

# Blot

by Hal Clement

CHILE STEPPED THROUGH THE INNER LOCK DOOR, AND TURNED white as it closed behind him. The woman at the data station shivered as she felt his presence.

"I'm sorry, Sheila," he said hastily. "Rob wanted to use the lock himself right away, and said I should defrost inside."

"Why didn't he come through first? Armor doesn't have anything like your heat capacity."

"He didn't say." ZH50 had stood still since entering, using his own power to warm up; the frost was already disappearing from his extremities. Sheila McEachern waited, knowing there was nothing to be gained by complaining to the robot, her irritation giving way to curiosity anyway as the lock cycled again. She could hope, but not be sure, that Robert Ling had not wanted to annoy just to gain her full attention.

The valve slid open to reveal a human figure, its armor's gold background fogging briefly under a layer of white as the ship's air touched it. The man unclamped his bulky helmet as its contrasting black started to show again, and flipped it back.

"Chile, you're in the way. Why did you think I wanted you inside first? I was hoping to see the new display as soon—"

"I can answer that." The woman snorted. "You didn't tell him why, just sent him first. Otherwise he'd have taken the reason as an order and given me frostbite while he plugged into the console."

"I would not have injured you, Sheila."

"Of course not, Chile. But you wouldn't have minded making me uncomfortable, with a real order on file."

"And you're still in my way," Ling cut in impatiently. ZH50 crossed to the data console in a single floating step, uncovered its input jack, and inserted the plug now extending from the heel of his right hand. The woman controlled herself; his metal was still cold enough to feel from a few centimeters away, but at least the frost was gone. She aimed her annoyance more appropriately.

"Why all this rush for a new picture? Did you finally find something which isn't too radiation-saturated to date?" She disapproved basically of sarcasm, but had more control over aim than fire power. Ling knew her well enough to ignore the second question.

"We caught another glimpse of Chile's ghost."

"We?"

"We. The lovebirds saw it too, so I'm not floating."

"Did Chile?"

"Not this time, Sheila," the robot answered for himself. "I was with Luis and Chispa near the Banjo, at Square Fifty-four. Robert and the Eiras were at Ninety-one." The woman frowned.

"Then why the hurry to get Chile inside?" she asked. "He could have been here long before you, if you started at the same time from those areas."

"I didn't think of him until I was nearly back. Then I had an idea, and needed him to check it. Luis and Chispa found two more of those blocks a while ago. The Eiras and I heard them; you probably weren't listening. Of course Chile hadn't filed them with Dumbo yet."

"I was listening. And your idea needs all their positions."

"Right." If Ling noticed the remaining sarcasm he ignored it. "Look. Whether we want to believe it or not, those cubes are artificial. Shape may be an intrinsic property of a natural crystal, but size isn't. Even if they were life forms, they wouldn't all match dimensions to four figures. It occurred to me that they might be sensors—detectors of some sort."

"It occurred to Chispa days ago. You didn't want to believe then that anyone else beat us to Miranda."

"I know. I still don't. There's no way a group from Earth could have set up this expensive a trip in

secret, and I can't make myself believe the other explanation. We've been hoping for ETI too long. But I thought of a way of checking." He smiled, with a distant look on his face as though he were contemplating the approach of Fame.

"And?"

"The things radiate—broadcast—infrared patterns, nonthermal ones, at unpredictable times."

"I know."

"Well, we've mapped way beyond the local horizon. If that IR output is being coordinated, there must be a central unit they can all reach. You could have Dumbo mark any points on the map which are in eyeball touch with *all* the cube positions at once. If we're lucky, there'll only be a few. If we're very lucky—"

The woman was already keying at Dumbo, the central data unit.

"And if there aren't any?" she asked dryly.

"Well, it won't prove I'm wrong. It'll just mean..." His voice trailed off as the display popped into view, and a grin split his freckled face. Sheila rolled her eyes zenithward; it *would* happen to Ling. As though he weren't bubbly enough already.

Chile accompanied them, naturally. The display had indicated a projecting spur at the top of a cliff which Chispa Jengibre had called El Barco, from the shadow pattern the sun was casting along its face when she first saw it. It was in block ninety-two, a little over twenty kilometers from the *Dibrofiad*. The location was understandable enough by hindsight; there would be splendid line-of-sight coverage from there. However, a one-hundred-fifty meter fall on Miranda would be dangerous for a human being; even if no limbs were broken, damage to the armor needed against the airless heat sink and Uranian radiation was nearly certain. While *Dibrofiad's* crew had gotten fairly used to two-plus percent normal gravity, this hadn't made anyone a good walker; it was doubtful that anything ever would.

Chile, therefore, viewed a human trip to the cliff as a parent would his one-year-old toddling out on a diving board. The actual visit to the spur must be robot's work, if it had to be done.

The walkers looked ridiculous, trunks leaning forward like a sprinter about to leave the block, but legs almost straight along the same line. Walking is essentially coordinated falling forward, and Miranda needs every advantage to provide much fall. Thrust came from lower leg muscles bending and straightening ankles to drive toes hooked into surface irregularities, since bending the knees very far made them hit the ground. Bumps and cracks were fortunately numerous, possibly due to the expansion of freezing water, though none of the crew had a clear idea how water could ever have been liquid this far from the sun. The "hikers" carried alpenstocks, but used a free finger more often than the stick to keep faces off the ground. Luis, Chispa's husband, had remarked that walking could be called body-surfing if Miranda's water were only melted. His wife insisted that the analogy was too strained, though it was she who had insisted on the robot's name being spelled to look Spanish after the Gold team had won the throw for right to select the name itself.

Whatever one chose to call it, Sheila was as good at "walking" as Ling; everyone, regardless of specialty, shared the field exploration, which was the most time-consuming crew duty.

