

exchange rate

HAL CLEMENT

Hal Clement—the writing name of longtime science teacher Harry Clem-ent Stubbs — made his first sale in 1942 to Astounding, and became one of the mainstays of that magazine throughout the '50s and '60s, with much of his best short work appearing there. Clement's most famous novel is Mission of Gravity, which in retrospect still holds up as one of the best SF books of the '50s, although I am also fond of the underrated Cycle of Fire. Clement's influence on later writers such as G. David Nordley, Stephen Baxter, Harry Turtledove, Janet Kagan, and others is clear and unmistakable. His other books include the novels Star Light (the sequel to Mission of Gravity), Needle, Close to Critical, Iceworld, Ocean on Top, and The Nitrogen Fix, and the collections Small Changes, Natives of Space, and The Best of Hal Clement. Clement's most recent books are a new novel, Half Life, and an omnibus reprint of three of his previous novels (Needle, Iceworld, and Close to Critical), bound together as The Essential Hal Clement, Volume 1: Trio for Slide Rule and Typewriter (NESFA Press, PO Box 809, Framingham, MA 01701 -\$25 plus \$2 postage. Volume 2: Music of Many Spheres is a collection of short fiction, bringing a lot of Clement's long unavailable work back into print.) He's also rumored to be at work on a sequel to Mission of Gravity. In 1999, Clement was given the prestigious Grandmaster Award by the Science Fiction Writers of America, an award previously won by writers such as Robert A. Heinlein and Isaac Asimov.

Although known as one of the most scrupulously accurate of the “hard science” writers, someone careful to always get the scientific details right, Clement also has a rich and lively imagination, especially when it comes to alien lifeforms, and he has created some of the most memorable alien characters in science fiction. He's outdone even himself, though, in the suspenseful novella that follows, in which harried human explorers (under pressure in more ways than one!) must try to figure out the lifeways and motivations of some extremely strange and enigmatic alien creatures on one of the strangest planets ever portrayed in science fiction — and do it all before the clock runs out.

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rni! Nic! Hold it! Senatsu's found a break!"

The speaker was excited, but neither driver bothered to look up. A "break" on Halfbaked meant little to human eyes; it was a spot where radar frequencies, not human vision, could get through the streaming and usually ionized clouds which kept starlight from the surface. Neither cared to look at stars. They were very worried men at the moment and didn't even look at each other. However, Ben Cloud kept talking, and his next words did manage to get their attention.

"It's near Hotlat plus eight and Rotlat plus eighty, close to the track they should be taking back here."

The operators of the *Quarterback* did glance at each other this time. Facial expressions didn't show through breathing masks. They didn't need to. For a moment both were silent; then the younger spoke aloud.

"Has she really spotted anything definite?"

"She thinks so. She's checking all the usable spectra now. Stand by; she should be through in a few seconds."

Quarterback's drivers looked wordlessly at each other once more, and Dominic hit the quick-cutout that brought the runabout to a halt. Operating any sort of surface vehicle on Halfbaked demanded full attention.

"Well?" said Erni. After all, a few seconds *had* passed.

"Stand by. She's still at it." A longer pause followed, until even the more patient Nic was tempted to break it, but Ben resumed before either listener actually gave in.

"She says yes! It's *Jellyseal's* pattern."

"Anything from the girls?"

"No, but *Jelly's* moving apparently under control and at a reasonable speed."

“What’s that? Or can Sen tell?” cut in the elder driver.

“The tanker’s doing about a hundred and eighty kilos an hour. Must be open country.”

“How’s she measuring that?”

“Tell you soon. Sen’s taking all the advantage she can of the break, but it’ll take a while to cross-check with memory. They’ll probably have to move a bit farther, too.”

“If the speed is real, they’ve probably unloaded.”

“Probably. Maria reported they’d reached what seemed to be the broadcast site and found something city-ish, though she never really described it. That was nearly twenty hours ago as you both know. That was about five hundred kilos outward of where they seem to be now. They could have emptied, loaded up again, and easily be at Sen’s current fix. You can stop worrying.”

“And the natives *did* acknowledge receipt of the shipment, and even said how delighted they were, didn’t they?” asked Dominic. “But no more word was coming from Maria and Jessi. That’s the picture we had from Tricia before we started.

“She was firm about the acknowledgment, yes. Still is. You know how she waffles when a message seems to involve abstractions, though. They were very repetitious, she says, talking about how they understood why we couldn’t send pure hydrogen and commenting again and again on the wide variety of com-pounds there were anyway—”

“I got all that. Paraffin, whether you’re speaking European or North American Anglic, does have a lot of different hydrogen compounds in it. I’m admitting we know the girls got there, but still wondering why we haven’t heard from them since. We’ll stop worrying—maybe —when they say something.” Erni’s tone sug-gested strongly that he wanted no advice as he went on, “You say they’re back-tracking? Using the same route?”

“Senatsu hasn’t had a long enough look-see to tell. They’re just about on the path they took earlier, I gather, but remember we didn’t see them get to it. We did map more than half of it outbound, but I’d say —”

“We know all that!” snapped Erni. “What I want to know is whether Nic

and I should keep on and try to meet them.”

“I’d say no. It made sense to head for the transmission source when they seemed to be stuck there, but now we know they’re moving and presumably heading back here, it seems smarter to wait for them here at Nest.”

“But suppose they still don’t report? How long do we wait? And what could keep them from talking to us, anyway?”

“The same sorts of things that keep us from seeing them as often as we’d like. We’re talking to you all right now, but you’re only a few hundred k’s away using multiple channel cross-link. They’re nearly fifty thousand. We can see even you only occasionally —less often than we can see them, since there are more clouds here on the dark side. You know all that as well as anyone. Halfbaked wasn’t built for long-range talking. It has too many kinds of clouds, too many kinds and strengths of charge dancing around in them, too many winds high and low and up and down and sideways and circular, too much pure distance — “

“And natives who use AM communication but still make some sense. I know all that!” snapped Icewall.

“Then please talk as though you did.” Ben was getting a little short, too. “Look, I know you’re worried, and I know why, even if I don’t have a shared name yet. It’s too bad the girls won the draw for the first load, but even you didn’t try to change it so Nic could go with Maria or you with Jessi. They went. They really weren’t in any more danger pushing a tanker around the landscape than at Nest, except for being farther from help if they needed it, of course. It isn’t as though this idiotic world had any nice stable places where you could put up a building and go to sleep with reasonable hope the ground wouldn’t pull apart under it before you woke up. I know your wives haven’t talked to us since they reported spotting their city, or village, or whatever it turned out to be. That’s a fact. I don’t dispute it, and I can’t account for it except with guesses I can’t support. So go ahead and worry. I can’t stop you, and I wouldn’t if I could. They’re your wives. I still think, though, that you’ll be smarter waiting for them here than going thirty or forty thousand kilos, a lot of it in sunlight, and trying to find them while they’re still moving and we can’t keep good contact, visual or verbal, with either of you.”

“I suppose you’re right,” Erni admitted in a much meeker tone. “Nic? You think we’d better go back, too?”

Dominic Wildbear Yucca — Maria might no longer be alive but he was still entitled to their jointly chosen name because of their children — nodded silently, and without further words looked carefully around through the windows ringing the cockpit. One looked before moving anywhere on Halfbaked. Neither window nor roof port was made of glass; there were too many fluorine compounds in Halfbaked's atmosphere for silicate materials to be trusted. Silicon tetrafluoride is a gas even at most Terrestrial temperatures. Satisfied that no serious landscape change had sneaked by his notice during the talk, he repowered the driving system—stopping was nearly always safer than starting, and the control system reflected that fact—and sent the runabout into a fairly tight turn. The path was wide enough to need little steering care at the moment, though bushes, rocks which had rolled from the modest hills, cracks in the surface, and patches of vegetation which might or might not be on fire could be encountered any time.

The spaceward side of Halfbaked was well covered with what looked to human beings like plant life, though its actual ecological role was still being argued. No animals had yet been seen, unless some of the large and small objects resembling fragments of burned paper which seemed to be borne on the fierce winds were actually flying instead. There was evidence on some of the plants that things were eating them, but the pool for the first confirmed animal sighting was still un-claimed after five Terrestrial months. Two schools of thought were developing among the biologists: the katabolic part of the ecology was being handled by microbes, or was being taken care of by fire.

Drivers could devote very little of their attention to specimen search while their machines were in motion. The *Quarterback* trembled slightly as it moved, partly from ground irregularities, occasionally from temblors, and mostly from winds of constantly varying violence and direction. At their present height above the reference ellipsoid — Halfbaked had no seas to provide an altitude zero — the pressure averaged about seventeen atmospheres, wavering irregularly and on a time scale of minutes by about two each way. With its molecular weight averaging well over a hundred, wind was both difficult and unsafe to ignore.

Dominic nursed the vehicle up to nearly two hundred kilometers per hour. There were few obstacles now in sight, and the red and green deeplights flashing alternately from their masts on each side of the runabout provided shadow patterns easily interpreted as range information. It was better than computer-backed radar in the continuous howl of microwave and longer static emitted by the local plants. The lights also allowed human-reflexive response time; glancing back and forth between

the outside and a screen, no matter how precise and detailed the latter's readings might be, would have put a much lower limit on permissible driving speed much of the time.

Erni kept his hands away from the controls, but watched their surroundings as carefully as his partner. Both could see in all directions even here on night side, since a bank of floods supplemented the deeplights and there was nearly continuous and fairly bright lightning among the clouds overhead. Halfbaked, less than eight million kilometers from the center of its G3-to-4 sun, had plenty of energy to expend on luminous, biological, and even comprehensible local phenomena.

The driver did cast an occasional glance at his younger companion. He would never have admitted that Erni could be more worried about Jessi than he himself was about Maria, but the Icewalls had been married less than three years as against the Yuccas' fourteen, and might possibly be less philosophical about the unpre-dictability of life.

Apparently greater worry was not hurting Erni's driving judgment, though. His "Watch it!" from the right-side station was essentially simultaneous with Nic's cutting out drive again. *Quarterback* came to a quick halt, but not a smooth one.

Active faults don't move smoothly; even on Earth they cause quakes, often violent ones. Under more than seven Earth gravities, the quakes tend to be much more frequent and no less violent. Both drivers floated quietly at their stations and watched; there was nothing else to do until what they saw made detailed sense.

The fault could be seen half a kilometer ahead, though rain was starting to fall, but there were no hills close enough to offer a threat of slides or rockfalls. If there had been, it was likely that not even trained driver reflexes could have coped with all the probabilities, and more worry would have been in order.

The ground movement was largely horizontal, they could see and feel. The fault started from some indeterminate point to their left, slanted across in front, and extended out of sight ahead and to their right. It did have a small vertical component; the far side had lifted nearly half a meter since they had passed the level site less than an hour before. Rather casually, Erni reported their stopping and the reason for it to Nest; Ben acknowledged with equal aplomb.

"Unless it gets a good deal higher, we won't have any trouble in

getting past,” Icewall concluded.

“If it’s still shaking, maybe you ought to get by before it rises any more,” was the answering suggestion. Erni glanced at his partner, nodding thoughtfully.

“You have a point. All right. We’ll send out bugs to see if it’s any lower within a kilo or two, and climb at the best place. We’ll call you when we start. If you don’t hear from us in two or three minutes after that, someone come out and collect the evidence.”

“If we can spare anyone.” That point also was well taken, though too obvious to all concerned to be worthy of answer. Energy was essentially limitless thanks to ubiquitous miniature fusion units, and self-reproducing pseudolife equipment was almost equally so as long as there was no shortage of raw material; but personnel on a world like Halfbaked was another matter entirely.

The servobugs guided them to a spot a few hundred meters to the right. The men called them back, powered up again and sent the runabout slowly toward the infant cliff, stopping again some two meters away. Both operators watched carefully for a minute or so. A slip of a millimeter or two every few seconds was accompanied by more shock waves. One could only guess whether an especially large jolt was waiting to be triggered by the car’s weight, but the regularity of the motions themselves was encouraging. Nic retracted the dozen wheels on which they had been traveling and let the body settle onto its caterpillar treads; then, for reasons he didn’t bother to state, he motioned Erni to take over. The latter obeyed in equal silence. Even more slowly than before, *Quarterback* eased forward until the treads touched the tiny escarpment and the front of the vehicle began to lift.

The frequent small shocks became much easier to feel but no more worrisome. The men could see the front of the vehicle lifting but not feel it; up and down, even under heavy gravity, were not obvious except by sight to people floating in water—and sight needed a better reference horizon than this world with its vast size and short atmospheric scale height could provide.

Tension mounted as the mass center of the vehicle approached the edge. Both men clenched their fists and held their breaths as it passed and the machine rocked forward.

In theory, the runabout wouldn’t buckle even if its entire

fourteen-hundred-ton mass —some ten thousand tons weight, here —were supported only at the center. Nesters, however, tended to have an engineering bias toward regarding such theory mainly as a guide for planning experiments. This sort of experiment had been done before but not, as far as either driver knew, with acceleration from seismic waves helping out the gravity.

The body did hold. The impact as it finished rocking forward and the front touched down was gentle, somewhat cushioned by a patch of half-meter-wide, viciously spined growths resembling barrel cacti. Dark red, almost black, fluid which splattered from these crusted over almost at once as the air touched it, but slightly to the men's surprise they did not ignite.

A moment later *Quarterback* was resuming speed with Erni still driving. Nic reported their new status to Nest, added encouraging details about the stresses just survived, and asked for an update on the tanker.

"Still moving, still apparently on the way back," replied Ben. "Average speed about a hundred sixty."

"Did they really slow down, or is that just a better measure?" Nic barely beat his friend to the question.

"The latter, Senatsu thinks. But they're coming, almost certainly backtracking on their original path. They're not heading straight toward Nest, but nearly Hot-south toward the dark side. We're wondering now whether the original guess about travel being better out of the sunlight was right, or if they have some other reason. There's still no direct word from the girls."

The flotation water was clear enough to show part of Erni's frown above his breathing mask, but he said nothing. The clusters of spiky barrels were becoming more numerous, and even though he knew contact would not harm the *Quarter-back* he disliked casual destruction.

