said anything about where he was going when he learned he was early. Then call me back."

"Orm is checking with the lock watch right now," Marie answered. "I should have word for you in a few minutes. Do you want me to call Mrs. Suspee again if I learn anything?"

Talles thought for only a moment.

"Call her if you're sure he's inside, not otherwise."

"I understand." Marie broke connection and turned to the others. "Is Orm back?"

"Here he comes," Aichi said.

"Orm, who was on when Rick got here?"

"Don't know yet," Orm replied breathlessly. "Del Petvar is on duty now. He says he was here twelve hours ago, went off just after eight, and Rick hadn't shown up by that time."

Del was relieved by Pierre Mon-taux, but we can't get hold of him. He went off duty four hours ago and still isn't home. At least, he doesn't answer the visiphone."

"He could be home and too sound asleep to have heard the call," pointed out someone in the crowd.

"That's possible," agreed Aichi. "Who knows where he lives? Is it far from here?"

None of the group knew either answer but Petvar, whom they consulted, was able to supply the information. Montaux's unit was about ten minutes' walk away. Without further discussion Marie rushed off.

Aichi cast a worried look after her and then another at the nearest clock. This Earth kid was holding things up badly. They should be well on the way out to Pic-G by now if the work was to be accomplished.

But he waited. Confirmation of Rick's whereabouts was essential. There was just that chance, a slim one but still a chance, that the fellow was actually outside. If so, the problems would be such that everything else would just have to sit in vacuum for a while.

Then it occurred to him that the group might as well suit up in any case. They would be going out soon if Rick Suspee were found inside—and certainly if he were reported outside.

Marie was back before they had finished their tightness checks. Orm Hoffman, who had not yet donned his helmet, blurted, "Montaux was home?"

She nodded grimly.

"He got there just as I did. He's been at a show. He told me Rick suited up around nine, thinking he was late instead of early. Montaux let him go outside to chase after us. Rick didn't return during Montaux's shift and we know Petvar hasn't seen him. So Rick must still be outside."

"Wow!"

Marie continued, "I called Jim Talles from Mon-taux's place. The Chief is on his way. To save time he's taking a crawler from NEM instead of walking. His orders are that we're to get outside as quickly as we can. Aichi, you're in charge until he gets here. We're to send two of us along the trail to the north. As soon as they're outside the trampled area, they're to check for prints Rick may have left."

All had taken off their helmets to listen. Aichi nodded.

"When the Chief arrives, you're to take the crawler and two other people and follow the same route. Pick up the first two when you get to them, and set all four to searching along the narrow part of the valley between here and Pic-G. Chief Jim says Rick knows the maps well, and the most likely thing is that he headed north in an effort to catch up with us. You can go all the way to your site at GA. After you get there do your own work until Jim calls either for you or the crawler. If none of you finds Rick along the road or at your site, we'll have to set up a comprehensive search plan." Marie shook her head. She was near tears. "That fool Rick! How could he be so idiotic?"

"Simple. He's an Earth guy," said Aichi. "All right. Everyone into the lock, then, except you, Norm. You help Marie with her suit check, and the two of you follow outside as soon as possible."

Helmets were donned and checked. Aichi and his group let themselves into the airlock. Marie quickly stuffed her pretty self into her suit. She and Norman Delveccio were outside well within badge-qualifying time but Aichi Yen had already dispatched the first pair of searchers. They were visible half a mile away, going fast, making for the spur of hills coming in from the right. They were still within the heavily trampled area around the lock where tracking was impossible.

"If he's been gone more than eleven hours," Marie pointed out over her communicator, "he should be most of the way to Pic G. It's hard to see how he could have gotten lost if he's really familiar with the maps. I'll bet you find him out at your setup."

Yen made the left-hand gesture equivalent to a negative headshake—faces were hard to see through helmets, especially with sun filters in place. "Judging by Jim's instructions, he thinks the same. But I wouldn't bet on it," his voice came back. "Up to the valley, and even through it, I wouldn't worry. It's a worn trail. Once out on G, though, tracks go every which way. Every set of footprints made since McDee found the first lode in those hills is still there. If that's not enough to mix up Rick there are crawler tracks going in all directions. He might be able to hit GA, I suppose, since it's about three miles across,

but then what? There's lots of stuff and tracks in that bowl besides mine. And has any-one told him about bubbles?"

"They were mentioned the other night at Chief Jim's place," replied Marie. "I don't know whether enough was said to give Rick much of a picture, though."

"Well, I just hope he has been going slowly. That would give us a chance to catch him before he's through the valley. Hey . . . here comes a crawler down from NEM. Must be Jim. Who wants to ride with me? You, Marie?"

The girl made the negative gesture.

"I'll stay here until we hear whether Rick has reached your site. If he hasn't, we'll have to make a wider sweep. I think maybe I can help more with that."

"Why?"

"I can't say. I just feel I could. I'm still betting he's out near GA, at or near your machine. But I want to be ready in case he isn't."

"All right. Digger and Jem, you come with me in the crawler. We'll pick up Anna and Kort on the way. The rest of you stand by for whatever the Chief is planning."

A moment later the vehicle from the upper lock drew up beside them. Jim Talles' spacesuited figure emerged. Digger and Jem climbed into the vehicle's cab, leaving its trailer empty for the time being. Aichi joined them after reporting the situation to Talles. In a few seconds the vehicle was trundling out across Taruntius X. Talles and the others looked after it but only for a moment.

"So much for that," he said. "Now—I suppose you all agree that Rick probably struck out north toward Pic G. Are there any guesses about what else he might have done? Or what he might be doing now?"

Silence, while the young people looked thoughtfully at each other and the Lunar landscape. It was Marie who finally spoke.

"Surely that would depend on when he finally realized he had been early instead of late," she said slowly. "He must have gone quite a way before the truth struck him, or he'd have been back long ago. He got started less than an hour after he thought we'd gone, so he couldn't have figured us to be very far ahead. He must have expected to catch up fairly soon, if he hurried—"

"But we don't know how fast he expects us to travel," objected one of the others. "He was never out-side before, and he'll find he can't go as fast himself as he probably expected to. So he may have decided pretty quickly that he'd be a long time catching up. Maybe he still thinks he started out late, not early."

"That's a point, Don," Talles said. "We're going to have trouble figuring just what he would do and think. He was telling me a couple of nights ago about how different things were at the school he visited—he meant in what people took for granted. We're stuck the same way. We don't know what will seem like common sense to him. We do know—or at least, I know; some of you may not be so sure right now—that he's nobody's fool in spite of this trick he's just pulled. So if Aichi doesn't find him somewhere along the road to the instrument site, we'll have to try to guess what a reasonable smart person with a completely different background from ours would consider a sensible course."

"You should have a pretty good idea. You grew up on Earth," remarked Peter Willett.

"So I did. I haven't been there for twenty-two years, though. And the fact that I'm still alive here is pretty good evidence of how deep I've buried my Earth habits. Still, I'll do my best. Just don't you throttle your imaginations because you think I'm the only one with a chance to solve the problem."

"Don't worry," said Marie. "We'll figure him out." Jim Talles looked at her. "Maybe," he answered.