Chile would stay ahead of them, since he alone dared to leap. His memory held a detailed surface map for sixty or seventy kilometers around *Dibrofiad*, so he didn't have to see his target; he could jump with enough spin control to be sure of landing on his feet; and being built to operate in the sixty Kelvin temperature range, he had no armor to worry about.

The greenish bulk of Uranus hung beyond Stegosaur, the same jagged ridge of carbon-darkened ice it had silhouetted ever since their arrival, changing visibly only in shape as the sun circled above it to produce phase. At the moment it was about eight hours from narrowest crescent, and a slight darkening of the green, showing through the deeper notches of Stego, showed that the fuzzy terminator of the gas giant would be in view shortly.

The party turned to put the planet to their left rear and the sun behind them, and set out. Neither of the other human couples could be seen, but Ling had reached them on the low-frequency sets to report

that the Gold team was going out. Bronwen Eira, engineer and captain of *Dibrofiad*, had acknowledged.

Little was said even by Ling as they went; each person was coming to terms, in his or her own way, with the increasing certainty that they would be the first group to prove the reality of extraterrestrial intelligence. It was hard to believe, like the “yes” to a proposal. Sheila, accustomed to the rugged Miranda landscape as she was, found it now showing a strange, dreamlike aspect; Robert scarcely saw it at all through constantly changing visions of the futures the next hour or two might crystallize. His usual free-time occupation of talking his companion into sharing a name had been put aside, not entirely to her relief. Even the Green and Orange teams, the Jengibres and Eiras, though not going along, were having trouble concentrating on their work; all four had thought of dropping it and following the Golds, though none had so far suggested it aloud.

Travel was fast, in spite of its awkwardness. ZH50 spoke occasionally to guide his companions away from the deeper chasms, though one or the other of them would sometimes issue a startled gasp or exclamation when carried by a “step” over a drop deep enough to jar an Earth-trained nervous system but dismissed by the robot as safe. Their startlingly sharp shadows, that of each helmet surrounded by a Brocken halo visible only to its owner, pointed the way. *Dibrofiad* was quickly out of sight; even had Miranda been smooth, five kilometers would have put the ship below the horizon.

Finally Chile stopped them with a gesture. “We turn left here. A straight path toward the point marked by Dumbo would have brought us to the foot of Barco. Be careful; there is less than a kilometer to go. Be sure to aim no step beyond a spot you can see.”

The speed of the group slowed accordingly, until he stopped them again. “Tripod fashion from now on; use your sticks. No free fall.”

An unusually smooth horizon now faced them. Neither Rob nor Sheila could estimate its distance; none of the numerous wrinkles and shadows on the ground ahead offered any clue to size, and there was no reason to suppose the general surface was horizontal even if they had been able, in the feeble gravity, to be sure of vertical. They knew from the Dumbo display that there was a possibly lethal drop beyond the edge, but this could have been fifty meters away or five hundred.

“Where’s the spur?” Sheila asked.

“There.” Chile pointed. “Its tip has enough downslope to be invisible from where we stand, though if you jump straight up for a few meters you could distinguish

“Thanks, I’m not sure I could go straight up. I’ll take your word. What’s the actual distance?”

“We are just under one hundred fifty meters from the main line of the edge and from the base of the spur. I advise you not to get any closer, but if you want to see me all the way to the end, you will have to. Please go very slowly indeed, and do not pass me under any circumstances.”

Nearly erect now, using the alpenstocks, and never having more than one foot or stick off the ice at a time, the trio edged forward.

“I wish you would stay back,” Chile repeated when the distance had shrunk to fifty meters. “We have no data on the strength of this ice. We could be providing the heaviest load it has experienced since it formed. It would be much safer if I went forward alone and brought back whatever may be there.”

“No collecting yet, Chile,” Sheila replied. She made no comment on the danger the robot had implied, but was conscious of it. The cliff *might* even have an overhang. “Nothing gets moved from its original site until we make final decision about what’s coming home with us. We don’t want to spoil more than we can help for later researchers.”

The robot, who knew this perfectly well, made no reply; but both Sheila and Rob knew that First Law tension must be building up in him. They kept safely behind him as he approached the edge, the woman doing nothing to oppose her companion’s obvious intention to keep ahead of her, and stopped when they were close enough to see the far end of the projection.

There was *something* there. Ling had a scope—a monocular whose eye relief allowed it to be used through his face plate—but this was little help. He could tell that the object was cubical like the other finds, but much larger, seven or eight centimeters on the edge. It seemed to have been set into the dirty

ice of the cliff, with two thirds of its height above the surface and an equal fraction projecting outward. The cube faces they could see appeared to be covered with regular lines of dots which sparkled faintly on their mirror-like background.

“How close do you think you can get, Chile?” the man asked at length, after Sheila had also done her best with the scope.

“Close enough to pick it up, if you wish. I can concentrate better if you stay back.”

“Don’t touch it, but examine it as closely as you can. We’ll wait here on the solid ground; I have some First Law tensions myself, now that we’re near enough to the edge to look down,” Sheila responded.

“Good. I’ll crawl, to get my head as close to it as possible. Shall I keep reporting to you as I note anything new, or merely log it as usual?”

“Don’t bother to tell us. Concentrate on observing.”

That may have been an unfortunate command, especially since both human beings were concentrating on the robot.

Chile’s “crawl” was faster than either watcher would have dared; it took him off the ground for a second or two every now and then. The surface, however, even out on the spur, was cracked and jagged enough to provide grips, so he retained control of his motion.

As he neared the end, his head hid the cube from the watchers. Ling started to move to one side to clear the view, but thought better of it after a step or two; he would have to go too far to be worth the risk.

“I have recorded everything I can sense,” Chile reported after a minute or so.

“What is it? What have you found?” Bronwen’s voice reached them.

“You report, Chile. You can tell her more than we,” ordered Sheila before Ling could start talking.

