The Ocean of the Blind by James L. Cambias

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By the end of his second month at Hitode Station, Rob Freeman had already come up with eighty-five ways to murder Henri Kerlerec. That put him third in the station's rankings -- Josef Palashnik was first with one hundred forty-three, followed by Nadia Kyle with ninety-seven. In general, the number and sheer viciousness of the suggested methods was in proportion to the amount of time each spent with Henri.

Josef, as the primary submarine pilot, had to spend upward of thirty hours each week in close quarters with Henri, so his list concentrated on swift and brutal techniques suitable for a small cockpit. Nadia shared lab space with Henri -- which in practice meant she did her dissections in the kitchen or on the floor of her bedroom -- and her techniques were mostly obscure poisons and subtle deathtraps.

Rob's specialty was underwater photography and drone operation. All through training he had been led to expect he would be filming the exotic life forms of Ilmatar, exploring the unique environment of the remote icy world and helping the science team understand the alien biology and ecology. Within a week of arrival he found himself somehow locked into the role of Henri Kerlerec's personal cameraman, gofer, and captive audience. His list of murder methods began with "strangling HK with that stupid ankh necklace" and progressed through cutting the air hose on Henri's drysuit, jamming him into a thermal vent, abandoning him in midocean with no inertial compass, and feeding him to an _Aenocampus_. Some of the others on the station who routinely read the hidden "Death To HK" board had protested that last one as being too cruel to the _Aenocampus._

Rob's first exposure to killing Henri came at a party given by Nadia and her husband Pierre Adler in their room, just after the support vehicle left orbit for the six-month voyage back to Earth. With four guests there was barely enough room, and to avoid overloading the ventilators they had to leave the door open. For refreshment they served melons from the hydroponic garden filled with some of Palashnik's home-brew potato vodka. One drank melon-flavored vodka until the hollow interior was empty, then cut vodka-flavored melon slices.

"I've got a new one," said Nadia after her third melon slice. "Put a piece of paper next to Le Nuke for a few months until it's radioactive, then write him a fan letter and slip it under his door. He'd keep the letter for his collection and die of gradual exposure."

"Too long," said Josef. "Even if he kept it in his pocket it would take years to kill $\mbox{him."}$

"But you'd have the fun of watching him lose his hair," said Nadia.

"I would rather just lock him in the reactor shed and leave him there," said Josef.

"Who are they talking about?" Rob asked.

"Henri Kerlerec," whispered the person squeezed onto the bed next to $\ensuremath{\text{him}}$.

"Irradiate his hair gel," said Pierre. "That way he'd put more on every day and it would be right next to his brain."

"Ha! That part has been dead for years!"

"Replace the argon in his breathing unit with chlorine," said someone Rob couldn't see, and then the room went quiet.

Henri was standing in the doorway. As usual, he was grinning. "Planning to murder somebody? Our esteemed station director, I hope." He glanced behind him to make sure Dr. Sen wasn't in earshot. "I have thought of an infallible technique: I would strike him over the head with a large ham or gigot or something of that kind, and then when the police come, I would serve it to them to destroy the evidence. They would never suspect!"

"Roald Dahl," murmured Nadia. "And it was a _frozen_ leg of lamb."

Henri didn't hear her. "You see the beauty of it? The police eat the

murder weapon. Perhaps I shall write a detective novel about it when I get
back to Earth. Well, goodnight everyone!" He gave a little wave and went off
toward Hab Three.

This particular morning Rob was trying to think of an especially sadistic fate for Henri. Kerlerec had awakened him at 0500 -- three hours early! -- and summoned him to the dive room with a great show of secrecy.

The dive room occupied the bottom of Hab One. It was a big circular room with suits and breathing gear stowed on the walls, benches for getting into one's gear, and a moon pool in the center where the Terran explorers could pass into Ilmatar's dark ocean. It was usually the coldest room in the entire station, chilled by the subzero seawater.

Henri was there, waiting at the base of the access ladder. As soon as Rob climbed down he slammed the hatch shut. "Now we can talk privately together. I have an important job for you."