Thirty miles, measured along a low orbit, from North-Down, Rick Suspee went through a rather similar review of the situation, though this probably happened some hours later. He had not yet caught on to his twelve-hour error. Nevertheless it was evident to him that something was seriously wrong.

He had walked for what he guessed was the right distance across the relatively flat surface of Taruntius X. He had reached the valley he had marked from the lock—fortunately, he had not lost track of it during the walk. He had followed it slightly upward and then down again to another open, fairly level

area. The way was obviously a well-traveled one, as he had expected. Indeed it was packed so firmly that it would no longer take footprints or even tread marks, though often enough one or the other led off to right or left. It all fitted the mental picture Rick had gained from his uncle's maps and the conversations he had heard and joined, and he had no doubt that he was now on the southern edge of Picard G's floor.

However, he had seen nothing of the hikers or any other living person. He had heard not a whisper over his helmet communicator. He knew that radio on the Moon was a line-of-sight proposition, and that the relay units on the hilltops around Wilsonburg were turned on only by special arrangement. If he had never got close enough to the hikers to have no chunks of Moonscape in the way, it was perfectly reasonable for him to have heard nothing. But he could not understand why he had failed to get that close.

True, they might have been into the valley before he had emerged onto Taruntius X. Yet if so they had traveled much faster than he had supposed possible.

Rick himself had found that he could not walk much faster than on Earth. With far less fatigue, yes. Here he weighed less than twenty-five pounds. But faster, no. He did not have the coordination necessary to take the sort of steps that would keep both feet off the ground at once for any distance. When he tried it, landing on either foot was a matter of luck. Leaving the ground with an angular momentum close enough to zero for the result to resemble walking was still beyond his skill. Failing to land on at least one foot could be dangerous; helmets were strong but had their limits, and Moon rocks are no softer than those of Earth. It would be a long time before he could acquire the "lunar lope"—that swift, leaping walk at which Moon-dwellers were so adept.

Yet even if the others had the skill he lacked and could "step" a distance limited only by their muscular strength rather than their coordination, it was hard to see how a lead of one hour or less could possibly have put them ten miles ahead.

It then occurred to him that they might have stuck to the hills around the east side of Taruntius X, rather than cutting straight across its floor. Some of the badge tests that the hikers were going to take during the trip could easily have required this.

If they had chosen the easterly course, that might account for the radio silence. They had been in a valley cutting them off from him. It also implied that he was ahead of them by now, since his path had been direct rather than circuitous. With this in mind, he settled himself down to wait. His position was a short distance from what he took to be the northeast end of the valley.

He had intended to wait for two hours at most. But the sleep that had been eluding him so effectively for the last few "nights" caught up with Rick. He never knew how long he slept, since his watch was inside the spacesuit where he could not reach it and his oxygen-cartridge gauge meant little in terms of time without knowledge of his personal consumption rate.

Well, he consoled himself, he had been out in the open where the others would have seen him if they had caught up. Evidently the around-the-hills hypothesis was wrong. They had been ahead of him all the time. They must certainly have reached Aichi's place in Picard GA by now.

GA, he knew, was about three miles across. It should be no more than three or four miles away. Presumably the whole crowd was below its rim, since he was still hearing no response to his radio calls.

Unfortunately, no such feature was visible, or at least recognizable, on the slightly rolling plain before him. This might mean little; distances were hard to judge in the unfamiliar lighting. If the rim of GA were high, it might be difficult to pick it out from the background hills—hills whose feet were below the near horizon but whose upper details stood out as clearly as the valley walls a scant mile behind him. If the rim were low or nonexistent, finding it from a distance would be even harder.

Just the same, his map memory told him that if he headed northeast from his present position for three or four miles he should reach the depression. And it was probably too large to miss.

He looked around carefully, matching the shapes of the surrounding hills with his memory, and incidentally modifying the latter more than he realized. In case he would have to retreat, he made particularly sure that he could recognize the mouth of the valley leading back to Taruntius X and Wilsonburg. That was sensible although, as it turned out, superfluous.

He set out sturdily, but there was no easy way to tell when he had walked four miles. His pace was probably not its Earth length, which he knew well, but he could not guess whether it was longer because of the lower gravity or shorter because of this spacesuit. Expended effort—fatigue—of course meant nothing as a distance guide. Nor did the passage of time, since he could not reliably judge his speed.

Eventually so much time passed that he decided he must have started in the wrong direction. GA could not possibly lie this far from the valley mouth. Once more he stopped and looked around, less sure of himself than ever.

The gently rolling plain furnished a large supply of low elevations, any one possibly the rim of GA. Some, as he already knew, were indeed crater rims, but none had proven anywhere near large enough to be his target. There seemed nothing to do but check every elevation in sight—unless, he thought suddenly, it would be better to go back to the southern hills and get a higher view-point. A few hundred feet might be enough to let him spot the hole he wanted without difficulty.

It was a good idea. He would try it. First, though, he would check one rather noticeable rise to his left—roughly north, though without shade he could no longer see the stars to be sure of that. He made his way over to it and without much effort reached the top.

It was not a crater lip but a low dome, some forty feet high. It measured about a hundred and fifty yards from north to south, and half that in the other direction.

There had been no footprints on the southern side that Rick had climbed. But near the top he encountered a well-trampled area. To his surprise, a few yards ahead of him he saw a long, low, obviously artificial wall.

He approached the structure curiously. It certainly was not an emergency oxygen cache—he knew what they looked like and how they were marked. The wall was only about two feet high and five wide, though it extended over a hundred feet from the top of the dome down its western side. Apparently the wall was made of cemented pebbles and the dome roof of glassy material covered by Lunar soil.

Piercing soil and roof, near the high end, there was a long scar with a few footprints around it. At the other end, downhill, stood a piece of equipment he recognized instantly. There was no need to read the cast-metal sign that lay beside it. He knew the story.

Eighty years earlier, *Ranger VIII*—one of the first hard-landing Lunar investigating robots—had plowed into the southern part of Mare Tranquillitatis at terminal-plus velocity. One of those freakish distributions of kinetic energy that sometimes occur in explosions and tornadoes had hurled an almost undamaged lens element—barrel and glassware—five hundred miles at nearly orbital speed. The fragment had expended most of its energy in cutting the groove on this hilltop, bounced once, and come to rest a little farther downhill. The wall surrounded track and relic, protecting them from the only feature of the environment likely to prevent their lasting another million years—human beings.

Rick was impressed not by the recalled story or even by the sight of a piece of history. What struck home was that the *Ranger* relic, he knew, was not in Picard G. Somehow, in spite of his care and what he thought was a reliable memory, he had managed to come a dozen miles or more too far west.

For a moment he considered beating a retreat to town. But the notion never got a firm hold.

After all, Picard G lay only a few miles to the east—much closer than Wilsonburg. The hills in the way did not look difficult, and nothing he remembered from the maps suggested that they should be. He would find the *Footprints* gang, and safety, much more quickly if he cut straight across to his original objective. Further-more, he had spent much time memorizing the locations of oxygen caches in G against the need for them ever arising. He was safe for a good many hours yet according to his cartridge gauge, but it would be nice to be close to a recharge should he require one.

Without further thought he headed eastward toward the low hills.

III

Jim Talles had spent the time driving down from Northeast-Middle in thinking, since the road was both safe and familiar. He had come up with a plan of sorts. After Aichi Yen's team had left and the short consultation with the others was over, Talles wasted no time standing around.