“It is a cube, six times the linear dimension of those we have found already, to the same four significant figures by which they match each other” replied ZH50. “As far as is revealed by any radiation I can perceive, it is made of the same material. The three vertical faces I can see are covered with a pattern of—”

“Sheila! Back!”

Ling, facing sideways to keep both his companions in view, had seen the danger first, and tucked up at the sight; his cry startled the woman into a different reaction, unfortunately. She straightened slightly, and the motion carried her several centimeters upward.

The crack and bump pattern around their feet had not changed, but a new cliff had reached a height of several centimeters a couple of body lengths behind them. The woman couldn’t quite see it; she had no ground contact; let her turn, and the face plates limited the field of view.

“Jump *back*! At least ten meters! The cliff face is letting go!”

Sheila lashed downward with her feet, but to no effect; it would be two or three seconds at least before she could touch ground again, and longer before she could really aim a leap even using her stick. Ling, thinking quickly, whipped his own alpenstock upward and away from her. He wasted no time watching it spin out of sight. The reaction, as he had intended, sent him drifting downward and back toward his companion.

“Pull your legs up! Be ready to kick hard when I say! I’ll aim you!”

She might have felt like objecting—she had not full confidence in his judgment, and certainly didn’t want him making any sacrifices for her—but was far too sensible to argue at such a time. Drawing up her feet, she let him drift under her.

Ling seized her ankles, and let her inertia slow his upper half, swinging his own feet back under him as their two-body system started to spin. As he had hoped—he always claimed it was a plan—his boots touched the ground closer to the edge than the common center of mass of their bodies.

“Push off!” he snapped. Sheila insisted afterward that he couldn’t really have been planning, since

he knew perfectly well that her mass was much less than his. As she finished her kick he pushed upward on the ankles he still held, and simultaneously thrust with his own feet; but he jumped much too hard. As he was firmly reminded later, human legs are stronger than human arms, and there was no way his arms could transfer all the momentum his legs supplied. Some of it stayed with him as he released her. Sheila spun away from the falling surface as he had hoped, upward and back toward safety. However, instead of being still against the ice to leap again, Rob Ling was also drifting upward, out of touch with the falling block and with nowhere near the speed he had passed on to his companion.

For several seconds, however, he gave no thought to his own predicament; too much else was happening. He was spinning much more slowly than Sheila, but fast enough to get a fairly continuous view of his surroundings. At one moment he could see Chile at the tip of the spur, a second or so later the woman, now several meters above and in the opposite direction. This was all right; but on the second spin, with the new cliff face now over ten centimeters high, a thought crossed his mind.

“Chile! That cube may be smashed when it hits the bottom! Salvage it and protect it!”

The robot had obeyed literally the earlier order to concentrate on the cube, and was unaware of Ling’s danger. He took hold of the object with both hands, using his elbows as fulcrums, and tried to pull it up. It didn’t come, and the leverage started to raise his own body. However, the block gave him a good hold, when squeezed from both sides between his hands, so he was able to double up and bring his feet under him without risk of going over the edge. He placed them on each side of the specimen and began to push himself and pull it upward, increasing his force very gradually to avoid the obvious result of its suddenly breaking free. Ling watched whenever he could, with increasing tension; but before anything came of the robot’s labors, his companion’s voice distracted him.

“Rob, you moron, what were you trying to do? How are you going to get up here? Here—catch my stick!” She tried to hurl her alpenstock toward him, but her own spin betrayed her. He watched it whirl by a meter out of reach, strike the ice, and bury its sharp end in the surface.

“Relax, lady. I’ll get back down in a little while, and can jump again. Look—it’s not falling free; it must be sliding along the break. I’ll catch up.”

“When?”

“Hmmm...maybe ten or fifteen seconds.”

“How far down will the ice be by then? Will you still be able to jump that far?”

“Sure. We’ve all made bigger jumps here. The lovebirds did a forty-three-second one holding hands a couple of weeks ago, when they were celebrating their name anniversary :”

“What’s going on over there?” Bronwen’s voice came in. The Eiras didn’t really resent the geochemist’s frequent way of referring to them, since it was certainly not inaccurate, but her voice was a little sharp.

“Cliff edge broke under us. Still plenty of time to get back up,” Ling replied tersely.

“Chile! How did you—” Sheila’s voice cut in, and broke off as suddenly. Rob was facing the robot as she spoke, and saw nothing to motivate the question; there had been no visible motion by ZH50 since starting to lift. Then his body spin carried the man around to face toward cliff and woman, and the words made sense. Drifting through the vacuum only a few meters from her was a form which, in the dim light, seemed exactly like Chile.

The resemblance was mostly its black color, Rob realized almost at once; this was by far the best look he had had at the ghost. As far as general outline and size were concerned, it could have been any other member of the group. Each environment suit, however, bore a brilliant color pattern matching the team name, pale green for the Jengibres and orange for the Eiras, with black helmets for the men and white for the women. The pattern was for ease of seeing and instant recognition rather than any artistic consideration. For a moment, Ling’s bright hopes collapsed; it *would* have been quite possible for someone to send a group with only robots from Earth. In fact, that had been considered at some length. No ETI...

Then he was facing Chile again, just in time to see the robot’s feet and legs suddenly crush through

the surface.

A robot's reaction time is electronic as far as perception goes, but mechanical response is another matter, especially for one built to work in Uranus system temperatures. Chile's legs sank for their full length, and what in a human being would have been his seat struck the ice sharply. About two cubic meters of the spur's tip broke away under the blow, carrying robot and cube along. Ling watched helplessly as they began to sink slowly beyond the edge of the larger block, which unlike them was not yet falling completely free. Then his attention shifted again at a cry—a real shriek this time—from Sheila.

"What are you doing?"