The drive settled down to routine. *Quarterback* didn't have far to go by Half-baked standards. They had barely started their trip to the "city" reported by *Jellyseal's* drivers, which was nearly fifty thousand kilometers from Nest along a geodesic and much farther by realistic standards. The topography seldom allowed a completely free choice of path, and it had seemed wise to make most of the journey out of sunlight as long as there was no obvious reason for haste. Keeping the cargo below its boiling point would be much easier, for one thing.

Now, of course, the cargo should be different.

The husbands, when voice contact had been lost, had been worried and planned to take the geodesic route rather than follow the mapped track of the *Jellyseal*, but they were still on the night side less than a thousand kilometers from Nest when they turned back.

The temblors from the shifting fault grew less intense as they moved away from it. This might be due to increasing distance or to actual quieting down of the disturbance. There was plenty of seismic equipment at Nest, and the quakes had probably been detected there; but until a far more extensive network could be set up there would be no way to pick particular ones out of the continuous rumblings and quiverings originating throughout the huge world's crust and mantle.

Neither driver thought of blaming other Nesters for failing to warn them about the obstacle just passed. Satellite mapping through charged clouds was difficult, and anyone away from the base was on his own—or on their own; no vehicles went out with less than two crew members, and no one went out walking. Suits which would let a human being take a step in seventeen atmospheres pressure and over seven Earth gravities, even though Nest had been built in a region of human-tolerable temperature, were not available anywhere.

Techniques *had* been planned for transferring people from a crippled vehicle to a rescue machine, but so far these had not been tested in genuine emergencies. Also they depended on the cripple's not being too badly bent out of shape. Doors had to open . . .

The *Quarterback* had to slow down after an hour or so, as the rain increased. The drops were not staying on the ground, but boiling off as soon as they struck; the resulting mist, rather than the rain itself, was blocking vision. The black, blowing flakes had vanished, whether as a result of blocked vision or because they were washed to the ground could only be guessed. What was falling was anyone's guess, too; presumably fluorine compounds, but emphatically not water. Hydrogen was far scarcer on this world than on Mars or even Mercury.

Dominic made one of his thoughtful weather analyses as the rain slowed them.

"There's a high ridge back of us and to the right, remember? Surface wind seems to be toward the day side as usual, so the air is being pushed up and cooling adiabatically as it reaches the hills. Something's condensing

out, maybe oxides of sulfur or fluorides of sulfur or silicon. We ought to get out of it in a few kilos.”

The prediction, especially the phrase “as usual,” took Erni’s mind off his worries for a moment. This world’s weather was quite literally chaotic; the word “climate” meant nothing.

“How much’ll you bet?”

Nic glanced over at his partner, thankful that his own face was invisible. “Well-I-I —” He let his voice trail off.

“Come on. You’re not going to cut off my best source of income, are you?”

“You should work for a living, but all right. Fifty says we’re in clear air in — oh, twenty kilos.”

“You’re on. Check the odometer.” Yucca zeroed one of the wheel counters. *Quarterback* had been off the tracks since leaving the quake site. “Not that one, friend. It’s center right, not a driver, off the ground a lot of the time, and you know it.” Still glad that his face couldn’t be seen, the prophet activated a driving-wheel meter.

Erni rather pointedly made sure it was actually counting, his divided attention almost at once giving Dominic a chance to distract him even further.

“Watch it. Boulder.” The runabout swerved rather more than was really nec-essary, grazing an asparagus-like growth three or four meters high and knocking it over before Icewall steadied. Neither looked at the other this time, but the driver did not slow down. Yucca decided that no more needed to be done for a while to stop his friend from worrying. After all, he himself couldn’t help wondering why there had no been word from *Jellyseal*. Ben’s explanation had been plausible, but still. . .

They were still in rain, though quite probably a different sort—Nic could have been partly right—an hour later. The odometer had been stopped and, after a coin had passed from Nic’s possession to Erni’s, rezeroed. There had been two or three more reports from Nest; the errant tank was still traveling, more or less in the expected direction, but still no word had come from its occupants.

“I wonder what they’re bringing back,” Dominic ventured after a long

silence. “The natives didn’t get very specific about what they could trade, though they seemed to want the hydrogen badly enough.”

“According to Tricia,” Erni amended. “Desire’s a pretty abstract concept too, you know.”

“They repeated the request enough times and enough different ways so even she was pretty sure. And you can see why scientists here want the stuff.” Icewall merely nodded at the obvious.

Beings on Halfbaked at all versed in the physical sciences would presumably have detected Element One in the spectrum of their sun, looked for it on the planet, prob-ably learning a lot of chemistry in the process, and possibly found the traces accu-mulated in the crust by eight billion years or so of stellar wind. The urge for enough to do macroscopic research would have matched that of the discoverers of helium and plutonium on Earth, not to mention the seekers for coronium before spectro-scopic theory matured. The human explorers on Halfbaked had understood and sympathized. They had designed and grown the paraffin tanker some humorist with a background in historical trivia had named the *Jellyseal*, loaded it with high molec-ular weight hydrocarbons from the brown dwarf thirty-odd astronomical units out from 51 Pegasi, and sent it to the apparent source of the native transmissions. Communication was still vague, but there seemed a reasonable hope that something of use to human knowledge would come back. Attendant risks to human health and life were taken for granted and accepted.

Except, to some extent and for the time being, by the spouses of the *Jellyseal*’s drivers.

The two men drove, ate, and slept in turn. They felt their way through rain and fog—or maybe it was dust—held their breaths as they threaded narrow valleys where falling rocks could not possibly have been avoided, enjoyed an occasional glimpse of still unfamiliar constellations, speculated aloud about an occasional unusually large blowing object, felt the *Quarterback* tremble in gales which came and ceased with no apparent pattern (though Dominic still tried, usually adding to Erni’s cash reserves), asked without result whether there had been word from their wives, listened to the constant exchange of messages with the natives which were slowly expanding a mutually useful scientific vocabulary, and drew steadily closer to Nest.

The word about the ranker’s motions remained encouraging; it appeared to be under intelligent control. The best evidence appeared when

the *Quarterback* was about an hour out from the base. It took the form of a report from Senatsu Ito Yoshihashi which was not, at first glance, encouraging.

“The girls are headed for trouble, I’m afraid,” she said thoughtfully to Ben.

“How?”

“The path they took out has changed, about a hundred kilometers ahead of where they are now. What was a fairly narrow valley—a couple of kilos wide — seems to have been blocked up by something. It’s filling with some sort of liquid, as well as I can interpret the images. At least, its surface is now remarkably level and higher than before, and if it were freezing I’d expect crystals to do something to the reflection somewhere along the spectrum.”

“Can’t they travel on it anyway?” Cloud was tying *Quarterback* into the communication link as he spoke. “The tanker should float on any liquid I can imagine at dayside temperature, and the tracks would drive it after a fashion.”

“It’s the ‘after a fashion’ part that bothers me,” the observer/capper replied. “I *think*, though I’m not at all sure, that the stuff is spilling out the darkside — Hotsouth —end of the valley; and whether it’s a real liquid-fall or just rapids, I’m doubtful anything human-grown can hold together in either.”

“They’ll see the lake or whatever it is and at least know better than to go boating,” was Erni’s surprisingly optimistic response.

“But what can they do if they want to take another path?” asked Dominic. “Would the maps they started with be any help? Especially the way the topography changes? Wouldn’t they just wind up wandering around in a maze? I’d hate to have tried this trip without your guiding us.”

“I suggest,” responded Ben slowly, “that Sen recheck their general area as thoroughly and quickly as she can. Then she can work out as good an alternate path as possible, and we’ll send it to the girls. They’re not transmitting, but we don’t know they’re not receiving.”

“Why didn’t we call them and ask them to stop, or travel in a circle, or something like that a long time ago?” asked Erni. He carefully avoided sounding critical, since he had to include himself in the list of people who hadn’t thought of this.

“Ask Pete. I’m not a psychologist,” Ben replied. “Sen, what sort of topo information do you have for that area?”

“Pretty good, both current and from the original route pix. Give me a few minutes to match images and check for changes.”

Even Erni remained silent until the mapper’s voice resumed. She did stay within the few minutes.

“All right. Thirty kilos ahead of where they are now, they should turn thirty degrees to the right. Another ten kilos will take them into a valley narrow enough to be scary; they should wait, if they feel any temblors, until things seem to quiet down, and then get through as fast as possible. I can’t resolve the area well enough to guess how fast that would be. Once through they can slow down if they want—there’ll be no risk of rockfalls for a while. Seventy more kilos will take them past the lake, and they can slant to the left as convenient. That will bring them back to the original path sooner or later. They can check whether there’s a river in it now. I’d like to know; I’ve seen plenty of what looked like little lakes, plus the big one at the native transmission site, but nothing that looked like flowing water—it wouldn’t be water, you know what I mean—so far. Got it?”

Ben had been making a sketch map as Sen spoke. He used a polymer sheet and an electric stylus, rather than pencil and paper, since the Nest was also under seven-plus gees and its personnel had the same need of flotation as the drivers. Most of the personnel referred to their rest-and-recreation periods in the orbiting station farther out from the star as “drying-out” sessions, although much of the time in them was spent in baths. Recycling equipment is never quite perfect.

“I think so.” Cloud held his product in front of the pickup—his station was more than a hundred meters from Senatsu’s—for her to check.

“Close as I can put it,” she agreed. “See if you can get it through to the girls.” Nic and his companion lacked the visual connection, but listened with critical interest as the word went out. Ben didn’t have to include them in his transmission net, but it never occurred to him not to. Both drivers looked at each other and nodded slowly as the first message ended; the mental picture they got from it matched the one they had formed from Senatsu’s words. They didn’t actually stop listening as Ben set a record of his words repeating again and again to the relay/observation satellites, but most of their attention went back to the *Quarterback* as they resumed travel. They were now only an hour or so from Nest, but that was no reason to ease up

on caution. They could die just as easily and completely at or inside the station's entry lock as anywhere else on the world.

Fallen rock areas. Risk-of-falling-rock regions. Puddles to be avoided—the liquid could easily be something that would freeze on wheels or in tracks if the temperature dropped a Kelvin or two. It could even be a subcooled liquid waiting to freeze on contact; such things did occur, and there was no way to tell just by looking. Stands of organisms which *could* be smashed through, but which would also produce liquid. Some of these were quite tall; Erni had never visited Earth and was not reminded of Saguaro Reserve, but most worlds with life have xerophytes. Usually the biggest growths were widely enough spaced to avoid easily, but some of the others grew in nearly solid mats.

The men had often driven over the present area, and both noticed that some fairly tall specimens seemed now to cluster along the outward path they had crushed a day or so earlier. Possibly these used the remains of other organisms as nourishment. If so, they grew *fast*.

Nothing corresponding to animal life ever showed itself, and many seriously doubted its presence; but some of the “plants” showed stumps where trunks, branches, or twigs had obviously been severed, though the detached fragments could seldom be seen. Tendrils would still be lashing, as though their owners had been disturbed by something moments before the *Quarterback* passed.

Some of the Nest personnel were beginning to suspect that the number of plantlike growths and patches within ten or fifteen kilometers of the station was increasing as the days passed, but no one had yet made a careful study of the possibility. It might be interesting, but was not yet obviously important.

Quartermaster was in a relatively open space when Ben's voice caused Erni to cut drive reflexively.

“They're turning, she thinks.” The lack of nouns bothered neither driver; they didn't even bother to ask, “Which way?” They simply floated at their stations and listened. The oxygen monitor in *Quarterback* recorded a sharp drop in breathing rate, but not for long enough to cause it to report an emergency. Cloud would probably not have been bothered by such an alarm anyway; unlike the monitor, he was human.

Senatsu improvised quickly. The atmosphere was fairly clear around

her target at the moment, and she was able to set up an interferometric tie between the tanker's reflector and a nearby bright spot—a stationary one, she hoped. This let her measure the relative motions of the two within a few centimeters per second. It took less than half a minute to show that *Jellyseal's* direction of motion was changing, and another minute and a half established that the machine had straightened out on a new course thirty degrees to the right of the earlier one.

Coincidences do happen, but human minds tend to doubt even the real ones. For the first time in many hours, *Quarterback's* drivers really relaxed. The re-remaining distance back to Nest was covered calmly and happily, though neither man remembered later much of the conversation which passed. With anyone.

The reception lock had been readied for them, its water pumped into a standby tank, and the doors opened as they approached. Dominic eased the runabout inside and powered down as the door sealed. The two waited while water flowed back, pushing the local air which had entered with them out through the roof vents, and was tested. As usual, more time was needed to neutralize the sulfuric and sulfurous acids and to precipitate and filter out the fluorides formed when the air had met the liquid, but at last they could open their own outer seal, check their personal breathing kits, and swim to one of the personnel locks occupying two walls of the "garage." Erni pointedly allowed Dominic to precede him into the main part of the structure, though the latter was not entirely happy at receiving attention due to age. Fifteen years out of fifty wasn't that much of a difference, and he was the taller and stronger of the two.

Of course, it was a relief to know the youngster had stopped worrying enough to be polite.

Jellyseal had been about a month—more parochially, seven years—on its way to the native city, or settlement, or camp, or whatever it might be. By the end of the first day after the return of the no-longer-anxious husbands, it seemed likely that about as long would be needed for its return. Perhaps, Senatsu remarked hesitantly, a little bit less. "They're making slightly better time right now than they did going out, but they're still on the sun side, and will be for days yet. They can see better, after all. When they get to the real terminator we can find out how much they have to slow down. They'll be easier for me to see in the dark, too."

This remark was no surprise to her listeners. The tanker of course carried corner reflectors for the microwave beams from the satellites, and

with less reflected sunlight, and thermal and biological emission from the planet's surface the contrast between vehicle and surroundings would be a lot better. All this except the greater plant emission on the day side had been discovered, and much of it predicted, long before. Nic and Erni, together as usual and just returned from a test drive, simply nodded at Senatsu's report, and went on about their routine work.

Much of this involved the preparation of the second tanker, already being called *Candlegrease*. Most of the staff were from colony worlds where conditions were still fairly primitive, and in any case human educators had had the importance of detailed history knowledge forced on them after the species began to scatter. Candles had no more disappeared from humanity's cultural memory than had cooking—including making jelly.