"Back inside, all of you," he ordered. "We have some map-figuring to do, and I'll have to get the relay units between here and Pic G turned on. Then we won't have to wait until Aichi gets back to hear his report."

"But Chief, you ordered us to suit up," Norman objected.

"I know, but I've changed plans. We'd better not waste our suit charges while waiting to hear from Aichi. We'll occupy the time deciding where to look next if the others don't find him."

No one argued further, and in a few minutes all were gathered inside. There were plenty of maps available at every lock. Talles laid out a set presenting a complete mosaic of the area. For nearly an hour discussion ensued about the possible places where someone with Rick's background might be if he had wandered from the planned route.

The trouble was that none could actually believe that anyone, under the circumstances, would have been silly enough simply to go off somewhere on his own. If he had, there was no guessing what else he might do, since his criteria of elementary common sense would have to be incomprehensible. They all realized that the term "outside" meant simply "outdoors" to an Earth person and so did not carry the same frightening implications as it would to someone brought up on the Moon. But none could see why this difference should turn off one's brain completely. All the segments came to a dead end with some remark to the effect that ". . . If he was dumb enough to do that, he was dumb enough to do anything."

Jim Talles alone was reluctant to accept that notion, partly because he was sure his nephew was quite intelligent and partly because it implied the need for a complete, square-yard by square-yard search of the entire area around Wilsonburg. An impossible task to accomplish before Rick's oxygen would run out.

Rick had started with about thirty-six hours of the stuff in his cartridge. Of course, he might run into an emergency cache. But sensible planning would have to be based on the assumption that he would not. More than twelve of those precious hours were gone. The area that could be searched thoroughly in the remaining twenty-four by all the people who could reasonably be put on the job represented a frighteningly small fraction of the sector in which he might possibly be. The main hope was still that one of Aichi's searchers would find the boy along the route to Picard GA. After the relay stations had been turned on, Talles spent more of his time at the lock communicator than at the maps.

Aichi kept his crawler well out in the center of the valley and was in continuous touch once contact had been made. Some of the searchers on foot were occasionally shadowed from the relay antennas. They were trying to cover the valley sides far enough from the main "road" to spot individual footprints. Any set of these that could not be accounted for somehow, especially those that left the main trail without any matching return set, had to be investigated further.

It was a slow process. The hills around Wilsonburg had been well examined by prospectors during the last few decades. Many of their trails were known to the *Footprints'* group but there were many that had to be checked out in detail.

Time passes slowly. Suspense in the lock grew unbearable.

Then suddenly Aichi reported. He had reached his instrument site. Rick was not there. And no clue to his whereabouts had been encountered en route.

"All right," Talles answered the relayed voice. "If he's not there, he isn't. As I remember GA, he'd have to be deliberately hiding in one of the small pits not to be visible—there aren't any bubbles at the place that I ever heard of."

"Nor I," agreed Aichi Yen. "That's one reason they let me set up here. The school is pretty careful even with its full-rated seniors."

"Right. Therefore we have to assume Rick never got there—or if he did, he left for some reason. I can't off-hand imagine a reason that wouldn't have brought him straight back toward Wilsonburg. In that case, you would have met him on the way—"

"But we didn't. So he never reached this place. Something must have delayed him on the way. It couldn't have been suit troubles or we'd have found him along the road. Anyway, he knew enough to check his oxygen cartridge and heat-control pack before starting off—if he hadn't, Pierre would have spotted him for a beginner and never let him out."

"I agree, Aichi." Talles thought a moment. "Any-way, until the foot searchers finish their coverage, you stay there and do what you can on your own project—you can accomplish plenty alone, and the last pair you dropped off can help you when they work their way out to where you are. That's Digger and Anna, isn't it?"

"Right. They're quite a way back, though. I left them with a couple of miles of the valley to check before they got out onto Pic G. I figured I could see all that was necessary from the crawler, once I was out on the plain. It seemed best to have the others concentrate on places where Rick might have let his curiosity override his common sense."

"Good. I don't see what more you could have done. We'll leave you to your own work for now. I hope the others will rout out that young scamp without our having to bother you again."

"Thanks, sir. I'll keep the receiver on and make the standard checks with North-Down."

"All right. Out, here." Jim frowned. "Digger? Kort? Are any of you foot searchers in relay contact?"

Three were. Talles got them to report one at a time but the word was negative in every case. He had each describe as exactly as possible the sections searched. With the aid of the other group members he marked these off on the map.

The result was discouraging on two grounds. First, because so much of the probable area had been covered—and second, because so little of the possible area had been. The group looked at the shaded portions of the map in moody silence. Only a few remarks were exchanged as the minutes dragged by and negative after negative came in over the communicators. With each report, someone shaded another small bit of the map. At last the valley's entire length was penciled in. Digger and Anna had reached Picard G, and were heading on toward Aichi's station at A. Kort and Jem had reached the middle of the valley, where the other pair started.

Kort closed his final report with a question.

"Should we go on out to GA with the others, or re-check what Anna and Dig have done here, or return to town? I'm starting to get worried about that kid. There just isn't any way to get lost along this road, that I can see. So if he isn't out at Aichi's setup, what could have happened to him? He didn't strike me as a completely jammed valve, so I'm sure he's not hiding from us as a joke. Is there any sort of—well, attack, or something, that can hit Earthers under low gravity? Could he possibly have gone off his head?"

"I doubt it," Talles replied. "Earthers do sometimes panic because of the breathing restriction imposed by a spacesuit. Rick is used to underwater gear, though. That's even worse, from the breathing angle. So a space-suit shouldn't bother him. Besides, even if he did panic he wouldn't run off and hide in a hole, would he? Aloneness is the last thing he'd want."

"Sure, Chief," Kort said doubtfully.

"I think you'd better start back," Talles told him. "Come as fast as you can until you reach the plain, then spread out as before and again check each side of the main trail for prints. I'll send people out from this end to do the same. It doesn't seem likely he's on Tar X, but—wait, change that. Maybe he got the idea of climbing one of the hills there to get a better look around. Both of you follow east around the edge of Tar X, at the foot of the hills, and check for prints climbing. He was wearing Type IV boots, Pierre says. I know his suit size is 16-C-A. Any prints of that pattern and approximately matching that size, whether you think you remember them from before or not, report to me."

"Traveling," Kort said. "But I wish we'd had that boot data earlier."

"Sorry. Pierre Montaux thought of it and visiphoned us a little while ago. Carry on, Kort. Digger and Anna, have you been reading us? If you're not too far out on Pic G, how about doing the same thing? Rick might very well have been uncertain of direction when he got out of the valley. He could have decided to go uphill to try and sight GA."

Anna's voice came back. "We're a couple of miles out—nearly halfway from the valley to Aichi's spot. But you may have something. It's worth going back for. Look, Dig, if Rick decided to do something like that when he reached Pic G, there's a hill he might have used. Let's head for its foot, close to the valley side. That's where Rick would have reached it and started to climb."

"Sounds good," Talles encouraged. "Check in at the foot of the hill, and do your best to stay

line-of-sight from the nearest relay antenna—you know where they are."

"Will do," came Digger's voice.