By the time the man had turned far enough to see, it had been done. The ghost had almost collided with her and seized her arm; for a moment the two had formed another spinning two-body system. Then, using its legs, it had thrust itself off violently in a dive toward the edge, the reaction removing any doubt that Sheila would reach safe ground. Ling wondered for a moment whether it would strike him too; maybe it was a real robot acting under First Law. Then he saw it was aiming at Chile.

He himself was catching up with the main sliding mass, which must still be affected by friction. In a few more seconds he could jump, if he wanted to. A dozen meters up by then, and as far toward his own shadow—no problem. Plenty of time. As he touched the surface about three meters from Sheila's stick, he even considered for a moment whether he should ride the mass down and get a closer look at the newcomer.

Then he realized that this might not be a good idea. The block was starting to tilt outward as friction continued to delay its inner part. He had no way of deciding how much spin it would acquire, but the idea of being underneath when it reached bottom was as unattractive as the technique of climbing around it to stay on top was impractical. A blot of quick-frozen crimson glass under a mass of ice might make the day for some future archaeologist, but Ling was not feeling that altruistic. Chile could take care of things below; the new arrival had to be a robot. Surely no human being would make a deliberate dive into a hundred-and-fifty-meter gulf—though come to think of it such a drop wouldn't *have* to be lethal—and maybe it was nonhuman in quite a different way—just tougher—*why* had it made the leap, apparently using Sheila merely as a convenient reaction mass for orbit correction?

"Rob! What are you doing? Don't stay with that thing—get back up here, idiot!" The man returned to reality with a start which almost separated him from the surface again. He tapped the ground gently with a boot toe to swing himself onto the proper line, and kicked off hard. Again much harder than necessary; he was still rising as he passed over the new cliff edge, and another half minute elapsed before he landed not quite flat on his back. By this time, the detached fragment he had left was nearly halfway down the cliff, and Chile presumably even lower.

"Chile! Report!" Ling didn't wait even to get to his feet to snap out the order.

"I no longer have the cube," was the prompt response. "What is clearly another robot passed me in fall, and snatched it away. I saw it approach, but did not foresee its intentions. It has a somewhat greater downward component than I, and will land first, about eight seconds from now. I question the likelihood of my catching it, unless it turns out to be very much less agile than I. This is poor country for maneuvering. Do you wish me to try?"

"Keep it in sight," Ling ordered without hesitation. "We want to figure out its origin if we can, and what it wants to do with the cube. Observe, and report at your own judgment. "

"Yes, Rob."

"Can you talk to it?" asked Sheila.

"It has not responded to any standard signal impulses. If it was made by U.S. Robots, it is of a series unknown to me."

"Does it emit *anything*?" Mike Eira's voice came across the kilometers.

"Yes, it—pardon, Mike. Rob, it has just reached the ground, and immediately leaped back toward the cliff top. It should be near you and Sheila in fifty-five seconds. Mike, it has emitted many infrared bursts similar to those of the small cubes."

“You’re recording them for Dumbo.”

“Of course. I have now reached the ground, and also leaped.”

“Maybe you should stay below, in case—”

“Too late, Bronwen. Rob said to keep it in sight, and I am now out of touch with the ground.”

“All right. It wasn’t much of an idea anyway.”

Silence supervened, while the robots orbited back toward the cliff top. The stranger just cleared the edge with a near zero vertical component; Chile had made more allowance for error and was three or four seconds longer getting his feet on the ground. By this time the ghost had settled to its knees—it was even more humanoid than had been obvious at first—and bent almost over the edge to put the cube down. A hemisphere which might have been dust, smoke, or ice fog expanded around the point of contact, spreading and thinning radially except where the ghost’s body blocked it, without the puffing and billowing which an atmosphere would have caused. After a few more seconds this ceased to form, and its remnants quickly dispersed to invisibility.

“The cube appears to have been replaced in essentially its original orientation,” Chile stated. Sheila and Ling were still too far back to see clearly, and were not approaching at all rapidly; there would be no loose mass to jump back from if they went over the edge on their own.

“Then we’ll stop worrying about it for now, and concentrate on the other robot,” Rob replied.

“Chile, I’m afraid to ask this, but what can you tell us about the origin—the manufacture—of this thing?”

“As I said, it is not a make familiar to me. Like me, it appears designed to operate at the local temperature. It has no obviously nonstandard engineering.”

“You mean it could have been made by an appropriately skilled designer to simulate the motions and actions of a human or similar being.”

“Yes.”

None of the listeners bothered to ask whether there was any evidence of nonhuman origin; Chile didn’t have that kind of imagination, and certainly lacked appropriate experience. Ling and probably Mike Eira would have been afraid to ask anyway, though they could certainly think of sufficiently specific questions. For some seconds, ZH50 and his companions looked the ghost over silently, while it finished its work and slowly stood up. The human beings could now see some differences between it and their own robot; it was a few centimeters shorter, about Sheila’s height, its legs were shorter and its arms much longer for its size, and there was no neck. The head seemed fixed directly and immovably on top of the trunk.

“It is slightly above ambient temperature,” Chile reported, “but no more so than I. Heat generated by its recent action could explain it. It is certainly not producing low-grade energy at anything like the human rate. “

“Then there is no real doubt it’s a robot.”

“I see no cause for any.”

“Or a life-form that operates at Uranian temperatures,” suggested another voice.

“I have no way to judge that.”

“Get conscious, Luis. A hundred-and-fifty-meter jump? Humanoid shape like Chile’s—”

“I haven’t seen it yet, Rob; you’re thirty kilos or so away. What’s unreasonable about a human shape?”

“It just doesn’t seem likely in this gravity, and with no air.”