It had occurred to several people that towing a paraffin tank as a trailer might involve less trouble in a number of ways, and possibly even be safer for the crew, than driving one as a tank truck. It was taken for granted that another load of hydrocarbons would go to the natives, even though no one yet knew what value the material now coming back might turn out to have. There was a natural sympathy for the needs of researchers, and at the very least whatever it was couldn't help but supply information about the natives themselves. *Jellyseal's* slow approach was being watched with interest by everyone, not just the waiting husbands.

Nearly all the labored communication with the native city dealt with science; most of the linguistic progress that had been made so far had come from computer correlation between human vehicle motions, which the natives seemed able to observe even at great distances, and radiation emitted and received from the observing satellites. Discussions tended to consist of comments about orbital perturbations and precessions and their connection with the planet's internal structure. Computers at Nest were gradually building a detailed map of Halfbaked's inner density distribution and, more slowly, a chart of its mantle currents. Not surprisingly for a planet a hundred and seventy-seven times Earth's mass, almost five times its radius, and over seven times its surface gravity, plate tectonics was occurring at what the planetary physicists considered meteorological speed; and the plates themselves were state- or city rather than continent-size. This made travel interesting and mapmaking an ongoing process. Since the establishment of Nest, one couple who had arrived as meteorologists had shifted over to crustal dynamics and been welcomed. They had been rather glad to make the change, though a little embarrassed at flinching from a challenge. Halfbaked's atmosphere had a dozen major components, mainly but not only fluorides and oxides of sulfur and silicon, varying in completely chaotic fashion in relative amounts with time and

location and ready to change phase with small variations in temperature, pressure, input from the sun, and each other's concentration.

Reliance on miracles was not, of course, a useful solution to any problem; but some of the staff occasionally, and of course very privately, felt slightly tempted. After all, the supernatural could hardly be *much* less useful at prediction than the math models produced so far.

So what talk there was with the natives tended to be on the physical and material rather than emotional planes. Even mathematical abstractions, critical as they were to chemical discussion, were not progressing well. It was not even certain that the others knew—or cared—about the returning tanker.

Tricia Whirley Feather, responsible for the final steps in guessing what the computer-derived translation attempts might actually mean, was just about certain the paraffin shipment had been received and appreciated. She had no idea what-ever what, if anything, was being sent back in exchange. She was not at all certain that the concept of “exchange” was clear to the natives.

But *Candlegrease* was nevertheless being grown and modified outside in the Halfbaked environment, where the more serious planning errors should show up quickly. An overpowered and overweight runabout, named *Annie* from another ancient literary source, and intended to tow the carrier, had been more or less finished. At least it was driveable and Erni and Dominic were testing it. There was little general doubt that these two would make the second trip, though Ben had some personal reservations. These were finally resolved almost by accident.

The regular planetological work of the station was kept up, of course. More than two dozen satellites, in orbits out to about ten thousand kilometers above the surface, were cooperating with a seismic net slowly spreading out from Nest in working out the planet's internal structure, surface details, and atmospheric behavior. Progress was at about two doctoral theses per hour, Ben Cloud estimated.

And, presumably, each hour was also bringing Jessi Ware Icewall and Maria Flood Yucca seventy or eighty kilometers closer to their husbands. *Jellyseal* was making good speed.

She was also getting close to the dark side.

Actual construction of the new tanker system was going well enough, whenever decisions could be made; pseudolife techniques had taken most of the delays and difficulties out of actually making things. The problems of designing them re-mained, however. Ideas which seemed great by themselves would turn out to be incompatible with other equally wonderful ones when people attempted to grow them together. Whole assemblies which had promised well in computer simulation were embarrassing failures when grown and tried out. The communication lapse from *Jelly* was more than worrisome; her crew, who had the ordinary skills at pseudolife design even if they were not actually experts, presumably had far more knowledge relevant to the problem than anyone else on the planet.

The supposedly straightforward problem of traction on unknown surfaces for a vehicle expected to tow several times its own weight was attaining Primary status. Erni, Dominic, and several other sets of drivers were kept busy on test runs which ran, too often, straight into a new problem. Sometimes they didn't think of their wives for whole hours, though they never failed to check in with Senatsu when they came back in.

"They'll be seeing the last of the sun in an hour or two," the analyst remarked at one of these meetings when the return distance still to be covered had shrunk to about thirty thousand kilometers geodesic. "They're already a lot easier to spot, and don't seem to be having any trouble finding their way. They've swerved two or three times, but never very far, and apparently for things like that fault of yours.

That, by the way, is now about three meters high and seems to be still growing; it's lucky it's not on their return path. I've suggested that Ben send someone out to see how much horizontal shift it's shown. I can't tell from satellite — can't get sharp enough ground motion details without a set of retroreflectors at a known location. Want to make the run?"

Dominic shrugged. "Okay with us, if Ben calls it. We might as well be doing something."

"You are already, it seems to me. Well, we'll let him call it. If he thinks you'll be better off growing up with *Candlegrease* and *Annie* then someone else can go. Or no one, of course, if he doesn't think it's important enough."

Cloud, after only a second or two of thought, decided the information was important enough to rate a close look, and six hours later —people still had to sleep — *Quarterback* was heading away from Nest on a Hotpole bearing of about seventy degrees, with her usual drivers aboard.

Some changes along the track could be seen almost at once. The tall growths which seemed to be springing up where vegetation had been crushed on their first trip out were now much taller. What had looked like two-meter stalks of deep red, dark brown, and dead black asparagus now resembled giant saguaros with, in many cases, the bases of what had been separate stalks now grown together. A former clump or thicket now seemed like a single plant with multiple branches probing upward. Neither driver liked the idea of trying to plow through these, so progress became much slower and less direct. Sometimes they had to retrace some distance and try a new route. Eventually they settled for paralleling their former path rather than trying to follow it.

They speculated over the chance that the organisms they had casually pulped the first trip out might be serving as food for saprophytes, and reported the idea back to Ben. Ten minutes later he told them to collect specimens. The xenobiologists also wanted data. Life on a virtually hydrogen-free world needed investigating. Especially life whose carbon content far exceeded ninety percent, as well as zero hydrogen.

Collecting would have slowed them even more, but Erni and Nic decided to do it on the way back and rolled on, with the fence of organ pipes to their right and a relatively clear path ahead.

The quakes produced by the still active fault made themselves felt well before the actual structure came in sight, and *Quarterback* was slowed accordingly. The operators stopped a short distance from the scarp, which was now, as Senatsu had reported, over two meters high. The big saprophytes, if that's what they were, were not doing very well in the quake area, and no longer formed a barrier. It was therefore possible to follow the verge to the right for several kilometers; but no practical way down could be found. Neither man trusted the structure of their vehicle enough to drive over the edge under local gravity, even without the problem of getting back up. Also, even if the body had survived, the impact would probably have treated the men like dynamited fish.

Servobugs — waldo-controlled pseudolife vehicles ranging from ten centimeters to half a meter in length and eight kilograms to nearly eight hundred in weight—were of course cheap, and they wasted one of the smallest and presumably sturdiest in a test drop over the edge. It did not survive, but the sacrifice was considered worthwhile.

At this point Senatsu made another report, changing Ben's plans and frustrating several xenobiologists. *Jellyseal* had passed out of the sunlit zone, and seemed to be having trouble finding its way. Guidance

information had been sent from Nest as before.

This time it was not followed.

Requests to stop and perform specific maneuvers to show that Nest's messages were being received also went unheeded, or at least unanswered.

Ben, knowing his personnel, promptly suggested that *Quarterback* drop its present mission and try to intercept the tanker. After all, things might as well be official, and the husbands would certainly do this anyway. Senatsu and her helpers would do their best to provide guidance starting from the runabout's current position.

There was no need to go back to Nest for supplies, since all the vehicles had full recycling capacity and adequate energy sources. Knowing this had discouraged Cloud from even thinking of sending anyone but the two husbands. Upon hearing of the new behavior, and without even waiting for the first guidance messages, Erni swung their vehicle Hoteast—a quadrant to the right of the line toward Hotpole — and slanted away from the scarp. Haste was not exactly a priority with the two drivers, since they would be many days on the way whatever the machine driven by their wives might do, but there would be no delay. Worry was back in charge.

The geodesic connecting the two vehicles of course no longer crossed into Hotside, rather to Ben's annoyance. He wanted more detailed information about the problems of driving in sunlight, for use in future mission planning. His nature, however, was practical as well as sympathetic, and he made no suggestion to either Senatsu or the *Quarterback's* drivers about slanting a bit to the left if opportunity occurred. Two or three times in the next weeks he had brief hopes that the only practical path the mappers could find might lead a little way into sunlight, but each time he was disappointed.

Erni and Nic were not. They were worried —still no word from their wives — and frustrated as Senatsu guided them through a maze of hillocks, around obstacles organic and topographical, past puddles and lakes of unknown composition, and once for over fifty kilometers paralleling a cliff about as high as silicate rock could be expected to lift against Halfbaked's gravity. She had warned them against getting within a kilometer of the edge of this scarp; they were on the high side, and there was no way of telling whether or when the tonnage of *Quarterback* combined with the fantastically rapid erosion by the fluoride-rich wind and rain would trigger collapse of the whole section of landscape. Being part of a seven-gee

landslide would not be noticeably better than being under one. She had only used the route at all because it offered tens of kilometers of relatively flat surface which would permit maximum speed; and even then, she and Cloud had debated the idea for some time with Nic and Erni out of the comm net.

No one felt very much better when, some ten hours after the *Quarterback's* passage, the cliff did collapse in four or five places as far in as the runabout's track.

"I wonder," Nic remarked when Ben relayed this information, "whether I'll yield to temptation a few years from now. It'd be so easy to turn ten hours into ten seconds when I'm telling about this to the kids."

Then of course it was too late to bite his tongue off. Erni, who was driving at the time, said nothing for several seconds; then his only words were, "I'm sure I would."

The *Jellyseal* was making poor progress, according to the satellite observations. Time and again she seemed to have headed into a dead-end path and had to backtrack. One encouraging fact was that the same mistake was never made twice; it looked as though the drivers were on the job. No one could yet believe that the following of the earlier instruction had been coincidence, so the general idea was now that whatever had gone wrong earlier with the tanker's transmitters had now spread to the receivers as well. What this might be seemed unknowable until the machinery could be checked at first hand; all the communication gear in every vehicle on the planet was multiply redundant. Disabling it should take deliberate and either highly skilled or savagely extensive sabotage.

No one could suggest a plausible or even credible motive for either the drivers or the natives to do such a thing, and it seemed highly unlikely that the latter would have the requisite specific skills in spite of their obvious familiarity with microwave transmission. Knowledge of principles does not imply ability to design or repair complex unfamiliar equipment.

But the tanker remained silent and apparently deaf, though it continued to move as though guided by intelligence.

"At least," remarked Erni after they had received another report from Senatsu that their target was once more backtracking, "They're not forcing us to make changes in *our* path. If the girls had actually been making headway back home, we'd have had to change our own heading all the time."

“Come on, young man,” came Senatsu’s indignant voice. “Don’t you think I’d have been able to work out a reasonable intercept for you? I wouldn’t have kept you heading for where they were at the moment. I know you’re worried, but don’t get insulting.”

She was not really indignant, of course, and Erni knew it, and she knew Erni knew it. The art of trying to keep the youngster’s mind off his troubles was now being widely practiced at Nest. It was lucky that most of the divergently planned help efforts had to funnel through one person.

In a way Erni knew all that, too. Oddly enough, the knowing did help. People may resent pity, but honest sympathy is different; it lacks the condescension.

Maybe that was why so few people seemed to feel that Dominic needed help, too.

Actually, the efforts were not really necessary most of the time. The journey itself was far from boring. The basic need for constant alertness when running at high speed across poorly known topography left little time for unrelated thoughts while on duty, and caused enough fatigue to ensure deep sleep between hitches.

The world itself was different enough from anything familiar to human explorers; it took much of the attention not needed for guiding the runabout.

Not all of the differences were obvious to the operators. Power consumption of the vehicle, for example, recorded at Nest, indicated that it spent over two thousand kilometers climbing one side and descending the other of a three-kilometer-high dome; Nic and Erni heard only indirect echoes of the arguments as scientists tried to match this information with that from satellites and seismograms.

The assumption that the world had a nearly equipotential surface, with strength of crustal materials essentially meaningless, was presumed to be even truer here than on any merely one-gee planet. The drivers had not noticed the changes in actual power needed to keep a given speed; they merely knew they were three thousand kilometers closer to where they wanted to be.

They could tell, of course, when it was possible to keep a given speed; only rarely was the way open enough —and when it was, they had to be even more alert for the strange things which might change that happy

state.

Once, and once only, was there an animal, a definitely living thing moving sluggishly across their path leaving a track entirely stripped of vegetation, large and small. There was no way to see its underside, and hence no way to tell whether it was traveling on short legs—which would presumably have had to be numerous—or, though no trail was visible, something like the slime track of a gastropod. The biologists did manage this time to get a plea through Ben's near-censorship. They wanted the *Quarterback* just to change course the slightest bit and roll the thing over *en passant*, and leave a servobug or two to examine it more closely. . .

The drivers were not sure their vehicle could roll over something about its own size, and even less certain that the creature itself could do nothing about it if they tried. They promised to make the effort when the present emergency was ended, preferably much closer to possible help from Nest, and drove on. The bugs were controllable from only a short distance in the biological static.

The debate was picked up by the natives, who wanted to know what "animal" meant. No one could explain with the available symbols. This was not surprising; but during the next hour Nic and Erni saw, swooping around their vehicle, objects which looked like the familiar blowing bits of black paper at a distance but which, seen close to, were clearly gliders—tossing, banking, and whirling in the wind as though barely under control, but clearly aircraft. This was duly reported to Nest. The report, presumably detectable by the natives, elicited no comment from them.