"If you have to follow a trail out of range, try to arrange your own relay—one of you on trail, the other in sight of both the tracker and the antenna."

"Right, sir. Traveling."

Marie, like the others, had been paying close attention to the radio conversation.

"Shouldn't some of us go out there to Pic G to help Dig and Anna?" she asked. "As I remember it, there are miles of hills along the south side. Rick might have climbed any one of them."

"That's a thought, Marie. But by the time any more of you could hike out there, those two would have pretty well covered the ground, wouldn't they?"

"Not if there turned out to be a lot of Type IV, size 16-C-A tracks to follow. And for that matter, why should we hike out? Wouldn't it be faster to take a crawler?"

"Can you drive one?"

"Well—not legally."

"How about the rest of you?" Jim glanced over the group gathered around the map table.

"Aichi took all the rated ones—Anna, Kort, Digger, and Jem—with him." Marie added, "That wasn't very bright. But you could drive some of us out. There are plenty of crawlers at this lock."

"Sure I could drive you. Except that it would be too hard to keep in touch with the other searchers while I was driving, especially in the valley."

"You can get through it without necessarily losing touch with the relay net. It would take a lot of zig-zagging, that's all."

"I know. But I can't get through it without devoting most of my attention to driving."

"I could drive, or Orm. It would be legal as long as you were in the cab."

"You're a stubborn little wench, Marie." Talles sighed. "I suppose you do have a point about the southern side of Pic G."

There was a flurry of dressing and helmet-tightening. The group flowed over to where the vehicles were parked. Jim Talles went through the formalities of signing one out. He, Marie, and two of the others entered the cab, and the rest got into the trailer. He stared at Marie thoughtfully for a moment, then motioned her to the driver's seat.

Under her handling the fuel batteries came up to voltage, the individual wheel-motors were tested, and the machine rolled gently to the nearest vehicle lock. Marie established connection with the passengers in back, received their assurance of complete suit checks. She repeated the procedure for those in the cab with her, made a final check of her own suit. Finally she signaled for the opening of the outer door.

Moments later the crawler was rolling smoothly northward at forty miles an hour—slightly better than its fuel batteries could maintain. Marie was drawing from reserve charge as well. Talles disapproved but decided to say nothing. The storage cells could be recharged while the group was searching around Picard on foot.

He turned his attention back to communication, fine-tuning the crawler's radio to the relay system. A voice check confirmed that Aichi, the four searchers, and the dispatcher at North-Down were all able to hear him.

Marie stopped the crawler, to his surprise, before any report came in from the foot searchers. As he glanced at her, mystified, she pointed to the right. He gazed in that direction and gestured understanding.

Some ten miles north of North-Down lies a two-mile crater. It is not the only such depression on the floor of Tarantius X. But it is the sole depression even close to that size along the straight path from North-Down to Picard G. Marie knew that Aichi had not dropped his first search party until reaching the valley, so she was pretty sure that this crater had not been searched. She also considered it a likely place to tempt a newcomer to the Moon into taking a close look. Jim Talles smiled in unspoken agreement.

A two-mile circle has an area of more than three square miles, which can use up a great deal of search time. It was fortunate that a check of the circumference proved sufficient. No boots of Rick's type had crossed the rim except two that were overlaid, as a few minutes' follow-up showed, by later prints.

Even so, half an hour was lost.

Marie had remained at the radio while Talles and three others had gone out. As soon as they were inside again, she started the crawler.

"Digger and Anna reported. They can't find any-thing at the hill she picked," the girl said. "They've moved to the west and are still looking. But—but all the reasonable possibilities seem wrong! Maybe we ought to try the unreasonable."

"Or the more reasonable," Jim Talles said.

The crawler passed no more likely-looking stopping places before reaching the valley. There were a few bubbles along the way—lava pits whose thin glass ceilings sometimes gave way under weight—but the known ones had all been checked by the searchers and no new holes had been noted.

An hour and twenty minutes after leaving North-Down, Marie brought the crawler to a halt beside two spacesuited figures. Digger and Anna were waiting at the foot of the rise that marked the southern boundary of Picard G. That feature is irregular—but much less so than Taruntius X, and its southern side in particular is much less steep than usual for the inner slope of a Lunar walled plain. It seemed doubtful that Rick could have lost himself here. The climbing was safe, hardly to be considered climbing at all. There were comparatively few places where radio contact would be a problem.

Marie's attitude had changed. She had begun to feel far less sure that Rick was somewhere along the line of march between Wilsonburg and Picard G. The enthusiasm that had caused her to pressure Talles into driving from town had pretty well evaporated. She did not want to hike along a planned path looking for footprints. She wanted to try the unreasonable—or the more reasonable, as Jim Talles had said. The two need not be incompatible. Because what might appear most reasonable to an Earthier might seem least reasonable to a Moon denizen.

Somehow Marie felt she was coming to know what might have gone on in Rick Suspee's mind after he had walked out of the lock at North-Down. She wished she could be alone to think.

But she couldn't be. Talles was already assigning search areas.

"All right," he said, "we'll work in pairs, as always. Digger and Anna, stay with the crawler. You've been afoot a long time, and probably want to assist Aichi any-way. I'll drive you to GA as soon as I drop the others."

"You need all the searchers you can get," Anna objected.

"You two are so weary you'll be a handicap rather than a help. As for Aichi, I don't want him to miss out on the chance of a lifetime."

Jim turned away.

"We'll take two miles for each pair," he went on. "Norm and Peter, start here. Cover the low slopes for prints. Call in if you see anything likely, then check it out before going any farther. Dan and Don, the next section. Same orders, when we drop you off. Jennie and Cass the third section, Orm and Marie the last. After I reach GA, I'll make one circuit of it. Unless I find something I'll come right back to pick you up as you finish your sections. Questions?"

IV

Fifteen minutes later Marie watched the crawler roll away toward the northwest. Orm Hoffman, at her side, had to call twice to get her attention.

"Let's get with it, Marie. What's best, I think—you follow this contour while I parallel it uphill a couple of hundred feet. Then anytime one of us finds a possible the other checks at his level. That would let us catch trails actually going up or downhill."

"That seems all right." Marie's lack of enthusiasm was obvious even over the communicator. Orm Hoffman noticed and wondered. Jim in the receding crawler heard, and remembered Marie's remark about the "un-reasonable." Neither Orin nor Jim commented.

The girl realized, however, that she would have to devote herself diligently to the plain, futile though she now felt it to be. She and Orm started eastward as he had suggested. They went slowly, the boy examining the ground carefully and attentively, the girl's eyes doing their duty as she tried to concentrate.

But she kept remembering details of the evening At the Talles home—the questions Rick had asked, the ones he had answered, the ideas he had volunteered un-der her careful manipulation. She felt more and more that she could put herself in the shoes of Rick Suspee.

Yet the more certain she felt of that, the less could she understand his disappearance. It just did not fit. The time mistake was natural—people were always making it. Following a group he thought had gone ahead was foolish but perfectly understandable. Marie would not have done so herself, to be sure, but her up-bringing had been different. *Outside* carried much the same implications to her as *underwater* did to him, she surmised. On the other hand *outside* to him was no more special than the term *outdoors* so offhandedly used by Earthers. He would know there was a certain amount of danger involved in going through an airlock but he probably equated it with, say, the danger of crossing a street in an Earth city—a danger recognized and respected yet lived with and faced casually. Yes, she could understand his going out alone.