“You mean it has a nose? Even Chile”

“No, no, I meant—”

“Clear the channels, everyone,” came Bronwen’s voice. “Sheila and Rob, get back to *Dibrofiad* as quickly as you can. The rest of us will do the same. On the way, think of anything portable and possibly useful in communication; we’ll pick it up and get back out to Barco,’ if that thing stays. Chile, you stay with it. If it moves, follow it. Do your best to record and analyze anything it does and especially anything

it radiates—I know analysis is more Dumbo’s and Sheila’s line, and I’d like to get what you already have back to Dumbo right now, but if that thing can jump up Barco, you ‘re the only one we can count on staying with it. We’ll have to wait for your data dump. Let’s go, people; Chile, observe, follow, and record, at any risk short of loss of data already secured.”

“Very well, Bronwen.”

Once out of Chile’s sight, Rob and Sheila traveled in rather dangerous fashion, taking much longer leaps than were really justified. Both felt that they remembered their former route well enough to avoid any really perilous drops. Even without walking sticks, the time lost recovering footing after a bad landing was more than made up by that saved in the jumps themselves. The sun had moved a little to their right since the start of the walk, but still formed a good guide to the *Dibrofiad*’s direction. Ling was again uncharacteristically silent during the hour of the return trip, and Sheila made no effort to learn his thoughts.

The other two couples were equally in a hurry, and neither had as far to go, so they reached the ship first. The trouble was that, once there, no one could think of any really useful apparatus which could be carried, even on Miranda, and which promised to be more effective in communication with a robot than the lights and radios which they already had and the broader-spectrum equipment possessed by Chile. Dumbo was not portable. They had all gone inside, unsuited, and taken care of physical necessities; conversation had been almost continuous through all this, but no really promising suggestions had been made by anyone.

“Who’d have thought we’d need a language specialist?” Luis growled at last.

“How do you know we do?” asked Bronwen. “It may have been made on Earth, by some group we don’t know about.”

“Did you or Rob try ordering it to come back with you?” Chispa asked Sheila.

“Neither of us thought of it. Chile said he’d tried normal robot-to-robot signals with no response, and I guess we were both so convinced it was alien that ordinary speech seemed pointless.”

“You still should have tried.”

“Admitted. We still can, you know. Call Chile and have him order the thing to accompany him back here, in every symbol system he considers appropriate. “

“Will it obey orders from another robot?”

“Will it know Chile’s a robot?”

“Probably. It radiated infrared, and presumably senses it. It should know that he operates at local temperature, and we don’t. The inference would certainly be within Chile’s powers; we don’t know about this one’s, of course.”

“If it’s really alien, it might infer from that that we’re the robots, with inherently wasteful power equipment, and Chile is a native life-form. The trouble is, we don’t know its background,” Mike interjected.

“You’ve got your feet on the wrong pedestal, dear. If we’re trying to give it orders at all, the assumption is that it can understand us, and must be human made.” His wife didn’t dwell on the point, but went on. “We have to try, anyway.” She didn’t bother to check for open channels; there was always one through to the robot. “Chile.”

“Yes, Bronwen.”

“Any change?”

“None. It is standing facing me, presumably waiting for me to do something. It has now cooled down to ambient temperature; I would say that any doubt about its being a robot is gone.”

“You can’t sense an atomic power source?”

“I am not equipped to pick up such radiation directly.”

Bronwen had known that, but was feeling desperate.

“Try talking to it directly—”

“I have done so, every way I can.”



“This time, send your message as an *order* to approach you. If it responds, order it to follow you back to *Dibrofiad*. “ There was a brief pause.

“No action, Bronwen.”

“If you had received such an order from it, would you have obeyed?”

“Not without checking that the order had originated from a human being, or obtaining the approval of a human being. “

“So we haven’t proved anything. “ There was no response to this; Chile had no reason to interpret the remark as a question to him, and the human beings recognized its rhetorical nature. An uncomfortable silence ensued.

“Bronwen, let me try something?” Ling finally spoke, in doubtful tones. The commander nodded, not bothering to ask the nature of his idea.,

“Chile, the robot replaced that cube as nearly as possible to the place it was before the cliff broke off. It seems concerned with it. Without going to extremes if it interferes, approach the cube yourself as though you intended to pick it up again, and tell us how it—the robot—responds.”

There was another pause, while six people tried to imagine what was happening twenty kilometers away.

“It has interposed itself between me and the cube, and has been moving to stay so wherever I go.”

“Any body contact?”

“No. You said not to go to extremes. Shall I push it out of my way?” Ling looked thoughtfully first at Bronwen and then the others. The commander’s eyes also met theirs, in turn. Finally she nodded again.

“All right, Chile. No real force, just a suggestive shove.”

“Understood, Bronwen.” Imaginations fired up again.

“The response has been complex. It braced itself to resist my push, after I had made contact; naturally, it had to yield some distance to accomplish this. While it was setting its feet, it emitted a brief, very detailed burst of infrared, of the same general nature as we detected originally from the small cubes. This was immediately followed by a similar signal from elsewhere. It then ceased pushing against me and simultaneously seized my arm and pulled. This sent me over the cliff edge. I am now falling, and will be unable to do anything effective for the next fifty-five seconds.”

Ling blinked, and a grin spread over his face.

“Chile, did you determine the source of that other signal?”

“Direction, not distance. I did not move enough for parallax while it lasted. However, its line touches ground just at the edge of Big Drop, in Block Twenty-five, seventy-one meters from the boundary between that one and Block Thirty-seven.”

“Great. Head for that spot as soon as you’re down. We’ll meet you there.”

“All right, Rob. You no longer want me to keep track of the other robot.” It was not a question.

“Don’t worry. It’ll be keeping track of you, I expect.”

“I see.” So did the others, and there was a general rush to get into armor. There was some delay, however, in going outside.

“Hold it,” Bronwen said firmly before helmets were donned. “We’re going to the Big Drop, and no one could stand a twenty-kilo fall; it would be about four hundred and fifty meters on Earth. I still don’t trust the chains, but we link up this time. “

“How close?” asked Mike.