Quarterback was now a little closer to the sunlit slightly-more-than-hemisphere (the star covered fourteen degrees of sky). The generally active tectonics had not changed significantly, but the air was decidedly warmer and the plants, possibly in consequence, more luxuriant. Nothing resembling leaves had been seen yet, again unless the apparently charred blowing sheets qualified, and there were bets among the biologists on whether such organs would be present even under direct sunlight. The drivers of *Jellyseal* had failed to report any, but this meant little when one considered the planet's area. Special enlarged organs for intercepting stellar energy did seem a bit superfluous with the star scarcely a twentieth of an astronomical unit away. However, considering the illogical structure of vertebrate retinae, there was no predicting all the odd paths regular evolution might take.

Cloud made few requests of the husbands, no matter how urgently

his halo of researchers begged. He did pass on to them the suggestion that more and bigger plants might mean more if not bigger animals, but left any changes in driving policy up to them. They made none; they were already as alert as human beings could well remain.

The final two-thousand-kilometer segment of the run was frustrating, over and beyond the general annoyance built up over twenty-two days of unbroken driving. The men were, in what now might almost be called straight-line distance, less than three hundred kilometers from their still moving goal. They could not follow a straight line; that way was a labyrinth of seamed, faulted, broken hills where even the satellites could detect almost constant rockfalls. The *Quarterback* would not have to be hit by a rock; a wheelbarrow load of sand could put her instantly out of commission, and help was now tens of thousands of kilometers away. There was no option but to go around the region. Senatsu was apologetic about not having seen the details sooner, but she was easily forgiven; her attention had been confined by their own needs to areas much closer to the travelers for nearly all the trip.

Erni responded to the news with a rather rough jerk at the steering controls; his partner fully sympathized but made the signal to change drivers. The younger man had enough self-control to obey, and the runabout set off in a new direction with *Jellyseal* now off toward its left rear. The sky and its omnipresent clouds flickered even more brightly than usual, as though in sympathy—or perhaps de-rision. Fortunately, neither driver had reached the state of personalizing the in-different world. No one even considered how close this state might be.

It would not of course have bothered the planet, but could easily have distorted important judgments.

Cloud, whose telemetry had of course reported the moment of rough driving, was a little worried; but there seemed nothing he could do, and nothing he should say, about the matter.

The two thousand kilometers took three infuriating days, though the last few hours were eliminated by *Jellyseal's* luckily, though apparently fortuitously, moving to a more accessible spot and actually stopping for a time.

The pause might have been due to her being in the center of a twenty-kilometer nearly circular hollow—almost certainly *not* an impact crater—with eight different narrow valleys leading from it. She had already

explored two of these, according to Senatsu, and been forced to turn back; maybe the drivers were debating which to try next, Ben suggested.

Neither husband could believe this for a moment. They knew their wives would have planned such a program much earlier. The faces behind their breathing masks were now grim. They made no answer to Cloud, but Erni, now driving again, sent them zigzagging at the highest practical speed along a rock-littered canyon which Senatsu had assured them would lead to the hollow. Nic did not object. The sooner they were out from between the looming eighty-meter walls, the better their chance of living to see —

Whatever might be there to be seen. The satellite images were, after all, only computer constructs.

Rocks fell, of course, but continued to miss. Neither man had any illusions about how much of this was due to driving skill, but neither gave it much con-scious thought. The canyon opened into the valley twenty kilometers ahead.

Fifteen. Ten. Five.

They were there, and neither even felt conscious relief as the threatening cliffs opened out. They could not at once spot the tanker, and stopped to look more carefully.

The trouble was that none of the vehicle's lights were on. Deeplights might of course be out because it was not moving, but the floods, and the smaller but sharp and clear running and identity-pattern lights which should have been on were dark, too. It was long, long moments before Erni perceived the tanker's outline against the faint, flickering, and complex illumination of the lightning-lit back-ground.

He pointed, and Dominic nodded. The younger man had been driving through the valley, but now Nic took over and approached their motionless, lightless, and possibly —probably? —lifeless goal. Erni was calling frantically into the short-range multiwave communicator. Neither was surprised at the lack of an answer; frantic was a better word.

Tracks, wheels, and much of the lower body of the tanker were crusted with something white, but the men paid only passing attention to this.

There should at least have been light coming from the cockpit. There wasn't. Something else strange about the windows seized the attentions of

both men, but the *Quarterback* was within fifty meters of the other machine before this got the door of consciousness open.

Lights inside or not, the windows should have been visible as more than dark slots. Anything transparent, silicate or not, reflects some of the light trying to get through.

But the sky, which was a good deal brighter than the ground, was not being reflected from *Jellyseal's* windows. They were lightless gaps in the not-very-bright upper body. And the reason now became clear to both observers, drowning out the screaming denials of hope.

The windowpanes were not there. Maybe, of course, the occupants weren't there either, but where else could they possibly be? And more important, where else could they possibly be alive? What besides local air was in the tanker's cockpit? Even Dominic, with the means of looking waiting at his fingertips, had trouble making the fingers act.

But they did, slowly and much less surely than usual. He slipped into waldo gloves, and a servobug emerged from the runabout. Briefly—perhaps less briefly than usual—it checked out its limbs and lights, and made its way across to the tanker's relatively monstrous hulk.

It could climb, of course. There were holds on the outer shells of all Nest's vehicles, the bug had grasping attachments on its "legs," and the machines had been designed and grown to be used in rescue techniques as well as more general operations. It made its rather fumbling way up *Jellyseal's* front end, and finally reached the openings which had once held barriers intended to keep in the flo-tation water, keep out one of the few environments in the known universe more corrosive than Earth's, and still let light through. Nic was guiding the little machine by watching it from where he was. Not even Erni asked why the bug's own eyes had not been activated yet.

Yes, the windowpanes were gone. Yes, the bug could climb inside with no trouble. Yes, the last excuse for not using its own vision pickups was gone. Without looking at his partner, Nic turned on the bug's eyes and his own screen.

It could not at once be seen what was in the cockpit. Nothing human showed, but that might have been because vision reached little more than a meter into the chamber. It was blocked by a seemingly patternless tangle of twisted branches, ranging from the thickness of a human middle finger down to rather thin string. The colors filled the usual range for Halfbaked

vegetation, from very dark maroons and browns to dead black.

The stuff was very brittle, far more so than anything living should have been. Nic tried to get farther inside. The bug, under his waldoed direction, reached out to one of the thicker stems and tried to use it as a climbing support. Several centimeters of the growth vanished in dust and the machine overbalanced and fell into the cockpit. It left an elevator shaft as it pulverized its way to the floor, and Nic had to go through cleaning routines as black dust slowly settled through the dense air around and upon his mechanical agent.

Both men were now watching the relay screen, but things weren't much im-proved. The bug was still surrounded by the tangle, and as it moved slowly across the floor kept smashing its way through a three-dimensional fabric of seemingly charred growths. The stuff was brittle, but not really frail. A significant push, comparable to the bug's weight, was needed actually to break the thickest of the branches. It was only when they broke that they went to powder.

The cockpit was far larger than that of the *Quarterback*, more than five meters across and eight long, and it was many minutes before most of the floor had been examined. The bug was now moving around under an artistically tangled ceiling twenty centimeters or so high, supported by many pillars of unharmed branches. It left tracks as it went in a two- or three-millimeter-thick layer of black powder containing many short fragments of the branches.

There was no sign of a human form, living or otherwise, anywhere on the floor, but there was all the evidence anyone could ask that the tangle above could never have supported a human body in the local gravity, and flotation water was gone. Erni finally reported this aloud, his voice as expressionless as he could make it, and summarized the observations forcing this conclusion. Ben acknowledged and opened channels for everyone at Nest.

"We want to look farther, not consult!" Nic objected. "There ought to be some sort of indication what happened. Where did the windows go, anyway?"

"They'd probably be the first things to give if the refrigeration failed and the water boiled suddenly over in the daylight," Cloud pointed out reluctantly, "unless someone who knows the structure better doesn't think so. Speak up if anyone does. Anyway, it seems better for you to bring the tanker back here for really close checking, and if at all possible *not* spoil

any more evidence in the cockpit. The growths you reported seem to be very frail, and therefore different from the ones we've seen, and it would be better if there were something besides powder to be examined here. Don't think we're forgetting about the girls, but if there's to be any hope of learning what happened, we need data. You can see that."

"We can see it," retorted the younger driver, "but there are still items we'd like to examine ourselves."

"What? There was only that one compartment they could have lived in. The whole rest of the machine was paraffin tank, with its contents melted wax for the last part of their trip, and presumably native air for the return—unless you think it was evacuated when the cargo was unloaded, and you'd have seen if it were flattened. So would Sen. What do you think you can find, anyway? You're not set up for microscopic or high-class chemical testing."

"We could find leaks, if they were big enough to—to make things happen so quickly there couldn't be any alarm sent back."

"I'd think small ones could have wrecked communication before they knew anything was wrong. But all right, I'll take it on my responsibility—go ahead and look for leaks between cockpit and tank, but do leave *something* of the stuff you've been smashing up for people to study."

"All right. But how do you expect us to get *Jellyseal* back with her cockpit uninhabitable? There's no way for us to refill it with water even if we could reseal the window openings."

"We're working on that. Go ahead and make your search."

The men obeyed, Erni rather sullenly, Nic more thoughtful. The floor and rear bulkhead of the cockpit and the rear third of each side wall were between living chamber and cargo space, so there was a large area to be examined. How this could be managed without destroying all contact between walls and branches was not very evident. Human remains are large enough so that the first search had left many columns of undamaged vegetation still touching the floor, but to examine the walls for pinholes or even nail holes would be another matter. Nic thought for two or three minutes before trying anything, his partner waiting with growing impatience.

"You know," Yucca said slowly at last, "if there was actually a leak between cockpit and tank, would the windows have blown out? There's a lot of volume back there for steam to expand into, even if it was nearly full of

wax. There were several cubic meters full of local air to allow for the paraffin's expanding as it warmed, whether it melted or not."

"I still want to look."

"I know. I don't want to give up either. But think. Whatever chance the girls have of being alive, it's not on board that machine. The natives could have—"

"You mean they might have. But would they have known how? Could we keep one of *them* alive anywhere near Nest, when we have no idea about what they need — except maybe in temperature? And if they're alive, why haven't they called us?"

Dominic gestured toward the tanker a few meters away. "What with? Do you think any of the comm gear is still in working shape?"

"You two find that out, pronto," came Ben's voice. "There's a good chance, the design crew thinks. If enough of it works you can use the bug that's in there now to handle it. You find out whether it can still be set to receive short-range stuff from you, or if the controls are in shape to be handled by the bug itself. In one case, it may be possible to set up for *Jelly* to follow you by homing on transmission from your car. In the other, it'll be a lot harder, but one of you using the bug's handlers should be able to drive *Jelly* while the other runs *Quarterback*. That'll be almighty slow, since you'll have to stop to rest pretty often instead of swapping off, but it should be possible."

"But—" started Erni.

Cloud spoke more gently, and much more persuasively. "You both know most of what little chance there is that they're alive is if they're somewhere under the sun. We don't know just how smart these natives are, but remember that *they* got in touch with us, after hearing our satellite and vehicle transmissions. Let's get that machine back here and find out what we can from it. Even if time is critical, and I can't say it isn't, aren't the odds better this way? We can try to ask the natives, too, though a lot of language learning will have to come first, I expect."

"How do you know the odds are better?" Erni was snapping again.

"I don't, of course," Ben maintained his soothing tone, "but to me they *seem* better with a whole population of smart people working on

finding out just what did happen.”

Nic nodded slowly, invisibly to Cloud but not to Erni.

“I suppose that makes sense.”

“Something else makes sense, too,” Erni added grimly.

“What.”

“Tricia got the idea that the natives were pleased with the variety of hydrogen compounds we’d supplied. I wonder just how big a variety they got.”

“And I pointed out that the tanker did have a lot of different hydrocarbons, which I think the locals call carbon hydrides,” Nic countered instantly. There was at least a minute of silence.

“All right. We’ll bring it back if we can. But I’d like to know one thing, if Tricia can decode it from the local static.”

“What?” asked Ben.

“Do the locals know what water is, or at least do they have a recognizable symbol for it even if they call it oxygen hydride, and —did they thank us for any?”

Again there was a lengthy pause while implications echoed silently around in human skulls. No one mentioned that the request was for *two* things; it didn’t seem to be the time.

“She’ll try to find out,” Ben answered at last, in as matter-of-fact a tone as he could manage.

“Okay. We’ll go over *Jelly’s* controls.” Dominic, too, tried to sound calm.

The controls did seem to be working. This was not as startling as it might have been; all such equipment was of solid-state design and imbedded —grown into — the structures of the various vehicles. There might be mechanical failure of gross moving parts, but any equipment whose principal operating components were electrons stood a good chance of standing up in Halfbaked’s environment as long as diamond or silicon were not actually exposed to fluorine.

There seemed, however, to be no way to set up the tanker's system simply to home on a radiation source, moving or not. No one had foreseen the need when the machine was designed. The closest thing to an autodriver in any of the vehicles was the general-shutdown control. There were no smooth paved highways with guiding beacons or buried rails on the planet. While systems able to avoid the ordinary run of obstacles on an ordinary planet were part of the common culture and could have been incorporated in the Halfbaked-built machines, these were *exploring* vehicles. Avoiding obstacles was simply not their basic purpose. It had been taken for granted that they would be operated by curious, intelligent people who had a standard sense of self-preservation but would be willing to take risks when appropriate.

That left trying to drive *Jellyseal* with the handling equipment of a servobug. This proved possible but far from easy, and even Erni agreed that an hour or two's practice in the open area was probably a good idea. With some confidence established by both, Dominic sent the *Quarterback* toward the valley by which they had entered while his younger companion, looking through the rear window of the cockpit, concentrated on keeping the larger vehicle a fixed distance directly behind them.

He was feeling pretty confident, almost relaxed, by the time the entrance narrowed before them.

With a brief exchange of one slightly questioning and one somewhat shaky "Okay" they entered the passage, very conscious that even at its empty weight the larger vehicle was much better able to shake the walls down on them than was their own runabout. Of course, *Jelly* also made a bigger target; but possibly a few dents or even a few holes in its body might not be critical now. Of course assuming that a house-sized boulder with the potential energy provided by a hundred-meter cliff under seven plus gravities would merely *dent* its target did seem unreasonably optimistic. Both men were optimists, even with the present probable status of their wives, but they were also reasonable; and while Nic did fairly well at concentrating on his driving, Erni's eyes kept wandering much too often from *Jellyseal's* bulk behind them to the cliffs beside and above.