What had happened then? Rick knew where the group was going, knew the area as well as maps could teach it. Although he had never seen it before, he should not have had the slightest difficulty in identify-ing the well packed trail from North-Down. There was no special risk along the route. The normal ones like bubbles would not have caused him to disappear—unless he had broken through a new one, and in that case the traces should have been obvious to the search-ers. Even if his suit had failed and he was a fatality—Marie could grant the possibility, much as she hated to—his body should have been along the trail somewhere in plain sight. The disappearance made no sense.

"Track here, Marie!" Orm's voice scrubbed her thoughts.

Guiltily she looked back; had she passed a set of prints without noticing? No. She could see her own ex-tending backward at least two hundred yards—her own, no others. She looked ahead again, glimpsed what had to be the track that had caught Orm's eye. The line of prints, imbedded clearly in the Moondust, intersected her tracks heading uphill. The sole pattern, when she got close enough see it clearly, she confirmed as Type IV. Maybe Rick had come this far out of the way after all.

"Start following them up, Orm. I'll backtrack for age traces." Her tone was elated. The indifference of a few minutes before had vanished.

"Traveling," he answered. "They bear a little to-the right of straight uphill, sort of toward that hump half a mile back."

She goosed her communicator. "Jim Talles! We have a track here that looks good. I'm making sure it's new."

"Great!" came the voice from the crawler. "I'm just putting my passengers off at GA. I'll go around as I planned, but keep me wired—I can cut back to you anytime." Talles added, "Orm, how does it look to you?"

"Whoever this is wasn't just wandering. The prints go in as near a straight line as the ground allows. There are some breaks on bare rocks but I'm having no trouble finding the trail again just by following the original di-rection. Does it backtrack the same way, Marie?"

"No. There's a fairly sharp bend a little way out. He was going east, just as we were—and then he seems to have suddenly got the idea of going up. Unreasonable! A waste of energy and oxygen! This must be Rick—it's got to be."

"You keep backchecking," said Jim Talles. "Rick isn't wearing the only Type IV boots on the Moon. He hasn't the only 16-C-A suit. Also, I wouldn't bet much money that no one else has climbed that hill in the last forty years."

"Traveling, sir."

There was radio silence for five or six minutes. Then Orm spoke again.

"I see a dip between me and the hilltop. The trail goes down into it. If I follow directly, I think I'll lose the relays. Shall I go ahead, Jim—uh—Chief?"

"Yes. I'm proceeding toward your position now. If we don't hear from you before I arrive, I'll go after you."

"Traveling," Orm said.

Marie had paused to listen. Now she looked back up the slope. She could still see her companion but as she watched, the fluorescent orange torso that marked a Wilsonburg spacesuit disappeared over the rise, followed by the green-and-yellow helmet. Colors were selected for contrast against likely Lunar background, not aesthetic values.

The crawler, decorated in the same three colors, was visible a full two miles away. She glanced in its direction, saw that it was nose-on to her, and returned her attention to the footprints.

She wondered why Rick had not gone farther out on the crater floor before turning eastward. He must have known that the closest part of GA lay a couple of miles from the southern foothills. Of course, his judgment of Moon distances might be poor. There was no telling what someone with his background would use as a yardstick. His pace length would, she supposed, be shorter on Earth. And to help him on the Moon there was none of that bluish overtone, increasing with the distance of background objects, that she had seen on pictures of Earthscapes. Perhaps he thought he had come farther north than had been the case. But if so, why had he trudged so much farther east than necessary? Marie was now seven miles from the end of the valley, actually about even with the eastern rim of GA. The tracks, if they continued in their present direction, would not have led to the work site but would have gone right past.

Her theories grew more and more abstract as she plodded along. Her notions of what Rick must have been doing and thinking, and why, grew more and more complex and less and less solidly based on what she knew of the young Earther. Then suddenly she was jarred back to reality.

Another pattern of footprints lay before her, coming on a slant from her left—from the valley end, that is. It represented the trail of several people and joined the one she was following, completely concealing it. She looked ahead to pick up her Type IV pattern where it emerged on the other side of the interference, and discovered with a shock that it didn't.

The implications were obvious but she resisted them. Instead of calling Talles at once, she devoted several minutes to a careful examination of the Moonsoil and its impressions. When she finally made the call, discouragement was back in her voice at full strength.

"Chief, sir—and Orm if you can hear me—cancel this one. We're wrong again."

Talles smothered a tortured curse.

"Explain!"

"Our quarry came from the direction of the valley with a group of either eight or nine people. He left them at the place where I am now. He was actually with them, not a latecomer following the track of an earlier party. Some of his prints are under theirs and some on top. This trail certainly isn't Rick's."

"All right." Talles had got hold of himself. Evenly he said, "Stay where you are, Marie, and I'll pick you up. Then we'll go after Orm—or can any of you others make radio contact with him? He's out of touch with me."

For several seconds the communication spectrum was crowded as everyone called Orm. No answer came. Apparently he was still in radio shadow. Talles spoke again after a brief wait.

"Marie, I can't see you and don't know just where you are. If you can see me, give me a flash."

The girl unclipped a pencil-sized tube from the waist of her suit, aimed it at the distant vehicle, pressed a switch. Bright as it was, the beam was, of course, invisible to her in the vacuum. She waved the tube gently in both planes. In a few seconds Jim spoke again.

"Good. I have you zeroed. Stand by—I'll be there in two minutes."

He fulfilled the promise. Marie swung up into the cab as the vehicle pulled up beside her. He had been unable to think of anything consoling to say. She would have to live with the collapse of hope, the bitter let-down. He had been getting optimistic himself about the trail that had petered out. Well, he told himself, nothing to do but keep trying.

"Where is Orm? You'd better drive, Marie, and head us as close as you can to where you think he ought to be."

She slipped into the control seat he had vacated. "Let's see—I came from over there, and he was going—yes, that way—" She swung the vehicle smoothly and let it build up speed.

"You're sure?" Jim's question was purely rhetorical. He did not expect more than a rhetorical answer.

He certainly did not expect what he got.

"Well—" She gestured vaguely ahead, toward a hillock that would have seemed part of the more distant backdrop of the south rim to an eye unfamiliar with Lu-nar scenery. "That's where we . . . Wait a minute!" To Marie's credit, the crawler did not swerve as the idea struck her. "I've just thought of something. The ground right outside North-Down is packed solid for hundreds of yards around. It hasn't taken a new print since the Mark Twenty crawler came out. Right? We knew the direction to Pic G from experience but Rick knew it only from maps. So if there were no footprints or anything to guide him, how did he know which way to start walking?"

That question, too, must have been rhetorical. Certainly the girl gave Jim Talles no time to answer it, if he had an answer available. She kept right on talking, thinking aloud. The man recognized the symptoms. Marie had fallen in love with an idea again. He tried to muster some defenses but it was difficult. The kid, as usual, was being reasonable as well as enthusiastic. She was still chattering as they reached the hillock and started up. Talles managed to get in a few words now and then but they were vague ones like ". . . you still can't be sure." Such objections did not impress Marie. She was sure enough. He got in a few more words near the top of the hill. But by the time they were over it and back in touch with Orm Hoffman, Talles had pretty much decided to go along with her.