“Fifty meters for the Gold team, twenty for the rest of us. If anyone but Chile has to get near the edge, Rob’s the best anchor, so Sheila can do it. Fifty meters will give him more room to catch the surface, and us more time to help, if she does go over; twenty is enough for us. I’ll carry the rest of the reel just in case.”

“It won’t reach five percent of the way down that cliff!”

“It would take a couple of minutes to fall five percent of the way. We’ll take the chain.”

Her husband nodded. Sheila had paled a trifle, but said nothing. It was true that Ling was the heaviest of the crew, while she herself was lightest except for Chispa. She had no intention of going nearer the edge than necessary, and certainly none of going over, but Bronwen was right to be foresighted.

The chain links were carbon-filament composite a millimeter thick, preformed in jointless loops half a centimeter long and already interlocked. Neither rope nor cable was practical; no known fiber, organic, metallic, or mineral, would remain flexible at Miranda's temperature. The link material had a tensile strength of eight hundred kilograms as straight rod under Earth conditions, dropping to about five hundred at seventy Kelvins, with some remaining doubts about its elasticity in that range and more about the nontensile stresses and possible shock brittleness in its looped shape. No one had wanted to make the field test, but an armored person weighed only about two kilograms.

They did not actually link up until a couple of kilometers from the cliff, in the interest of fast travel; but the robots, of course, were there first in spite of the much greater distance they had had to travel. There was no trouble, this time, spotting the goal.

It too was cubical in shape, but twice as tall as most of the explorers. Like the one at Barco, it was projecting a little over the edge, though not by nearly as large a fraction of its size. It was not obvious whether it was merely resting on the surface or, like the other, set in. The ground was lighter in color here, but at the moment not even Ling was paying attention to mineralogy. In fact, the group only glanced briefly at the big cube; everyone's attention was on the two robots.

These were not standing still waiting, as had been tacitly expected. They were moving around, now slowly, now more rapidly, usually in the very short steps which went with their nearly upright carriage but sometimes leaping straight up for a distance ranging from two or three centimeters to as much as ten meters, sometimes waving arms or kicking. There was no obvious regularity; if they were dancing, which was the first thought to cross most of the human minds, there seemed to be no tune. For a few seconds after stopping fifty meters away, the six people simply watched in silence, trying to make sense out of the phenomenon. Then Bronwen recovered her practical sense.

"Chile, report. What's going on?"

ZH50's answer came at once without causing visible change in his behavior.

"The robot is now exchanging continuous infrared signals with this cube, details of its signals changing as I perform various actions, while its own actions seem to correspond to signals from the cube. I am trying to ascertain the detailed relationship. "

"You mean you're learning its language?"

"The analogy is weak; there seem no abstractions involved, and I doubt that I could work them out if there were—at least, not by myself. Connected with Dumbo, the chances would be better. It appears that the robot is reporting to the cube, and receiving general instructions for action from the latter."

"You mean the cube may be a pure, dedicated data processor like Dumbo, telling the robot what to check but not controlling its detailed limb actions, for example."

"A much better analogy. It is the one which occurred to me."

"Where is its Sheila?"

"I have no basis for a guess."

"How long has this been going on?"

"Since I left Barco. At my first leap in this direction, there was a signal burst from the robot; then it leaped from the cliff top after me." Ling's nod and grin were invisible inside his helmet, but his Gold partner could imagine them.

"Had the robot *received* a signal before following you?" asked Chispa.

"I could not tell; the cube was below my horizon."

"But whenever you've been in a position to receive, such a signal preceded its action. "

"Yes. The best example came about two thirds of the way here, when I happened to be at the top of a jump. A very complex emission from the cube was followed by the robot's ceasing temporarily to

stay with me. It disappeared briefly to the right of our path, and came back carrying one of the very small cubes. It intercepted me at one of my landing points, and extended the object to me. I took it. It then took it back and placed it on top of its own head, removed it, and handed it to me again. I imitated that gesture also. The cube adhered, but not strongly; I found I could easily remove it, and decided to leave it in place.” The human beings had not noticed the minor addition to Chile’s outline, but could see it easily enough now.

“Why didn’t you—” Bronwen cut off her question; it was plain enough why Chile hadn’t reported the incident. He had been told to observe and analyze, with the implication that reporting should wait until the group had met at Big Drop.

“Have you been able to detect anything from the cube since it has been on your head?”

“Yes. It has emitted simple signals every time I move or change attitude. It is reporting my position, very precisely, to the large cube; that has been easy to work out.”

“Sure!” exclaimed Ling. “That’s what they’re all doing. It’s a sensor network analyzing topographic changes on all this part of Miranda—maybe the whole satellite. Just what we’d do if we had the gear. Someone is checking whether the surface patterns of this iceberg which have been bothering people since Voyager really represent separate fragments of a shattered body which fell back together, or internal movements, or what. The middle-sized cube on Barco is just a relay station; this one is the equivalent of Dumbo, tying all the measures together. When we learn to read its output—Keep at it, Chile!”

“I hope that’s not merely the equivalent of Chispa’s naming a cliff for a ship, or all of us calling a range of hills a dinosaur, or someone’s describing a constellation as a goat or a long-tailed bear,” Sheila responded. “We do like to fit things into patterns, don’t we, Rob?”

“Don’t be so objective. Just because I saw your face in a Rorschach blot when we were being tested for this trip, and the whole world found out about it because the tech couldn’t control her giggles, doesn’t mean—”

“Of course not,” Bronwen cut in. The blot story was not news to *Dibrofiad*’s personnel. “Your hypothesis is sensible, and we can keep on testing it. Chile, has this robot objected to your approaching the big cube?”

“I haven’t tried that yet. I have been working on much more direct and simple signal-action correspondence. “

Ling didn’t stop to check with the commander. “Hold up for a moment and give me that cube, then go on with your tests. I’d like to see if it gives the robot any special instructions when I get close to the center.”