As earlier experience had warned, rocks did shake loose from time to time. It seemed very likely that the vibration of their own passage was the principal cause, since most of them slashed across the narrow way somewhat behind the *Quarter-back* and its companion.

Not quite all. Four times a deafening bell-like clang reached the men's ears, deafening in spite of the poor impedance matching between the planet's atmo-sphere and their vehicle's body, and between the latter and the water inside. The bodies of the machines were not, of course, of metal, but they had enough metallic elasticity to ring on impact.

Jellyseal was the victim all four times. Fortunately the missiles were much less than house-sized and *Jelly* seemed not to suffer enough damage to keep her from following. This fact did not cause Dominic to relax until they were out of the danger zone and had started to backtrack their way around the Patch of Frustra-tion, as they had named it.

At this point, Ben called again.

"There's a new track for you. You don't have to go back around to the way you came. Stand by for directions — "

"Stand by for directions — "

"Stand by for directions — "

That became the routine through their waking hours and days for the ensuing weeks. What with sleep time and difficulties in guiding their "tow," they averaged less than seventy kilometers an hour. The weeks went by, the monotony relieved by Senatsu's messages, variations in wind and weather, and local biology. No more animals had been seen, or gliders, though the latter had inspired much argument at Nest. Neither had anything been said about the pot the two drivers had pre-sumably won on the way out; neither man thought to mention it, and for some reason no one at Nest brought the matter up.

The men were simply far too busy to think very much about the missing women, though they certainly did not forget them. When it was reported that *Candlegrease* was about ready, and Ben suggested that she be loaded and start at once for the native "city" with another crew, Nic and Erni both protested furiously. They tried to be logical; Erni insisted that talking with their wives during the first trip had given him and Nic a better idea of the route and its problems than anyone else could have. Ben countered that everyone on Nest had heard the conversations as well, and if necessary could replay the records of them. Nic supported his partner, pointing out that there had to be shades of meaning in the messages which only people who knew the speakers really well could be expected to catch. This was an unfair argument to use against the unmarried Cloud, but

fairness was not on either driver's mind at the moment. Ben privately doubted the validity of the argument as any bachelor might, but had no wish to be sneered at—by many people besides the bereaved husbands—for preaching outside his field of competence.

He tried to point out the value of time. Nic countered with the value of familiarity; he and Erni were, aside from Maria and Jessi, the only people who had traveled really far from Nest. Cloud gave up at this point, agreed to wait for their arrival, but used their own argument to insist that two additional drivers go with them to gain experience.

Erni asked pointedly, "Is *Candlegrease* set up to support a crew of six?" The coordinator almost gave himself away by asking *what* six, but made a quick re-recovery.

"It will be by the time you get here." Suggesting that there would probably be no need to take care of six was obviously unwise and might, just conceivably, be wrong. Human life, even other people's, means a lot to civilized beings. A species which has survived its War stage and achieved star travel practically has to be civilized.

Ben kept his word. The second tanker was ready, loaded, and set up to keep the women comfortable if they were found, by the time Erni and Nic got back to Nest. There was a second argument when they insisted, or tried to insist, on starting out at once to the hot side in spite of their extreme exhaustion. Ben won this one, but only by promising not to let *Candlegrease* move without them, so almost another Halfbaked year passed before the medics pronounced the two fit for the trip.

There had been no delay, of course, in examining *Jelly's* cockpit, though this had to be done with bugs. Bringing the machine into the garage and flooding it with water so that living researchers could swarm into it would quite certainly destroy any evidence there might be.

It was quickly discovered that breaking the brittle contents did not pulverize the whole branch, merely two or three diameters to each side of the break. Cutting or snipping at two points far enough apart, therefore, detached an apparently un-damaged section. Since the tank was full of the stuff too, there was no shortage. After a few mistakes resulting from failing to catch them on something soft as they fell, several lengths of the material were brought into "outdoor" labs, and biologists and chemists went happily to work with their bugs.

The material was not very different from the tissues already investigated from the local vegetation. It was rigid rather than pliable, of course, and it finally occurred to someone that the stuff, having come from the hot side, might merely be frozen. This was easy enough to test. A sample was heated up to the probable temperature, as indicated by radiation theory and measurement from the satellites, of the Hotpole latitude where the “city” seemed to be. Long before it warmed up that far, the branch being tested was flexible as rope. Several of the investigators began privately to wonder whether they might be working over the remains of one of the intelligent natives, though no one suggested this aloud until well after *Candlegrease* had departed. Ben had the idea, but decided to save it; Erni might get bothered again.

What brought the question into the open was the observation that after a day or so at high temperature, most of the branches, or roots, or vines, or whatever they were began to grow fine tendrils. The stuff was still alive.

This was quickly reported to Ben Cloud, leaving him with the decision of how much to pass on to the now fairly distant second expedition. On one hand, the information was clearly critically important to anyone expecting to be in direct contact with the natives. On the other, Nic and Erni might be uncomfortable to learn that their examination of *Jelly's* control compartment might have dismembered one of the people they were going to meet.

Or, considering what had so probably happened to their wives, they might not. The other two drivers were a married couple, Pam Knight and Akmet Jinn Treefern, and the Treeferns might keep the other two in discussion rather than brooding mode. Ben hoped the fact that they were short, stocky, extremely sturdy people from a one-point-four-gee colony world would not become important, but he was getting uneasy over Erni's patience limits.

Ben was still trying to make up his mind —there was plenty of time yet before the travelers could presumably meet any day side natives—when another discovery was made.

One of the many short sections of branch from the debris on the floor of *Jelly's* cockpit had been part of one of the samples to be warmed up. It had not responded; it had neither softened nor grown extensions. After giving it several days, first with the rest of the sample and then by itself, it had been sequestered for more detailed study.

Halfbaked's life, it was now known, consisted mostly of carbon, with

modest traces of nitrogen, oxygen, and heavy metals such as iron and titanium. The complexity needed for biological machinery was obtained not from hydrogen bonding within and between proteins and carbohydrates but from variously sized fullerenes and graphite tubes flared, tapered, curved, and branched by occasional heptagons, pentagons, and octagons in their mainly hexagonal carbon-ring nets. The “proto-plasm” was considerably coarser, on the molecular scale, than anything known before to human biochemistry, and its peculiarities were contributing heavily to the Ph.D.-per-hour rate Cloud liked to brag about.

The unresponsive segment was quite different. It had a fair amount of carbon and some iron, but there was far more sodium, calcium and phosphorus than had ever been found in the native life, and the carbon for the most part was tetrahedrally bonded. It took a while to discover the reason, and this happened only when one of the chemists sat back from her diffraction spectrometer and its confusing monitor pattern and took a close naked-eye look at the specimen.

Then she called for a medical helper, who needed one glance.

The branch was the charred remains of a human little finger.

This made Ben’s communication problem more difficult, but in another way. It also forced him to face it at once. He faced it, reporting as tersely and calmly as he could to the distant *Annie*.

“But why only a finger?” tiny Pam asked instantly, before either of the now confirmed widowers could react. She was honestly and reasonable curious, but was quite consciously trying to ease the shock of the message for the husbands. It was not really necessary; Nic, and even Erni, had become more and more ready to face the news as the weeks had worn on. “You two went over the whole floor, square centimeter by square centimeter, you said. Why didn’t you find a lot more —and a lot more recognizable? Maybe it’s just as well you didn’t, of course, but still I don’t see why.”

Dominic was able to answer at once, though Erni had thought of the explanation as quickly.

“It was small, and they missed it.”

That was all he needed to say. Even the “they” needed no clarification. Every-one in the tug heard that much and could picture the rest. Ben Cloud and more than fifty of the Nest personnel who were in the

comm link could do the same. They listened while Dominic, in surprisingly steady tones, went on, “Ben, did Tricia ever get an answer to that question we asked a while ago about the natives and *water*?”

“Not that I know of.” Cloud found his voice with difficulty. He had expected losses on *Halfbaked*, but the fact that none had occurred in the nearly half a Terrestrial year the party had been there had undermined his readiness. “I’ll try to find out. Carry on. And we’re sorry. I don’t know what else to say that wouldn’t be pure Pollyanna; but you know we mean it.”

“We know.”

“You also know, I expect,” Ben’s voice was even softer, “why I had another pair of drivers with you.” It was not put as a question. Ben, a slender half-gravity colonial, did not commonly think of muscle as useful, but he was a realist.

“Yeah. Thanks. Don’t worry. Erni, time for you to take over. We still have things to find out up *Hotnorth*.”

The sun would be starting to rise in another two thousand kilometers or so. Temperature was higher, though the principal surface winds still brought chill from the dark side; turbulence sometimes mixed in air from above, not only coming from sunlit regions but heated further by compression as it descended. Dominic still sometimes contributed to Erni’s financial security with an attempted weather forecast, but the variables he could think of were becoming too numerous even for his optimism. Motivation for such predictions remained high; they had identified another potential trigger for landslides. Suddenly hot or suddenly —by two or three hundred Kelvins — cold blasts of wind sometimes cracked off scales of rock by thermal shock. The cracks, fortunately, were never deep; but the layers peeled off were sometimes extensive and their shattered fragments dangerous, especially as the pieces were often thin enough to blow around.

The tank in tow was struck several times, forcing travel to cease while it was examined carefully by servobugs, but so far damage had been confined to small dents. The one strike on *Annie* had caused no damage at all, possibly because the traction problem had forced her to be grown with much extra weight.

They had seen and avoided the common puddles of unknown makeup, but as the sky ahead grew bright these became larger areas and more frequent. *Annie* avoided them, though the returning *Jellyseal*

apparently had not. The white crust on her tracks and lower body had turned out to be mostly cryolite, sodium aluminum fluoride, regarded by Greenland natives on Earth as a peculiar form of ice because it would only melt in the flame of a blubber lamp.

It was now pretty obvious who, or what, had driven the tanker homeward. Dom-inic had already compared the fate of the driver with that of his wife, but had not spoken about it to anyone. For one thing, a lot of the *how* remained to be worked out. The tangle of apparent vegetation might, after all, have been some sort of remote control system; this world's plants did emit and receive microwaves. Maybe no intelligent being had been on board, at that. This could all tie in with the natives' immediate spotting of, and beaming signals to, the satellites when these had gone into operation months before. The graphite microtubes in Halfbaked tissue often circulated metal ions and could serve as antennae, among many, many less obvious things. It seemed more and more necessary, and more and more easy to believe, that the real life was at the source of the signals. And maybe *one* of the girls...

No, Don't think of that. Whatever had happened to them had happened very quickly—one could believe that, at least—and pretty certainly to both of them at once.

But it looked as though veering around lakes might not be really necessary, since they were going Hotnorth and anything that froze on the vehicles now should melt off again shortly. Nic did suggest this. Pam vetoed the idea at once.

"How do we know how deep these things may be?"

"Do we need to? We'd float. We're only twice as dense as water."

"That wouldn't matter to us, but could we drive, towing like this?" Nic had no answer, and they continued to stay on solid, if sometimes shaky, ground. Neither of the other men had taken part in the debate.

Just as they glimpsed the upper limb of the sun, a new sort of adventure eased the boredom. They were threading their way through a stand which looked much like the "Saguaro" patches Nic and Erni had found earlier. The growths were not always far enough apart for the tank, and much as they disliked it, there was sometimes no alternative to hitting and bending pairs of these, or sometimes break-ing them completely. They were leaving a clear trail, not that this was their main worry.

Nic was glad afterward, though he was far too busy otherwise to think of it at the moment, that none of his attempted weather predictions was pending. With no warning at all a far stronger wind blast than any of them had experienced so far made itself felt to the driver. Organ-pipes bent and snapped in all directions.

And, though there had been no lightning, burst into flame. For minutes they drove through the enveloping blaze, making no effort to avoid anything. The mere fact that there was no free oxygen outside meant nothing; it had not occurred to anyone to consider what the paraffin would do in unlimited supplies of this atmo-sphere. There was no free fluorine to speak of, but the variety of fluorine com-pounds actually present offered far more possibilities than any of them had time to consider. Pam joined her husband at the driving controls; Erni, with remarkable self-discipline, beamed a running report of what was happening for any satellites in position to relay to Nest; Nic deployed one of the more versatile servobugs and drove it beside them, ranging back and forth along the tank and looking carefully for any signs of rupture. After a few seconds Pam, deciding her husband needed no help—he was not attempting to dodge anything—took out another bug and covered the other side.

They were out of the stand, and out of the fire, and presumably out of danger after three or four anxious minutes. The wind now came strongly from ahead; Nic judged that the fire had set up a strong updraft which was bringing in air from all directions. Erni, with no wager going, didn't bother to disagree, and neither of the others found the suggestion unreasonable.

A few hundred meters from the nearest flames *Annie* and *Candlegrease* were stopped and all four of the crew made a slow and minute inspection of tug and tow using the bugs. There was little worry about their own vehicle; they would have been aware of serious damage within seconds of incurring it. A slow leak in the tank, however, was another matter. It was assumed that the natives were equipped to unload the paraffin at their end; they had been told as clearly as possible what it was, and would presumably be ready to keep any of the precious hydrogen from escaping. Also, they had made no complaint about the first delivery.

But no one had tried to find out what the paraffin itself would do to local life. It seemed very likely that hydrogen compounds would be about as helpful to Halfbaked's organisms as fluorine ones in comparable concentration would be to Terrestrial tissues. Also, many paraffin components were high enough in molecular weight to sink in the local atmosphere; they would be mixed and diluted quickly by wind, of course,

but wouldn't rise on their own.

The travelers reminded Ben of this, and asked for suggestions. What if they *did* find a leak, even a small one? Should they come back, at least to Hotlatitudes where the paraffin would freeze again?

"I'll have to ask around," was all the coordinator could say after some seconds of thought. "Get along with your inspection, and let us know. For now, we'll assume the worst."

"What would that be, to you?" asked Erni.

"That you're leaking so badly there's no way of getting any of your load to where it's supposed to be delivered. That would make the decision easy, but I hope it isn't true."