The idea of breaking up an orderly and organized search pattern on the chance that she was right seemed unsafe. If she were not right, the error could be fatal.

On the other hand if she were right and he did not follow her lead, the result could be just as fatal.

The trail Orm had been pursuing swept on past the next hilltop and apparently over the crater's south rim. They never did find out who had made it, or when, or why. Orm had the sense not to go beyond the second hill without making another radio check, so when they did re-establish contact with him he was already coming back. This saved time, which ballooned Marie's already surging morale even more.

Twenty-five minutes after the girl had her inspiration the crawler was approaching the valley mouth with eight of the *Footprints* group aboard.

Jim Talles had been in touch with the team still at GA. Although they were in radio shadow by intent, one of them had come up to the rim to make a routine safety report. Jim had salved his conscience by telling them to stay and carry on with Aichi's project but to be ready to resume the search in Picard G if the new idea collapsed. He also called the two searchers still in Ta-runtius X and told them to continue their hunt back to North-Down. Privately he decided that if this idea of Marie's did not crystallize he would declare a full emergency and get more help.

Evelyn Suspee, afterward, was to have great difficulty understanding Talles' attitude. She had been convinced that Rick was somewhere in town and was not told about his misadventure until much later. After getting over the first shock, she reacted most to what she called the cold-bloodedness of Aichi and his friends. It was a long time before she could admit that a civilized human being could have put anything at all ahead of an all-out search for her missing son. And a certain coolness toward her brother-in-law for allowing anything else persisted even longer.

Talles' insistence that there had not been a genuine emergency until the very end carried little weight with her. She was culturally conditioned to values and priorities differing from those of Moon-dwellers. Their experience-dictated credo was that anything resembling panic is to be avoided at all costs, frantic efforts are to be avoided even in the most trying circumstances, and work must go on if humanly possible. Only imminent loss of life or limb could justify taking citizens from their labors by declaring an emergency.

While Jim Talles fully recognized the threat to Rick's life, neither Jim nor his young cohort considered the threat that immediate. If Rick's suit had failed, he could not be helped. If the suit were whole, he still should have oxygen enough to last a few hours.

Talles took over the driving after the crawler reached the valley. He sent Marie back into the trailer with the others to do some map work. Half an hour took the crawler through the valley and into Taruntius X. Once out on the plain, however, Jim did not continue toward Wilsonburg. He turned to his right and followed the irregular north side of the area for some five miles. Then he turned right once more along another valley, one that led northwest to the Lick E mines. At that point the search party began to implement Marie's plan.

Instead of dropping them off in pairs, Talles had the entire group spread across the width of the valley and start toward Lick E. He eased the vehicle along in the central, heavily trodden path, keeping pace with the young hikers on either side. They were going slowly enough to make sure that they missed no print of a Style IV boot of the size appropriate for a 16-C-A space-suit.

Fortunately Rick was rather small for his age. Most adults took a considerably larger suit, which meant that boot patterns of his type and size were relatively rare. They could easily be noticed when going off the main road on solo prospecting expeditions. Two such sets were encountered during the first half-dozen miles. They were quickly identified as having been made by the members of the *Footprints* group themselves.

The valley floor narrowed then for a distance of some miles. Since there was less width of ground to be inspected, the searchers made good speed. Then the valley opened out and they had to slow down even though they paid most attention to the right side. On the theory that Rick had gone this way by mistake, he would have assumed that he was entering Picard G at the valley mouth. Hence, he would presumably have turned right—toward where he would have expected GA to be.

The widening of the valley allowed the "road" to spread, and many more individual footprints became distinguishable. This slowed things down even further. Jim Talles changed his technique, running the crawler half a mile ahead and getting out to search himself until the group caught up, then repeating the process.

Speed was down to about five miles an hour. Nearly two hours passed in this fashion. They were now well out of the valley and slowing down even more as they struggled to cover an ever-widening front—in fact, progress might better have been expressed in square miles per hour. Even Marie's bubbling mixture of enthusiasm and confidence was beginning to go a little flat once more, sure as she still felt that Rick must have come this way. All of the searchers were bone-tired and hungry. Talles reached the decision that it would be best to break off, alert the authorities by radio, then drive the kids back to town. He opened his mouth to broadcast the call-in—and at that instant Peter Willett's voice came crackling over the communicator.

"Hey—here's a track! Breaking right out of the packed lane! Take a look."

Orm reached the place first, examined the evidence. Excitedly he called, "Peter's got something. Wherever it crosses other prints, it's on top. The right size and style—and it's turning off to the east. We'll have to chase this one."

"Marie, you and Orm follow it," Talles ordered. "The rest of you get into the trailer and rest for a while. If this one peters out we'll have to go back and call for an emergency rescue party. I know you all have plenty of oxygen, but you can't do a good job indefinitely without food and rest. Get aboard. Orm and Marie, lead on."

The two spacesuited figures hustled along the line of Style IV footprints. Orm was still placidly doing a job. Marie, though, was once more effervescent. She had to be right, she told herself.

This had to be Rick's trail.

It was.

The searchers reached the spot where Rick had paused for the second time—they had missed the one where he had slept. After unsuccessfully trying to locate him visually from some high ground, they followed his abrupt turn from the edge of the plain toward the hill where the Ranger lens had landed. There were, as Rick had noticed, no other tracks there. So for the moment there was no way to be sure that this one was recent except for the back-trail evidence. At any rate, it was the most recent track in the vicinity to have left the main path to Lick E.

They followed the prints up the hill to the Ranger relic. All of them knew where they were. All had seen the historical monument before, and while not completely indifferent to it they were far more concerned with the trail. This, of course, vanished on the packed area near the wall. They piled out of the crawler and gathered around the spot where the prints disappeared.

"It shouldn't be hard to find which way he went," Peter said. "Just walking around the edge of the packed ground should do it."

Talles had his doubts. "Marie, you got us this far. Which way, do you think, would he have gone

from here?"

The girl's expression could not be seen inside her hel-met but there was no trace of uncertainty in her voice.

"With all that map study, Rick certainly knows where this monument is. He would have had two choices of what to do next. So when he got here, he must have realized his mistake. The sensible one would have been to go back to North-Down the way he came."

"Which he didn't," Orm said acidly.

"Correct—because what seems sensible to us may not seem sensible to him," Marie said. "The other thing he'd have thought of would be to cut over to Pic G straight across the hills. Look east, there. This landing scar would have given him the direction if he didn't have it already. And that first ridge is only four or five miles away. He must be lost on those hills somewhere. Look for his prints going east."

A straightforward enough suggestion, but a complication arose in carrying it out. No one looks directly at the Sun from the Moon any more than one does from Earth. The searchers had not noticed before, but the general illumination had been fading during the last hour. Everyone had known perfectly well why Aichi Yen had set up his apparatus when he did; they had all heard him remark, as they had left Picard G, that the eclipse would be full in only a few hours more. Nevertheless the dwindling light took the group by surprise.

As they started eastward along the wall to carry out Marie's suggestion, someone exclaimed that it was getting hard to see. Nine pairs of eyes lifted to look through the heavy filters on the top of as many face-plates as nine spacesuited figures turned to face west.