“The robot can see you whether you’re wearing the cube or not, and I’m the one who’s supposed to go near the edge if necessary. I’m less likely to break a piece of it off, after all,” Sheila pointed out.

“We don’t need to worry about the cliff strength here. Would they have put this big gadget where it is without checking? Never mind the cube, Chile, but I’m going to find out—”

Bronwen was somewhat dubious, but said nothing. If Rob did cause the other robot to break off the language lesson, it would at least give some idea of the unit’s concerns and priorities. Only when the man took an unusually long step toward the cube did she utter a caution.

“It’s a long way down, Rob. I said that Sheila would be first if anyone had to go near the edge. You get set to anchor.”

Ling checked himself, a humorous sight under the local gravity and traction. “I’ll head for the right side, Sheila for the left. If one goes over, the cube will catch the chain and be a real anchorage.”

“All right. But don’t get casual.”

“I won’t. Keep an eye on Chile’s friend. I expect it’ll do something, considering how it reacted back at Barco when he tried to get the cube there. “

The whole group eased closer to the edge, Orange to the left, Green to the right, men leading by a few meters, safety chains slack.

Rob was quite right in principle, but hadn’t foreseen the detail. As he approached the right side of

the block, gathering in the free chain as Sheila neared the other, the language lesson was indeed interrupted. Casually using Chile as a kick-off mass, the ghost dived straight for the man, and just as casually used his inertia to keep itself from going past the edge. The push sent Ling over, naturally, since his mass was much less than the robot's.

The chain did not catch on the presumed data unit, for the block lifted itself smoothly a meter and a half to let the line pass underneath as Rob's new momentum pulled it straight.

Quick planning was easy, quick execution impossible. Sheila was standing almost erect, and even though the footing was rough, could not at once leap horizontally; she had to fall to a steep angle in the desired direction first, and this had to take over a second. Pulling up her feet would be no help; she would merely fall straight and surrender what little traction she had without getting the needed tilt.

The other two teams had the same problem. Chispa and Bronwen also started down so that all four limbs could search for traction; their partners, about the same distance from the edge but closer to it than the women, leaped toward each other.

By the time they met, Chile was still helplessly drifting from the push he had received, Ling was starting to disappear below the edge, and Sheila was ready to jump away from it and him. He had released the slack in the chain connecting them.

"Hit *us*, Sheil'!" called Mike. She needed no instruction. A little toe work in the surface cracks headed her toward the two-man system slowly spinning and drifting edgeward as it settled toward the ground. She had bent her knees a little as she went down, and now straightened them firmly.

By the time she reached her target and complicated the system, it was on the ground. Ling was nearly out of sight, and Chile, who had had no control over his original spin, had only partly stopped his flight with his hands and was on the first bounce.

"We've got you, and the girls have us. There's plenty of traction. Start hauling in!" Mike snapped. "Not too hard!"

She pulled quickly anyway. The sooner the slack was taken up and she could start doing something useful, the better. By the time she felt resistance, the falling man was out of sight, one could only estimate how far. She abandoned responsibility for her own safety to the others, and drew steadily, hand over hand, gripping the fine chain as effectively as she could with her insulated gloves. She barely noticed that the big cube had settled back where it had been. From her position, the other robot was hidden beyond it; for the moment, its possible activities didn't concern her.

"Rob, are you all right?" she called.

"Sure. Swinging in toward the cliff now. I take it you're anchored all right—if you come over too, it could be awkward. "

"I'm solid. Don't look down."

"Oh, it's not that bad. There's no haze to suggest distance; my head knows it's twenty kilos, but my stomach isn't sure it's *down*. I'm about to hit the cliff; stop pulling up for a moment so I can catch it. It's pretty rough, and I may be able to hang on myself." There was a pause, and Sheila braced herself for a possible jolt along the chain, but felt nothing. "Missed the hold. I bounced, but only a little. I ought to get it next time. It's not quite vertical, I think; maybe I can walk up it, with the rope helping. Here I come." There was a pause. "Yep, it's not straight up and down; I'm hanging against the rock. You can pull again. So much for the strength of this cliff."

"What? Is it cracking?" Chispa was first with the question, by a split second.

"Oh, no, but if that data unit can fly, our logic was a bit shaky. Just don't stamp, please, until I get back up. More to the point, what's that other robot doing now?"

Chispa, who could see farthest around the right side of the cube, replied, "Nothing. It's just standing there. Why?"

"Well, if you didn't happen to see, I think it pushed me over; and I was wondering if it had shown the same feeling about anyone else. "

"Chile! Keep close to that thing and make sure it doesn't do a repeat!" snapped Bronwen.

“Shouldn’t I be helping bring Robert up? His danger seems more immediate.”

“We can get him. If he’s right—I couldn’t see him on that side of the block—the other danger is greater. “

“I understand.”

“Talk to it, if you’ve reached that level, and ask why it did it,” suggested Ling.

“We have not reached that level of abstraction.”

“At least we’ve learned one thing; this stuff *is* alien,” Rob resumed, very calmly all things considered. “No robot made on Earth could have done that to what it recognized as a human being. We don’t have First Law protection from it. Maybe we don’t have any kind; maybe whoever made it doesn’t use the Three Laws in their design. “

Chile had stopped at last, and was “walking” back toward the scene of action. “Such a positronic brain is not possible,” he said flatly. “I will try to find human identifying signals, if any exist, in its communication with the data processor, but I expect they will be too abstract for my present intuition base. Is Robert nearly up?”

“Nearly.” Ling and Sheila spoke almost together. No one suggested aloud that the ghost’s brain might not be positronic. “There can’t be much of this chain still out,” the woman added.