So did the crew, but they were still careful.

There were half a dozen patches of liquid near and under the tank, but there were two similar ones near the tug, and several more within a few tens of meters. There seemed no reason to suppose they were hydrocarbons, since they seemed neither to be evaporating nor reacting with the now quite hot air, but they were watched carefully for several minutes, especially those under the tank. At Nic's suggestion, they moved the vehicles a hundred meters to an area where no puddles could be seen, and waited for more minutes.

Nothing dripped. No puddles formed. Nothing seemed to be leaking. This was reported to Cloud. He had had time think, or someone had, and his answer was, "Check every bit of the tank you can get an eye close to for the tiniest cracks, leaking or not, which may show. Remember the one in *Jelly*."

"*What one in Jelly?*" asked two voices at once.

"Didn't I tell you? No, come to think of it, that just led to more questions, some of them still not answered. We think we know what happened, now. The refrigerators meant to keep the paraffin from boiling when the surroundings got really hot did a good job, but when the liquid was drained, we suppose by the customers, the tank naturally filled with local air. Some of this, maybe sulfur trioxide, formed frost on the coils and insulated them, so air at its regular temperature — eight or nine hundred Kelvins or more, depending on the local weather — swept in and hit the rear bulkhead

of the cockpit. This was too thick, it turned out.”

“Too *thick*?” There were more than two voices this time.

“Too thick. A thin glass will handle hot washing fluid better than a thick one. The body composition of the vehicles is as strong as we could make it, but it’s also a very poor heat conductor, as intended. It bent in toward the cockpit just a little under the pressure, and that added to thermal shock to start a U-shaped crack in the rear bulkhead from floor to floor, and straight along the floor, framing about ten square meters. The area was pushed into the cockpit momentarily by the atmospheric pressure, far enough to open a gap maybe one or two centimeters wide all around. The support water, or enough of it, boiled almost instantly, the windows blew out, and the steam pressure slammed the flap back where it had come from so tightly the crack was practically invisible.”

“And you never told us? Why not?” asked Pam.

“Well, it couldn’t happen to you. Your living space isn’t even in the same vehicle with the cargo. One point for the towing idea.”

“And several points minus for keeping us in the dark!”

“We’ll check for cracks,” added Dominic, as steadily as he could. They all turned their attentions back to the bugs.

The fire had almost completely died out. So had the wind from Hotnorth. Dominic, glancing away from his work occasionally, saw that the pillar of smoke was sheared cleanly at, he judged, nearly a kilometer above, with the higher part whipping back toward Hotsouth. It was high enough to glow for some distance in the sunlight against an unusually dark and cloud-free sky. He was tempted to try another weather guess, but firmly turned his attention back to *Candlegrease*’s body. So cracks could be really hard to see . . .

Hard, or impossible. None were found, but no one could be quite certain. Absence of evidence is not—

They drove on into heat and sunlight, more silently than before, with a bug following on either side, its operator constantly scanning the tank. More words were spoken in the next few hours by Senatsu with her guidance information than by all four of the tug crew together.

No one was exactly in a panic, of course, but everyone had enough

sense to be uneasy. Erni and Nic were more relaxed than the Treeferns now. At least they seemed to be.

“Open ground for about thirty kilos.”

Ninety minutes of silence.

“What looks like a compression fold across your path ten kilos ahead. Two possible passes. The wider is four kilos to your right. Turn twenty-two degrees right to thirty-seven.”

The planet’s magnetic field was too distorted to provide reliable direction, but enough of the sun was now in sight to indicate Hotnorth—and make driving into it uncomfortable. The new heading was a relief.

The wider pass had walls high enough for the left one to provide shade for nearly a hundred kilometers, a distance which did not lift the star’s disc perceptibly. The valley was not a recent feature; the walls on both sides were greatly collapsed and eroded. Had it been much narrower the travelers would have had a problem threading their way among the fallen fragments.

“Lake eighteen kilometers ahead. Stay close to it on its left.” When they reached the lake, there was not very much rock-free space to the left of the liquid, but there was presumably even less on the other side; the drivers trusted Senatsu. She herself was developing more confidence as reports from the tug kept filling out her interpretations of the satellite radar.

She hadn’t spotted the vegetation which grew densely along the shore, but this gave no real trouble. Erni and Nic thought of the fire now far behind, but there was no sudden downdraft this time. There was, as usual, lightning.

“It could happen,” Dominic remarked. “The right wall is pretty high, and wind flowing over it would drop sharply and heat up by adiabatic compression— “

“How much?”

It was Akmet who asked this time, but Nic declined to bet. Erni wondered whether his friend was actually learning, or simply didn’t want intruders in their friendly game. He said nothing; he was driving. Bet or no, there was no fire, and eventually the Hotnorth end of the lake came in sight.

“Head right along the shore.”

Erni started to obey before realizing it was not Senatsu’s voice. This was not too unusual; the Yoshihashis shared the muscular fitness supplied by constantly fighting water’s inertia, but even they had to sleep sometimes.

“Who’s on?” Erni asked, before realizing that the voice wasn’t human either. The answer was unexpected.

“What?” This was Senatsu, recognizable even through the biological static, now familiar enough to be tuned out fairly well by the human nervous system.

“Who just told me to head right?”

“No one. You’re in fine shape.”

“You didn’t send the message? Or hear it?”

“Neither. Repeat it, please.”

Icewall did so.

“That did not come from here, or through satellite relay in either direction. Is it a native voice?”

“Turn right. You do not turn right.”

Pam was quickest on the uptake, and was first at the communicator. “Why should we turn right?”

“The symbol ‘we’ is unclear. Turn right for safety and information.”

Erni had done a quick-stop by now.

“Sen, did you hear that?”

“I heard static only, none of it either unusual or structured.”

Treefern glanced at her husband, who nodded. His smile was of course invisible. Pam nodded back.

“Sen, this is what we heard.” She quoted. “Now, repeat that back to us, please. As exactly as your voice will let you, and emphatically word for

word.”

Senatsu obeyed, mystified but guessing this was no time for argument or question.

The message promptly came again, in the new voice, and the observer gasped audibly.

“I *did* hear that! It came through the link.”

“I thought it might. They’re not stupid, and certainly not slow. Erni, fire up and do what they say—but keep your driving eyes peeled!”

“For what?”

“How should I know? Anything. What do you usually watch for?”

Icewall drove without answering. It had started to rain, unheralded by Yucca, and Pam thought of a possibly useful question for their new guide. “How far?”

“Twenty-two point one kilometers.”

“Sen, if you heard that, try to see what’s that far ahead.”

“Sorry. I heard it, but radar isn’t getting through just now.”

“Comm frequencies are.”

“True. They’re not very good for imaging, but I’ll do what I can. Stand by.”

The rain grew heavier, whatever it might be composed of, and Erni slowed sharply. The voice promptly came again.

“Why stop.” There was no question inflection.

Pam answered slowly, with measured and carefully chosen words. “Not stopping. Slowing. Rain. Bad measuring.”

“Rain. Bad measuring,” was the acknowledgment. After a pause, “No rain. Eight kilometers. Not slow.”

“Eight kilometers,” answered the woman. “Sen, you heard that? Can

you see what's eight kilos —kilometers —ahead?" There were many listeners by now. Most could guess why Pam had corrected to the full length of the distance label. They also wondered which form the unknown guide would use the next time distance was mentioned.

Tricia Feather's voice came through to the tug.

"Much more of this and the translation computer won't need my help! Willi, can you use a math assistant?"

None of the travelers paid attention to this. All were looking eagerly ahead for the predicted break in the rain. Not even Nic tried to second-guess the native.

The really interesting item, they agreed later, was that their informant had allowed not only for their own speed in his, her, or its prediction. The rain clouds had been traveling much faster than tanker and tug, but the eight kilometers was still right. Dominic bowed internally to superior knowledge and vowed to himself, as he had several times before, that Erni would get no more of his cash. Prediction was evidently possible, but not for a mere human being.

Or maybe he could set up some sort of private channel with the natives, and get some of his money back . . .

Neither he nor anyone else was particularly surprised at the sudden improvement in communication, though there was plenty of joy. The natives had been known to exist, had been known to be intelligent, and information supplies do build on themselves and grow exponentially. Maybe Erni's question about water could be answered soon . . .

"Look up!" Akmet cried suddenly. All except Erni obeyed; he chose to continue driving.

There were scarcely any clouds now, though a number of the blowing black objects still fluttered and swirled above and beside them. One, rather larger than the rest, was dipping, swerving, and wavering in much the same way, but was larger and had a more definite shape.

The tug drivers represented three different colony planets, but all had seen dandelions, which are almost as ubiquitous as sodium and human beings. The object looked like a vastly magnified bit of dandelion fluff. It had a shaft about two meters long, topped by a halo of wind-catching fuzz of about the same diameter, and with a grapefruit-sized blob at its lower

end. It must have been in-credibly light to be wind-supported in this gravity.

It was moving almost as randomly as the other jetsam, but not quite. The wind-hold at its top varied constantly in shape and size. All the watchers soon realized that it was controlling how much of its motion was due to wind and how much to gravity. Sometimes it lifted sharply, sometimes slowly or not at all; it blew horizontally now one way and now another, but most often and farthest the way Erni was sending the tug. He had speeded up when the rain had stopped, but now he slowed again to stay near the object.

“Go. Travel. Not slow.”

“We want to observe,” Pam transmitted.

“What?” asked Tricia from her distant listening post. Pam gestured to her hus-band, who described briefly what was happening.

The response was still terse, but comprehensible. “Observe better forward. Not slow. Go.”

“Let’s take its word for it. Go ahead, Erni. It wants to lead us to something, and this thing doesn’t seem to be it.”

Icewall shrugged, refraining from comment about “somethings” on this part of the world, and *Candlegrease* left the airborne object behind in moments. There were presumably fourteen kilometers to go, and the going was fairly straight.

It was a less impressive prediction this time; the target was motionless.

If this was the target. A branch tangle some fifty meters across and up to eight or ten high, resembling the filling of *Jellyseal’s* cockpit, was spread at the edge of the lake, separated from the liquid by a meter-high ridge of soil which might have been made by a dozer — or shovels. The ridge — or dam? — ran straight along the lakefront for three dozen meters or so, with each end bending away from the liquid to enclose partially the slowly writhing tangle.

“Left. Slow—left more —slow slow.”

“Slowing. Turning.” Pam was plainly addressing their guide. Then, “Close to the copse, Erni, I think it means.”

“I think so too.” Icewall veered very slightly to the right until the big tank was scarcely a meter from the edge of the patch of growth, then even more slightly left so they were moving parallel to it.

“Stop.”

“That’s it, I guess,” Nic added his voice.

“That’s it.” The guide omitted the man’s last two words. Its intelligence seemed to include a computerlike memory.

“Now we wait?” asked Erni, free from his driving.

“Wait. Observe.”

“Is that dandelion seed anywhere near us yet?” asked Akmet. “That’s what ‘ob-serve’ was last used on, as I remember. I’d say it was ten or twelve kilos back by now, unless the wind was really helpful.”

“Observe.”

No one had time to ask *what*. From somewhere near the middle of the copse a duplicate of the “seed” popped upward and began to gyrate like the other as the wind took it. It was followed by several others. All four pairs of eyes were fastened on them, some through the finders of video recorders. Akmet was giving a vocal report to Nest in all the detail he could; there was no video contact through the biological static even via satellite at this distance. Ben and others were asking for clarification, forcing Treefern to repeat himself with additional words. His wife approved; this should help the natives’ vocabulary.

They were never able to decide whether the new seeds were a deliberate attempt to capture their attention. Neither of the Treeferns believed that the natives could possibly have worked out that much about human psychology, especially in view of what their own minds turned out to be like. Nic, and even more Erni, were much less sure of this. In any case, either accidentally, incidentally, or deliberately, their attention was held while branches writhed out of the tangle to the tank and its tug and began to feel their way around and over the vehicle bodies, among wheels and treads, around emergency controls meant only for bugs and rescuers.

Both machines were enveloped in a loose, open cocoon of branches, some of them two or three centimeters thick, before anyone noticed. Again

the question later was whether all *Annie's* windows being covered last was intentional or not. After all, the natives could have inferred the purpose of windows from their ex-perience with *Jellyseal*.

Erni's cry of surprise as he saw what was happening was followed by prompt startup and an effort to break out of the cocoon. Pam's "Hold it!" preceded the guide's voice by only a fraction of a second.

"Stop. Observing." Erni stopped, less because he cared about obeying a non-human than because the brief effort had shown they were in no obvious danger, the branches were not nearly strong enough to fight fusion engines. Many of them had pulled apart, and the attention of the watchers was now held by seeing these rejoin the main tangle, not apparently caring where the joining occurred.

"Observing. Go later." Pam spoke tentatively; the native seized on the new word.

"Observe. Go later." Erni's hands dropped from the controls, but his attention did not return to the gyrating dandelion seeds. Neither did Nic's. Both wondered how much of this their wives had experienced —there was, after all, no telling *when* the communication link had broken.

It must have been farther Hotnorth, both realized. They had talked to their wives often, of course, and there had been descriptions of landscape with the sun almost above the horizon. The women had wondered why clouds seemed to be as numerous, large, and dense as ever in spite of the rising temperature. Not even Dominic had risked a guess at the time.

"They're hijackers! They're playing with emergency drain valves!" Akmet, who had deployed a bug and was using its eye, cried suddenly.

"They'll be sorry," answered Erni dryly. "Get your bug ready to close anything they open."

"Will it—they —whatever —let me close enough?"

"They won't be able to stop you, I'd guess. But I'll be ready to roll if we have to."

Pam uttered just one word, for the benefit of their guide. "Danger!"

There was no answer at once; perhaps the native had been unable to untangle her word from the two men's transmissions. Pam waited a few

seconds before repeating her warning. Still no answer from outside, or the city ahead, or wherever the messages were originating.

“Those things are being controlled by the natives, the way the stuff that drove *jelly* was!” exclaimed Erni. Nic had an even wilder idea, but kept it to himself for the moment. For one reason, it seemed silly.