For Jim Talles one glance was enough.

"Quick!" he roared. "Orm and Marie, carry on. Check your temperature controls. Call back if the prints are there. I don't want anyone outside but you two. The rest of you get back into the trailer. We'll have to carry on with the crawler's lights, if we can do so at all. The ground ahead is strange to most of you, and we could lose track of someone who went outside the sweep of the lights . . ."

Talles was obeyed without question. As he climbed into the cab, Marie's voice reached him. "They're here! Come on!"

The remaining sliver of sun was narrowing rapidly now, the scarlet ring of Earth's sunlit atmosphere providing more and more of the total illumination. Jim switched on the main driving lights before he started the motors, and suddenly the ruby-lit landscape outside the illuminated swath was hard to see. He swung the vehicle toward the east. The lights picked out the two figures a few yards from the end of the wall. One was standing, beckoning to them. The smaller was already picking its way along the relocated trail. Talles thought of having the two come back into the cab and do the tracking from its vantage, but he dismissed the idea. Not all the Moon's surface takes footprints. Breaks in the trail could be handled more surely, and even more quickly, by trackers on foot. It was even possible, especially if Rick had changed his direction at a bad spot, that the whole party would have to fan out once more to recover the trail.

Before they were half a mile from the Ranger relic, all sunlight was gone. The landscape beyond the headlights was just barely visible, lit by the circle of crimson fire that marked Earth's position halfway down the western sky. The awed youngsters in the trailer were silent. Jim, facing east and driving, had little chance to look at the magnificent display.

The search party crept on, across four miles of gently rolling plain, around occasional craterlets, toward the ridges separating them from Picard G and the valley route Rick should have taken. Even Talles, by now, had lost his doubt. He was convinced this was Rick's trail they were following.

As they reached the hills and the slopes grew steeper, new troubles developed. The comparatively loose material that took footprints so well began to give way to bare rock. The breaks in the trail that Talles had fore-seen became more and more numerous. The searchers had to take to their feet once more, headlights supplemented by individual flashlights. Sometimes the track would be recovered two minutes after a break, sometimes not for ten; but the author of the footprints had evidently been determined to keep going east. This conviction always, in the end, let the hunters find the prints again.

By the time they reached the top of the first ridge, the eclipse was nearly over. The bottom of the crimson circle was showing the astonishing "ruby ring" phenomenon. It was a beautiful sight. Yet Marie

did not so much as glance back at it. Well ahead of the others, she reached the top of the ridge. For just a moment she stood looking down and ahead, into another valley. It led back to her right, to the Wilsonburg-Picard G road. Beyond other ridges she could glimpse Picard G itself.

Taruntius X was still out of sight around the shoulder of the hill to her right. Poor as the seeing still was, it was good enough to remind Marie that getting the first ridge out of the way meant more area in line-of-sight, therefore in communicator reach. On impulse she cried out:

"Rick! Can you hear us?"

The others, still below the crest, heard her call. They did not dare speak themselves for fear of drowning out any answer Marie might be getting. They simply hurried as fast as they could to catch up with her. The girl, therefore, was the only one to hear all of the answer.

"Marie! Where have you been? Down in GA? I've been calling off and on ever since I could see Pic G, but no one has answered."

Her laugh was like a sob. Tears of relief streamed down her cheeks.

"Oh, Rick! We're behind you. We followed you from the Ranger relic. We're just at the ridge from where we can see over to Pic G. How far ahead of it are you?"

"Well, I don't know exactly. I reached that ridge maybe half an hour before the eclipse started." It must have been longer than that, Marie thought. Otherwise he would have heard our radio talk when we first came out of the valley. Rick was saying, "I kept on as well as I could toward Picard, but you can't hold to a straight line among these hills even when you can see. With the sunlight gone it was even harder. I've gone pretty straight though, I think, and have crossed a couple more ridges, so I should be between you and Pic G about—oh, maybe halfway there."

Jim Talles was on the crest by now, like all the others, and heard the last few sentences. Happy now, his tensions wonderfully eased, he took over the conversation.

"All right, Rick, the safest thing now is for you to hold up. Don't try to find the rest of the way to Pic G. It's a wonder you got as far as you have—I can't imagine whether it's luck that's kept you out of a bubble, or what. I wish I knew how you managed to duck them in the dark. But you stay right where you are. Even when full light comes back, just stand by until we reach you. You understand?"

But this time there was no answer.

V

Talles followed his own advice. He made the group stay where it was until sunlight returned. Then, with everyone riding, he struck out eastward toward Picard G. The footprints were now few and far between; this side of the ridge had little soft soil even in the hollows. It was not, for now, a matter of following a trail but of interpreting a report, filling in its broad gaps with guesses at what Rick would have done in a particular situation. Jim had developed a healthy respect for Marie's judgment on this point since she had been proven right in her major theory; his respect was shared by all the others. Where there was disagreement, Marie's word carried the weight.

A couple of ridges. Did that also mean "two" to Earthers? Marie thought so, and they acted accordingly.

Straight toward Pic G. But the visible part of Picard G filled thirty degrees of horizon. Which point would Rick have decided was nearest?

Halfway. On what basis? What would have looked like halfway from the ridge? What seemed like half the necessary walking to Rick after groping around in near-darkness for more than two hours? Even Marie felt un-sure about that one.

They finally stopped at what they guessed might have been the place from which they had heard Rick's voice. They were grimly aware that they were only guessing. The ground was rocky, did not readily show prints. They parked the crawler and spread out.

Even in sunlight, many parts of the Moon are hard to search effectively. This was certainly one of them. Moon shadows are intensely dark, since scattered light from the landscape does little to make up for scattered light from the sky. A dark patch may prove to be the foot-wide opening of a bubble deep

enough to contain a person—or a three-inch-deep crater if the lighting is low enough. It is seldom possible to be sure of anything from a distance and, even for Moon-dwellers, distance itself is hard to judge.

There was one easy way to hunt, though. Searchers could go to the top of each hill in the neighborhood and call Rick on the communicators. This was soon done—the only trouble being that it did not work. Either he was far enough away to be in radio shadow from all the places tried, or he was trapped in some local bit of radio shadow such as a bubble. It was the latter likelihood that made detailed searching necessary.

With nine people it does not take long to closely examine, say, a football field. However, a very large number of football fields can be fitted into a single square mile—many more football fields than there could possibly be half-hours left by now in Rick's oxygen cartridge. None of the searchers, other than Jim, had even seen a football field but they all had equally valid mental similes for the job facing them—and the time left to do it in. By reasonable criteria, Rick had about eleven hours of oxygen left. That estimate might not be too accurate, of course; they had no data on his basic consumption rate. There might be one or even two hours more; there might, if he had been particularly active, be considerably less. Nobody spent much time thinking about the latter possibility but all did force their weary selves to move as rapidly as possible ...

One hour's work. Six fissures, about forty dark patches to make sure of, two bubbles—empty. Move the crawler.

A second hour. Two fissures, one bubble, twelve patches.

A third hour. No fissures, a dozen loose rocks at the foot of a slope, with no way of telling how long they had been there. Two bubbles near the top of the same slope. Eight hours left, more or less—emergency? Talles drove to a hilltop to request help from town, the request going via the Picard G relay network.