“The robot is getting between me and the cube again,” Chile reported quietly. “I will go to the left side, so I can help with Robert’s chain. I am still monitoring signals. I can’t get very close, of course, without using force on the robot. I assume that is not yet the policy.”

“Right. Just communicate,” replied Bronwen.

Ling’s gloves, slightly preceding his helmet, appeared about eight meters to the left of the cube, as seen by his companions. Chile was standing within a meter of the same spot, slowly bending over to reach for him. The main anchoring trio lay a dozen meters straight in from the point, at the junction of a “Y” outlined in chain with the other women at its arm tips and Chile at its foot.

This lasted only a split second. Then the alien robot moved again, this time pushing off from the big cube. As before, it plunged for the edge. Chile, almost upright, was in no position to oppose it. He took most of its momentum and flew over Ling’s head; the rest of the push was expended against the man’s helmet, and he followed Chile more slowly.

“Rob!” Sheila screamed, and jerked up her legs in readiness to jump. She recovered control in time to forestall the motion, but not soon enough to let Luis and Mike keep hold of her ankles. All might still have been well if she had released the loops of chain she had been coiling up, but letting go of Ling was the farthest thing from her instincts. The chain transferred part of the robot’s final thrust to her, and after two agonizingly slow bounces accompanied by futile scrabbling at surface irregularities and a shrieked “NO!” she too went over the edge. The startled watchers saw the alien robot, now falling to the safe side of the rim, lean and extend an arm as though to intercept her, but she drifted past out of its reach.

“I think we may bounce out before we hit bottom, but I’m not sure how far down that’ll happen,” Ling remarked. “At least, there should be time to make our wills, if any of us hasn’t done it already.”

“Nine minutes thirty-three seconds,” affirmed Chile. He had hooked a foot under the chain as the other had pushed him, and was now engaged in pulling the three together. “If we approach the bottom, you two hold tightly to each other, and at the last possible moment I will kick upward against you as hard as I can, to take as much as possible of our downward momentum to myself. There seems little chance that this would suffice to preserve your lives, but it is the best I can think of. We have not enough collective spin to help the operation by—”

“Thanks, Chile, but we’ll take your word for it. Rob, was it that robot again”? Things happened too fast for me to be sure.”

“Fraid so. It seems to have a prejudice against me, or maybe against anyone who tried to touch the cube. I wonder why it didn’t come around and get you too before; you were about to do the same thing.”

“That is why I want all three of us together as quickly as possible,” Chile cut in. “It will not harm

Sheila, and will have the cube here to catch her very shortly. She is human. If we are actually in contact, as she and I are now, it will probably not try to force us apart, but if you, Rob, are still at the end of the chain, I am not sure it won't try to break you free. "

"Why? I'm—"

"Please don't talk, Robert. Just pull in chain from your end, too. It will put an uncomfortable amount of spin on us, I fear, but should make you much safer. Here comes the cube."

Actually, there was no hurry. The alien block, with the ghost on top, overhauled them rather slowly, seemed to look things over for more than a minute, and finally slid under the trio over two hundred meters down. Bronwen had plenty of time to unlimber the rest of the chain, but not enough to figure out how to use it.

"Then you solved the alien symbols." Ling was talking before his feet were back on the ground. "But why does that thing regard Sheila as human, and not me?"

"I did not solve them. It was the sort of intuition which apparently any brain experiences; yours, when you organized the shadow pattern Chispa called a ship—"

"And the ridge we all named the Stegosaur!" Mike added.

"And the face Rob saw in the Rorschach blot," continued ZH50. "It happens to positronic brains like mine, too; it may be an inevitable part of any intelligence, natural or otherwise, as I have heard suggested. Dumbo lacks it, of course; it needs Sheila to work intelligently. This other robot has the same quality, positronic or not, and apparently decided that I and the black-helmeted figures were robots, deserving of no special consideration beside the safety of its central system, but that the white-helmeted ones were human."

"Why should it get that idea?"

"Behavior patterns are also data, and can also be connected intuitively. I did it with the robot's actions, it did the same with yours. During the time we were investigating this cube, for example, the men made a point—possibly unconscious—of staying between their companions and the edge of the cliff. I think the key behavior, though, occurred at Barco, when—"

"When this idiotic Galahad kicked me back up the cliff, at his own risk!" snapped Sheila.

"That seems likely."

"But I wasn't in any real risk! I could have jumped up from that slab of ice five seconds before hitting bottom, and landed like jumping off a table!"

"The robot didn't know your limits. It saw the basic action; you were protecting another being, and, I suggest, interpreted that as First Law behavior. The most obvious difference between the two of you was helmet color. The conclusion may have been tentative, if the thing is intelligent enough be that scientific, but it was supported later."

"You trusted human lives to your own guess, then. How does *that* fit with First Law?" asked Luis.

"I did not. The lives were already at risk through no fault of mine. I told you the best action I could suggest at the time," answered Chile. "I also implied that it would be unnecessary; I used the conditional. " Luis blinked, thinking back.

"It's one of those old-fashioned happy endings!" Chispa laughed. "We really have found proof of alien life, and when Chile, or maybe Chile and Dumbo between them, have worked out this machine's code, we'll know everything it's learned about Miranda in however long it's been here. Nobel prizes all around. And all the romance anyone could want." She moved closer to Luis; then, just visibly to the others through her face plate, glanced at Sheila. "Well..." Her voice trailed off.

A snort, recognizably Ling's, sounded in their helmets.

"If I've been that obvious, forget it. There's such a thing as self-respect." He made another, less describable sound.

"I can stand self-respect, even when it slops over into conceit," Sheila said quietly. "It's much better than hinting. How about 'Rorschach' for a team name?"

“Why be subtle? ‘Blot’ is more euphonious. But I’ll go with anything you like. What, except for wasted time, is in a—”

“And maybe the folks who set up this station will be back soon!” interrupted Chispa merrily.