A set of millimeter-thick tendrils had been concentrating on one relief valve. There was no instrument to tell the crew how much force was being applied, and the cock itself was safetied to prevent its being turned accidentally. The four people watched the bug’s monitor screen in fascination as the cotter pin was straightened, worked free, and dropped to the ground.

The tendrils played further with the valve, and found almost at once which way it would move. The paraffin was not entirely melted yet, though the temperature had been rising; but there was quite enough liquid just inside the wall to find its way through the opening. The watchers saw a drop, and then several more, emerge and almost at once disappear as vapor.

The results were not surprising. Pam controlled herself with no trouble — it was not yet clear whether sympathy was in order—and made sure the new word was understood.

“Danger! Danger!”

The association should have been clear enough. There was no flame at first, but the hydrocarbon produced volumes of grey and black smoke. It was anyone’s guess what compounds, from hydrogen fluoride on up, were being made. Within seconds the branches immersed in them appeared to stiffen; at least they ceased moving. Their colors changed spectacularly. No one had seen bright green, yellow, or orange on Halfbaked until now. The branches that turned yellow did flame a moment later and also went off in smoke, leaving no visible ash. None of the watchers was a chemist; none tried to guess what might be forming. Akmet did his best to paint a verbal picture for the listeners at Nest, but this was not detailed enough for an analysis.

There was no objection, from inside or out, when Erni jerked the tug into motion and pulled away from the site. The bug stayed, but two of the witnesses preferred to use the windows with their broader field of view. Wind was spreading and diluting the smoke, but the stuff was still deadly; fully a quarter of the copse was now visibly affected.

“Hydrogen compounds. Danger.” Pam knew the natives had the first word already in memory, and took the opportunity to add “compounds,” which might not be.

“Are you after my job?” came Tricia’s voice, with no tone of resentment.

“Just grabbing opportunity while I can see what’s happening.”

“Hydrogen compounds. Danger. Observed.” The native was starting to handle tenses.

“I guess they grow machinery the way we do. I wonder how much time and material that test cost them,” remarked Erni. Nic once again made no comment, possibly because there was no time; their guide resumed instructions almost at once.

“Observed. Go.”

“Which way?” asked Erni. There was no answer until Pam tried.

“Right? Straight? Left?” The first and last words were known; the middle one might be inferred from context. Perhaps it was, perhaps the native was testing it.

“Straight.”

Erni obeyed. At the moment *Annie* was heading thirty degrees or so west of Hotnorth, the sun ahead and to their right. They had gone about half a kilometer when the command “Right” came. Erni altered heading about five degrees, and received a repeat order as he straightened out. This kept on until they were once more heading almost at the tiny visible slice of sun.

Once convinced they had the direction right, Pam asked, “How far?”

“Five thousand three hundred twenty-two kilometers.”

No one spoke, either in the tug or back at Nest. Senatsu had no need to point out that the distance and direction corresponded to the source of *Jellyseal’s* last communication, as well as the native transmissions. Halfbaked seemed much too large for this to be coincidence. They drove on, but the hours were now less boring.

Nothing changed significantly except for the slow rising of the sun ahead of them. Patches of plant life were sometimes numerous, sometimes cactuslike, some-times absent. Clouds varied at least as much. The ever-flickering lightning was less obvious in sunlight, but didn't seem actually to be decreasing. Quakes made themselves felt, and sometimes forced changes in route not foreseen either by Senatsu or their native guide. Wind alternately roared and whispered, mostly from behind but sometimes gusting from other random directions violently enough for the driver to feel. Erni and Nic, with more experience than the others, wondered aloud what the return might be like with a much lighter tank in tow. The thought of having it blown from their control was unpleasant. So was the idea of ballasting it with some local liquid which might freeze before they reached Nest. The ad-visability of abandoning the tank was considered, both among the crew and with Ben; it would, after all, be small loss.

The problem was tabled until the situation actually had to be faced, with some silent reservations in Nic's mind. He was uneasy about waiting until decision was forced on them by experience, who sometimes starts her courses with the final exam.

The Hotnorth route became no straighter as the sun rose higher. It became evident that the distance estimated by their guide had not included necessary detours. Whenever Tricia or Pam asked how far they had yet to go, the answer was larger than that obtained by subtracting the current odometer reading from the last advice.

This of course made it more obvious than ever that the goal their guide meant was indeed the "city" where the women, as not even their husbands doubted now, must have died.

This fact alone was enough to relieve the boredom; everyone, driving or not, remained alert for new and different phenomena. However likely it might be that it had occurred while unloading, the fact remained that something unforeseen had happened. This is no surprise in the exploration business, and explorers are strongly motivated to collect facts which may assist foresight. And, if at all possible, to make sense of them.

Time stretched on. The four were in no danger as far as food, oxygen, water, and waste disposal were concerned —there was no shortage of energy. Neverthe-less, conversation began to deal more and more often with the next drying-out session, which would include bathing facilities under one gravity. The tiny im-perfections in recycling equipment were making themselves felt.

It was known from *Jellyseal's* reports that the last two thousand or so kilometers had been on fairly level ground where high speeds were reasonably safe. It was also known that this fact could change quickly on a world with county-sized tec-tonic plates. Luckily, the warning that it *had* changed came early. The original

Quarterback crew had experienced it before, but this time the deeplights were no help. With the sun up and ahead of them, these were not in use. Only the in-creasing intensity of the temblors gave a clue to what was happening. Nic, who was driving when he recognized it, slowed abruptly.

"Send a bug out ahead!" he ordered to no one in particular. "I think we're near another epicenter!"

"Maybe it's behind us," suggested the woman.

"Maybe it is, and maybe to one side or the other, but I'd rather not take even a twenty-five percent chance of going over a half-meter ledge. If ground is rising ahead okay, we'll see it in time; but I wouldn't guarantee to spot a drop even with all four of us watching."

All four were, but it was Akmet guiding a servobug who located the active fault, and issued the warning which brought *Candlegrease* to a firm halt.

An immediate question came from their guide, who seemed to have them under constant observation even though they had never located him, her, it, or them. Communication had improved a great deal in the last few weeks as the native(s) had joined increasingly in conversations between the vehicle and Nest.

"Why stop now?"

"Danger. Scarp here. Watch." Pam turned to her husband. "Drive the bug over the edge, so they can see what happens."

Akmet obeyed, with spectacular results; the drop was a full meter and a half.

"No hydrogen in the bug."

"Right. Bug smashed. Lots of—much —hydrogen in *Candlegrease*,

and *Candlegrease* would smash worse. You want hydrogen, but not here.”

“Right.”

“We need to pass the scarp without smashing *Candlegrease*. How far must we go, and which way?”

“How high the scarp for no danger?”

“About fifteen centimeters.”

“About unclear.”

“Not exact. Don’t know exactly. That should be safe.”

“Left forty-five kilometers to ten-centimeter scarp. Right twenty-seven. About.”

“We’ll go right—wait.”

Ben’s voice had cut in. “You have seismic thumpers in the bug hold. How about trying to flatten the slope? It might save time.”

Erni brightened visibly. “Worth trying. We wouldn’t even have to waste bugs. Three or four sets of shots should tell us whether it’ll work or not.”

Pam said tersely to their guide, “Wait. Observe.”

“Waiting.”

Actually, it didn’t wait. Erni was the first to notice; Nic and Pam were deploying bugs, and Akmet was occupied at the communicator adding details to the description of their surroundings — anything which might help Senatsu in her interpretation of radar and other microwave observations was more than welcome at Nest. Erni alone was looking through a window when one of the blackish blowing objects again made itself noticeable.

It was far larger than the general run of jetsam to which everyone had gotten accustomed. This one had not been noticed before because, as they now realized, it had been riding far higher than the rest of the material, high enough so that only careful study would have revealed its shape. Now it came down abruptly, in a sort of fluttering swoop, and hung a few meters above the wreckage of the bug in a wavering hover. They knew now that they had seen it, or something like it, before.

It had surprisingly slender wings, whose span Erni estimated as fully ten meters, and which bent alarmingly in the turbulence of the heavy atmosphere. They supported a cucumber-shaped body a meter and a half in length, with a three-meter tail projecting from what was presumably its rear. The tail was terminated by conventional empennage for aircraft, vertical and horizontal stabilizers, rudder and elevators. Erni's warning cry called the others' attention to the arrival, and the bugs stopped moving as their operators looked.

"A glider!" exclaimed Akmet. "In this gravity?"

"Think of the atmosphere," pointed out Dominic.

"I'm thinking strength of materials," was the dry rejoinder.

"I suppose that's where they've been watching us from," Pam added thought-fully. "It gives us some idea of their size, anyway. I wonder how many it's carrying."

"Or whether it's remote controlled like *Jelly*," Nic pointed out. Pam admitted she hadn't thought of that.

No windows or lenses," Erni submitted.

"Those wings seem to have very complex frameworks. They could also be mi-crowave and/or radar antennae," was Akmet's remark, reminding the rest that conclusions were still premature and providing the morally requisite alternative hypothesis.

"Let's not bury the bug; it seems to want to look it over. We'll shift fifty or sixty meters before we try to knock the cliff down." Erni acted on his own words, driving the *Annie* and dragging *Candlegrease* to the right as he spoke. No one objected. Three bugs followed with their loads of thumpers.

These were not simply packets of explosive; they were meant to be recoverable and reusable, though this was not always possible. They were hammerlike devices which did carry explosive charges, and were designed to transmit efficiently the jolt of the blast on their tops to the substrate. Ten of them were set up a meter apart and equally far from the cliff edge; a similar row was placed a meter farther back, and a third at a similar distance. The bugs then retreated — they were cheap, but there seemed no point in wanton waste —and the thumpers fired on one command.

No one expected the wave pattern they set up to be recognizable at Nest, thousands of kilometers away, through the endless seismic static, though the com-puters there were alerted for it. The desired result was a collapse of the cliff face, but no one noticed for several seconds whether this had happened or not. As the charges thundered, the wavering motion of the glider ceased and it dived violently out of sight, as far as anyone could tell almost onto the wreckage of the sacrificed bug. Pam saw it go, and cried out the news as the impact echoed the blast.

“Watch out with the next shot! We don’t want to bury it!”

It was clear enough there would have to be a next shot, quite possibly several.

The face of the scarp had collapsed in satisfactory fashion, but the slope of rubble was still far too steep for safety. This, however, was not what surprised the four.

“Bury still unclear.”

Pam recovered almost at once. Either they were being observed from some-where else, or the occupant of the glider had not been disabled by what should have been a seven-gravity crash, or —

Nic’s own idea was gaining weight. So was Erni’s.

“Observe new rock. Wait.” The woman’s answer to the native was prompt, and even Erni saw what she meant.

“Observing. Waiting.”

“Set up the next shot, boys.”

The cliff had crumbled for a width of some twenty-five meters, to a distance varying from ten to fifteen meters back from its original lip. On the second shot the distance back more than doubled.

“New rock buried,” Pam announced without bothering to look.

“Bury clear.”

A third set of thumpers, skillfully placed, kept the twenty-five-meter width nearly unchanged and practically doubled the other dimension. A fourth, with *Annie* and *Candlegrease* moved farther back for safety, left a

promising if still rather fright-ening slope.

Akmet, using the largest and heaviest of the available bugs, traversed this down, up, and down again, without starting any slides. Dominic repeated the test for practice. Then, with no argument from anyone, he turned back to *Annie's* controls and very gingerly drove tug and tow down the same way. Everyone thought of trying this with the tow disconnected first, but no one mentioned the idea aloud. Erni wanted to get it over with; the others simply trusted Nic's judgment.

At the bottom, *Candlegrease* safely clear of the rubble, the tug stopped and everyone went to the left windows.

The glider's remains could now be seen easily. The body was flattened and cracked, the wings crumpled, the empennage separated from the rest. A patch of growing stems, twigs, and branches had already started to grow from, around, and through the wreckage, and after a few moments Erni brought them closer. Akmet was once again relaying descriptions to Nest. They were given little time to report.

"Go. No stop needed."

"Right? Straight? Left?" asked Pam.

"Straight." They were at the moment facing about Hotnorthwest. Erni, still at the controls, obeyed. After they had gone about fifty meters, "Right." He started to swerve, and Pam muttered softly, "Full circle." He obeyed, guessing at her plan, and kept turning after they were heading sunward and the voice expostulated "Stop right." Back at the original heading, the woman said simply, "Three hundred sixty degrees." It worked; the next message was "Forty degrees right." He obeyed, and received a "Four degrees right." In minutes the wrecked glider and the growth around it were out of sight.

They were now looking at the sky more often and more carefully. At least two more objects among or beyond the usual foreground of blackish jetsam, objects which *might* be other gliders, could now be seen. No one was surprised when an occasional "Left" or "Right" warned them of other obstacles, sometimes but not always before Senatsu provided the same information. The natives by now seemed to have a pretty good idea of what the human-driven vehicles could and could not do—or get away with. The tug and its tow sometimes had to be guided around a fair-sized boulder which had not been mentioned, but nothing really dangerous went unreported.

"I guess they really want us to get there," Akmet remarked at one point, rather rhetorically.

"They want their hydrogen to get there," retorted Erni. "It will. Don't worry."

"And you don't think they care that much about us?" asked Pam.

"What do you think?" The woman shrugged, her wet suit doing nothing to conceal the motion. She said nothing.

"What do you think of *them*, Erni?" asked Nic. He was driving and didn't look away from his window.

Icewall didn't even shrug. As usual, not much of anyone's face could be seen, but Pam gave an uneasy glance toward her husband. He answered with a barely visible raised eyebrow. It was at least a minute before anyone spoke.

Then, "They care about as much for us as for one of their branches," Erni said flatly.

Nic nodded, his body attitude showing some surprise. "You've got it after all. You had me worried," he said. This time his friend did shrug visibly. Rather unfortunately, no one chose to prolong the discussion. More time passed.

They were now really close to their goal, according to their guide — "Three hundred forty-four" was its terse response to the question.

"Any more danger?" asked Pam. "Go fast?"

"No more danger. Go fast."

The driver, currently Akmet, started to add power, but after a mere twenty-kph increase Nic and Erni almost simultaneously laid hands on his shoulders. The former spoke.

"That's enough for now."

"Why?"

"Somewhere along here something happened."