A fourth hour, with fewer workers. Talles flatly ordered three of the searchers to rest in the trailer. They were dangerously close to utter exhaustion.

A fifth hour.

A sixth. Talles could not see Marie's face clearly, or he would have tried to order her to rest also in spite of his knowledge that she would refuse. Moon-dweller or not, he himself was getting panicky at this point. Somehow the air in his own suit felt stale and oppressive, not quite up to keeping him going.

The remaining searchers were reaching their absolute limit. They had had neither food nor sleep for a good eighteen hours. Yet they insisted on carrying on, even after two dozen fresh searchers arrived from the town.

That was another thing Rick's stepmother could never understand: why so few were sent out in answer to the emergency call. She could not grasp the fact that most of the jobs in a Moon settlement are essential to its survival and the survival of everyone in it. There is some leeway, to be sure. People need recreation as much on the Moon as on Earth, and even Moon-dwellers get ill at times. Still, with a small population completely dependent on a high-level technology, it is not possible to spare many individuals at one time for an unscheduled activity of unpredictable duration.

The additional searchers who did arrive had no more success than the *Footprints* crew.

"He just can't be in this area!" Marie said at last. "My guess is that we lost contact because he started back to meet us before you finished talking. He must have been right on the edge of a radio shadow. Chief—everybody—these new people won't find him. You know they can't. It's up to us. We understand him. *We* figured out what he did, and got this close to him. We're the only ones who can get close to him again."

"You could be right," Talles admitted. He was as weary and discouraged as any of the youngsters—and as determined to keep searching. "Marie, you calculated where we should look for him—led us into radio contact. Can you do it again? Can you tell what Rick did after that one message? And what happened to prevent his answering me a few seconds later?"

"I've been trying," she said impatiently. "I've told you what I think. He must have started back toward us the second I told him we were behind him. His course took him downward, obviously, into radio

shadow. We've passed places where he could have been that would have cut him off the moment he started down-hill."

"Why didn't he go back up when he found himself in shadow?"

"Because he didn't know you had more to say. You told him not to go on—you didn't say until the end of your message that he was to stay put. I'm betting he didn't hear that. Actually I could see four hilltops from where we were then which were just barely sticking over nearer ridges. He could have been on any one of them. We've covered the area of two since then, including the one I still think was most likely."

"Have you figured out why he didn't meet us, if he was coming back for that purpose?"

"He could have stepped into a collapsed bubble, which I don't think he'd do—or he could have broken through a new one. We haven't found him in any bubble hole, though. Possibly he simply got led off by the ground. Personally, I think it would be best just to backtrack to those hilltops, particularly to the one where I think he was, and see where he would be most likely to go at each choice."

Talles nodded, remembered that his helmet was not following his head motion, and made the affirmative hand gesture.

"Right. Or at least reasonable," he agreed. "Just the same, it seems pretty likely that he's had some sort of accident. Otherwise, the chances are, he'd have come within radio range of someone hours ago. If the accident occurred at the beginning, just as he started back toward us—well, he should still be somewhere around here. It seems to me we should keep at what we're doing right now—search this area. It's the best chance."

"Maybe," returned Marie. "But it would make sense for at least one person to follow back and try my idea. I'd be willing to go by myself—" She fell silent. She knew the dangers of traveling alone on Moon territory. She was putting Jim Talles in a completely impossible position.

But Talles didn't consider it impossible. He didn't even stop to think. "Take the crawler," he said. Marie stood motionless for perhaps a second, a startled expression behind her faceplate. Then she whirled and leaped toward the vehicle.

"Just don't turn your brains off," he added as she swung into the cab. Then the machine was rolling smoothly away behind its shadow toward the hilltop where they had started searching. It stayed in sight for several minutes, finally vanished over a ridge.

A sensibly calculated risk, Talles told himself. Even if he did have to worry now about two kids instead of one.

A seventh hour.

An eight and ninth. Another small group of helpers arrived, with the cheerful news that they had seen nothing of either Marie or the crawler, much less of Rick. The news was cheerful only because Talles was able to convince himself that it meant the girl must have found a reasonable branch-off point on the backtrail. The orderly search went on.

Peter Willett caught the first glimpse of the returning crawler. He was so nearly asleep that it took him several seconds to digest what his eyes were trying to tell him. The reaction of Jim Talles to Peter's call was almost as slow. Jim had managed to make the young people take some sort of rest in brief shifts but had had none himself. He watched the slowly approaching machine for perhaps half a minute before finding his voice.

"Marie! Have you found him? Is he all right?" Then, as he took in the astonishingly slow speed at which the machine was approaching, he croaked, "What's wrong?"

"Sorry, Uncle Jim," came Rick's voice. "Marie is asleep. She told me which way to go and explained the crawler's controls, then just could not stay awake. Say, I'm not very good at driving this thing. Maybe I'd better stop here and let you come and take over."

Four hours later, at North-Down, Marie was awake enough to make light of the matter.

"Once you understand how a fellow thinks, it's easy enough to guess what he'll do. The only really difficult choice after I took the crawler was my first one, between a fairly wide and level gully that led southwest and a narrow one that went more nearly west, the way Rick would want to go. I didn't think the narrow one would go through, so I picked the other. I still don't know whether Rick wasted any time

on the dead end. At the next guessing point I had a footprint to help, but it was wrong. Rick must have started one way and then changed his mind. Another blind alley. After that it was easy, until I came to a fault where you could see the Sun coming through—it had to be a clear path west. Partway through it there's a thirty-foot downstep in loose soil, and I could see where the edge had broken away—"

"Bixby's Grave," remarked one of her adult listeners. "How did he get that far off course?"

"That whole area is mostly fault cracks," pointed out Marie. "Most of the time the Sun can't be seen, and sunlight on rocks overhead can be very tricky. Anyway, Rick had left prints in the gully, so I knew I was right by then. It was too narrow for the crawler and I'd gone in on foot. I didn't dare follow Rick over the edge. But I flashed my light on the walls over the step, and he saw it and flashed his. So I went back to the crawler and got a rope and that was all."

"All?" asked Jim Talles. "I wouldn't say so."

"Well, except for the luck. Rick said he'd been asleep down there for a while—the other end was blocked, and the crack the sun was shining through didn't come within forty feet of his level. If he'd been asleep when I flashed my light, he'd be there now and I'd still be look-ing for the other end of the crack so as to guess my way away from him. But how did you know about that? Or were you guessing, too?"

"That wasn't what I had in mind; I neither knew nor guessed. I—"

"I know what I want you to tell me," cut in Jeb McCulloch. "I know you were right, but what made you decide that Rick had gone along the road to Lick E instead of the way up to Pic G as had been planned? I imagine that's what Jim would like you to explain, though I realize he must know the answer."

"Easy enough," Marie D'Nombu smiled. "Which way is Pic G from North-Down?"

"Straight north, of course."

"Right. And Rick knew that from the maps. How did you find north, Rick?"

The boy was surprised. "North Star, of course. You can see—"

Marie shook her head, and grinned at McCulloch.

"No, Rick. It's too bad you didn't get here and start your hike a couple of hours later. Polaris would have been set by then, instead of hanging right above Lick E Pass—and when you couldn't find it you might have remembered that it isn't the North Star here."