“That wasn’t until they got there!”

“As far as we know. Don’t overdrive your reflexes. Keep your eyes wide open.”

“No danger fast.”

Erni answered. “Observing.” This seemed to be an unimpeachable excuse. There was no further comment from their guides and watchers. Anyone who had hoped or expected that they would betray impatience was disappointed.

There were now six or seven of the gliders in sight most of the time. Their irregular motion made them hard to count. Pam was almost certain she had seen one struck by lightning a day before, but her question at the time — “Danger for you? Lightning?” — had gone unanswered. Since there were two new words in the sentence this might have been lack of understanding, but always before such lack had been signified with the “Unclear” phrase.

Human tension was mounting, not only in the tug but at Nest, where Ben and the others were being kept up-to-date by nearly continuous verbal reports.

The sun was causing less trouble now for the driver. It was still partly below the horizon ahead, but there were more and more clouds; and those near the distant horizon provided a nearly complete block even when only a small fraction of the sky overhead was actually covered. What the clouds failed to hide was largely behind blowing dust and other objects.

Mountains seemed much rarer, though no one assumed this a function of Hotlat alone. Senatsu assured them it was not, that only the two or three million square kilometers around and ahead of them were any smoother than average. She could now confirm the native-given distance to the “city,” but could give no more complete a description of it than before. She was certain now that it was beside one of the lakes, but had no data whatever on the nature of the fluid this held. Chem-ists were waiting impatiently for news on that point.

Senatsu had triumphantly reported resolving the area where the travelers had descended the cliff, and even getting an image of the thicket where the glider had crashed; but this, she said, had not grown more than a meter or two from the wreck. This made no sense to anyone but Nic, who still kept his developing ideas to himself.

The glider count continued to grow. So did the number of crashes. Several times these events were seen from *Annie*, but more often wreckage was sighted to one side or the other of their track. Experience gave the human observers a way to estimate when the wrecks had occurred; it seemed that the plants which represented the remote control mechanism grew uncontrolled for a short time, then died for lack of—something. The natives had clearly not completely mastered aviation, but seemed casual about its dangers.

A clue to the nature of the something was secured when they passed an apparently thriving thicket of the stuff at the edge of a small lake. The evidence was not completely convincing, since no trace of a wrecked flying machine could be seen in the tangle. The distant chemists at Nest were more convinced of the implication than the four on *Annie*; it was, after all, almost dogma among bio-chemists that life needed liquid; it was a solution-chemistry phenomenon —though the precise solvent seemed less important.

At the present general temperature around *Annie*, it could easily be the cryolite found on *Jellyseal*. Numerous bets were on hold at Nest. Bugs went out from *Annie* to collect samples from the lake, but there was no means of analyzing these on board. There had been a limit to the equipment the tug could carry, no matter how many enthusiasts were involved in the design.

The missing women had been better equipped in this respect, but had apparently postponed sampling until after their cargo was delivered. They had never reported any collecting.

The lightning, even among small clouds, was now almost continuous. Thunder and even wind could be heard most of the time. The crash of one glider was near enough to be audible inside the tug; and of course the rain, frequently materializing with no obvious cloud as a source, could hardly be missed as it drummed on the vehicle's shell. Most of the liquid that struck the ground vanished almost instantly; no one could be sure whether it was evaporating from the hot surface or soaking into it even when an experimental hole was dug by one of the bugs.

The explorers paused —bringing questions from their guides —to watch for results, but these were inconclusive. Whatever was happening was too quick to permit a decision. Pam made an effort to ask the natives, but it was hard to decide afterward whether the questions or the answers

were less clear. Tricia, back at Nest, bright-ened up when this happened and got to work with her computer, but even she remained unsure of what had been said.

At last the welcome “One kilometer” sounded, followed a few seconds later by “Up slope ahead.”

There was indeed a slope ahead, only a few meters high but quite enough to hide what lay beyond. Tug and tank labored up to its crest, and were promptly stopped by Pam. Her husband resumed reporting.

“There’s a roughly oval valley below us, with a lake like the one where they tested the paraffin but a lot larger. Sen was right; the lake is about three quarters surrounded by a thicket of the same sort of plants we saw there, and its Hotsouth end is dammed in the same way. There are several low, round hills scattered over the valley. The two closest to the lake are covered with the bushes; all the others are bare. Between the two covered ones is another bare but differently colored space extending a kilometer or so toward the bushes and lake. The overgrown area covers about five by seven kilometers. It borders the Hotnorth side of the lake, which is oval and about three kilometers by two, the long measure running Hotnorth-Hotsouth. In the bare section, directly between the two covered hills is something like a wrecked building about a hundred meters square. I can’t guess how high it may have been. Another at the Hoteast edge of the lake seems intact, has about the same area though it isn’t quite so perfectly square, and has an intact flat roof. It’s about fifteen meters high. They’re talking again; you can hear them, I suppose. They seem to want us to —Erni, what’s up?” Akmet fell silent.

“Something wrong?” asked Ben, while the rest of Nest stopped whatever it was doing.

“You’ll see.” It was Icewall’s voice. He had gently but firmly sent Pam drifting away from the controls, and was guiding *Annie* toward the nearer of the overgrown hills.

“Thirty-four right” came from the speaker. Again. And again. *Candlegrease* continued straight toward the eminence. Pam managed to silence the native with a rather dishonest “Observing.”

Tug and tank descended the valley, crossed the bare part to the nearer over-grown hill, climbed it, and came to a halt looking down on what Akmet had described as a wrecked building. From three kilometers closer, there seemed still no better way to describe it.

The other three cried out together as Erni did a quick-stop. Then, donning a waldo, he deployed one of the smallest bugs and sent it back toward *Candlegrease* on the side toward the lake.

Nic, knowing his partner best and far more experienced with the equipment than the other couple, imitated Icewall's action; but there was no way he could make his bug catch up with the one which had started first. Erni's mechanical servant took hold of the still unsafetied relief valve which had destroyed the other patch so far back, in the natives' grim experiment.

"Hold it, Erni! What do you think you're up to?" The question came in three different voices, with the words slightly different in each, but was understood even at Nest.

"Don't ask silly questions — or don't you care about Maria?"

Nic's lips tightened invisibly behind his breathing mask.

"I care a lot, and so will the kids when they hear. But that's no answer."

Pam was broadcasting deliberately as she cut in; she was uncertain how much the natives would understand, but it seemed worth trying. "You just want to kill a few thousand of these people to get even?"

"Don't be stupid. I won't be killing anyone. This isn't a city, it's one creature. I can punish it—hurt it—without killing it. I can teach it to be careful. You know that, don't you, Nic?"

"I'm pretty sure of it, yes. I'm not sure releasing the paraffin up here won't kill it completely. We're at about the highest point in the valley, much of our juice is denser than the local air, and the wind is random as usual. If we do kill it, it may not be a lesson. We don't know that there are any more of these beings on the planet. We certainly haven't heard from any, and the satellites this one spotted and began talking to can be seen from anywhere on Halfbaked. Think that one over. All the intelligence of a world for two human lives?"

Erni was silent for several seconds, but his servo remained motionless. At last, "You don't know that. You can't be sure."

"Of course I can't. But it's a plausible idea, like the one that this is a single being. Anything I can do to keep you from taking the chance, I'll do. Think it over."

Pam disapproved of what sounded to her like a threat.

“Why are you blaming these people, or this person, whichever it is, anyway? You don’t know what happened is their fault.”

“They weren’t careful enough! Look at that wrecked building there! That’s got to be where it happened — “

“And the dead-vegetation area downslope from it! Maybe they weren’t careful enough —how could they have been? What do they know about hydrogen com-pounds? What do we know about their behavior here, except what *they* found out and showed us a while ago, long after the girls were gone? What — “

“I don’t care what! All I can think about is Jessi! What she was like — what she was — and that I’ll never see her or feel her again. Someone’s got to learn!”

“You mean someone’s got to pay, don’t you?”

“All right, someone’s got to pay! And what do you think you can do to stop it, Dominic Wildbear Yucca, who is so disgustingly civilized he doesn’t care for the memory of the mother of his kids!”

“Who is so disgustingly civilized he doesn’t want to admit to his kids, and his friends, that he didn’t try to keep a good friend from — “

“Friend! How can you call yourself a — “

“You’ll see.”

“How?”

What Nic would have said in answer is still unknown; he refused to tell anyone later. Pam cut in again.

“Look! Isn’t it enough to scare them —scare it? Look what’s happening! Look at the city, or the creature, or whatever it is!”

Even Erni took his eyes from the screen of his servobug. For the first and only time since the native’s hydrocarbon experiment, they clearly saw the dandelion seeds. Hordes of them, rocketing up from every part of the overgrown area, catch-ing the swirling, wandering winds, many falling back

to the ground close to their launch points, but some being carried up and away in every direction.

The woman saw Erni's distraction, and pressed home her argument. "They want to save what they can! Those things really *are* seeds. They scatter them when the parent is in danger, or knows it's dying!"

"You—you don't know that either." Erni sounded almost subdued, and certainly far less frenzied than a few seconds earlier. Nic began to hope, and waited for Pam to go on.

Erni's attention now was clearly on the scenery rather than his bug. Even though he still had his hands in the waldos, there was a very good chance that Dominic's bug could knock the other away from the valve in time.

Nic took what seemed to him a better chance by passing up the opportunity. Pam was silent, so he finally spoke softly.

"I can forgive your cracks about my not caring, because I do care and know how you feel. But what you want to do is just the same sort of angry, thoughtless thing as those words, isn't it?"

Erni's answer seemed irrelevant.

"If it's scared, why doesn't it ask me to stop?"

"Using what words?" asked Pam softly.

"Me unclear." The native utterance partly overlapped the woman's, and proved the most effective sentence of the argument.

Slowly, Erni drew his hands from the waldo gloves, and gestured Akmet to take over the bug's control.

"Better try to get 'we' across while you're at it, Pam," was all he said. He let himself drift away from controls and window.

"Me and we unclear. One at a time."

Pam might have been smiling behind her mask. She did look hesitantly at her companions, especially Erni. Then she tried her explanation. Numbers, after all, had long been in the common vocabulary.

“Observe *Annie* closely. Me, one animal. We, more than one animal. Four animals in *Annie*.”

Erni made no objection, but added quietly, “No valve danger. Which way?”

“Right.” Erni, now thoroughly embarrassed, glanced around at the others as though asking whether they really trusted him to drive. The other men were concentrating on the bugs outside, the woman seemed to be watching the putative seeds. They were mostly settled back to the ground or blown out of sight by now. No more were being launched, apparently. *Maybe* the suggested explanation had been right, but even its proponent was skeptical. *Maybe* they were some sort of weapon . . .

It soon became obvious that *Annie* was being led to the other shedlike structure. This one was at the edge of the lake but somewhat down slope from the overgrown areas. There seemed a likely reason, though not the only possible one, for this: care. No one suggested this aloud to the driver. It seemed too obvious that *Jellyseal* had, during unloading, wrecked the first building and killed much of the being or population which formed the copse.

As they followed instructions along the edge of the overgrown area, bunch after bunch of tangled branches waved close past *Annie*’s windows. Looking in? None of them doubted it. Pam continued alternately reporting and teaching, describing their path and surroundings to Nest and reacting to observations through the win-dow with remarks like “One animal driving. One animal talking. Two animals moving bugs.”

They were guided around the structure to the lower side. This was open, and *Annie* was directed to enter. The far side, toward Hotnorth, could be seen to be open also, and though there was much growth within, there was plenty of room for tug and tank. Erni dragged his charge within.

“Stop.” Since there was an opening in front, he obeyed, though he remained alert. The bugs operated by Akmet and Nic had come in too, and all four explorers watched, not without an occasional glance forward, as the doorway behind was plugged more and more tightly by growing branches and finally, as nearly as either bug could see, became airtight.

“Carbon hydride stop.” Reading between the words, the bug handlers detached *Candlegrease*. Erni eased *Annie* forward. Three things started to happen at once, all interesting for different reasons.

Flattened bladders appeared among the branches and were borne toward *Candle grease's* valves. Apparently the paraffin was not to be exposed to local air this time.

A wall of tangled growth began to form between *Annie* and her tow, without waiting for the bugs to get back to the tug. Nic and Akmet, after a quick but silent look at each other, abandoned the machines; there were plenty more, and there seemed no objection to their being “observed” at leisure by the natives.

The doorway ahead began to fill with a similar block. This also caused human reaction. Erni sent the tug grinding firmly forward.

“Oxygen hydride stop.”

No attention was paid to this. In a few seconds *Annie* was outside, with a patch of torn and flattened vegetation behind where the growing wall had been.

“Water stop.”

Pam remained calm, and Erni did not stop until they were a hundred meters from the lab, as they all now thought of it. Pam explained.

“Water stop danger for animals.”

The native voice did not respond at once, and after some seconds Cloud's voice reached them from Nest.

“Y'know, Pam dear, I think you've just faced your friend outside with the prob-lem of what an individual is. Don't be surprised if you have to restate that one.”

The woman answered promptly and professionally.

“You mean my friend or friends. You're hypothesizing still. Let's call this one Abby, and start looking around for Bill — “

“Water next time.”

“Water next time,” she agreed.

“All right, it's —they're —she's civilized,” muttered Erni after a

moment.

“Of course. So are you,” answered Dominic. All three looked at him sharply, but he ignored the couple.

“You wouldn’t really have turned that valve, would you?”

The younger man was silent for several seconds. “I don’t think so,” he said at last.

“We didn’t really talk you out of it, did we?”

“I guess not. That’s the funny part. Once I was where I *could* do it, I —I don’t know; I guess having the power, knowing I was in charge and no one could stop me —well, that was enough.” He paused. “I think. Then the arguments distracted me, and I realized you’d sneaked your bug close enough so you probably *could* have stopped me. And I didn’t care that you could.

“Nic, I’ll help you tell the kids, if you’ll tell me why getting even can seem so important.”

“We’d better tell them that, too. If we can figure it out. Y’know, I’m not sure I *would’ve* stopped you.”

The Treeferns listened sympathetically, and since they were also human not even Pam thought to ask why *Jellyseal’s* failure was the natives’ fault.

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