"What?"

"Tonight at 0100 we are going out on a dive. Tell nobody. Do not write anything in the dive log."

"What? Why tonight? And why did you have to get me up at five in the goddamned morning to have this conversation?"

"It must be kept absolutely secret."

"Henri, I'm not doing anything until you tell me exactly what is going on. Enough cloak and dagger stuff."

"Come and see." Henri led him to the hatch into Hab Three, opened it a crack to peek through, then gestured for Rob to follow as he led the way to the lab space he shared with Nadia Kyle. It was a little room about twice the size of a sleeping cabin, littered with native artifacts, unlabeled disks, and tanks holding live specimens. Standing in the middle was a large gray plastic container as tall as a man. It was covered with stenciled markings in Cyrillic and a sky blue UNICA shipping label.

Henri touched his thumb to a lock pad and the door swung open to reveal a bulky diving suit. It was entirely black, even the faceplate, and had a sleek, seamless look.

"Nice suit. What's so secret about it?"

"This is not a common sort of diving suit," said Henri. "I arranged specially for it to be sent to me. Nobody else has anything like it. It is a Russian Navy stealth suit, for deactivating underwater smart mines or sonar pods. The surface is completely anechoic. Invisible to any kind of sonar imaging. Even the fins are low-noise."

"How does it work?" Rob's inner geek prompted him to ask.

Henri gave a shrug. "That is for technical people to worry about. All I care is that it does work. It must -- it cost me six million Euros to get it

here."

"Okay, so you've got the coolest diving suit on Ilmatar. Why are you keeping it locked up? I'm sure the bio people would love to be able to get close to native life without being heard."

"Pah. When I am done they can watch all the shrimps and worms they wish to. But first, I am going to use this suit to observe the Ilmatarans up close. Imagine it, Robert! I can swim among their houses, perhaps even go right inside! Stand close enough to touch them! They will never notice I am there!"

"What about the contact rules?" The most frustrating part of the whole Ilmatar project was the ban on contacting the sentient natives of the planet. The UN committee in charge kept insisting more study was needed. Rob suspected maybe the UN was trying to appease the groups back on Earth that wanted to close down Hitode Station and pull back from Ilmatar.

"Contact? What contact? Didn't you hear -- the Ilmatarans will not notice me! I will stand among them, filming at close range, but with this suit I will be invisible to them!"

"Doctor Sen's going to shit a brick when he finds out."

"By the time he finds out it will be done. What can he do to me? Send me home? I will go back to Earth on the next ship in triumph!"

"The space agencies aren't going to like it either."

"Robert, before I left Earth I did some checking. Do you know how many people regularly access space agency sites or subscribe to their news feeds? About fifty million people, worldwide. Do you know how many people watched the film of my Titan expedition? Ninety-six million! I have twice as many viewers, and that makes me twice as important. The agencies all love me."

Rob suspected Henri's numbers were made up on the spur of the moment, the way most of his numbers were, but it was probably true enough that Henri Kerlerec, the famous scientist-explorer and shameless media whore, got more eyeballs than the rest of the entire interstellar program.

He could feel himself being sucked into the mighty whirlpool of Henri's ego, and tried to struggle against it. "I don't want to get in any trouble."

"You have nothing to worry about. Now, listen: here is what we will do. You come down here quietly at about 0030 and get everything ready. Bring the cameras and two of the quiet impeller units. Also a drone or two. I will get this suit on myself in here, and then at 0100 we go out. With the impellers we can get as far as the Maury 3 vent. There is a little Ilmataran settlement there."

"Three hours out, three hours back, and perhaps two hours at the site. We will get back at about 0900, while the others are still eating breakfast. They may not even notice we have gone."

"And if they do?"

"Then we just say we have been doing some filming around the habitat outside." Henri began locking up the stealth suit's container. "I tell you, they will never suspect a thing. Leave all the talking to me. Now: not another word! We have too much to do! I am going to sleep this afternoon to be fresh for our dive tonight. You must do the same. And do not speak of this to anyone!"

Broadtail is nervous. He cannot pay attention to the speaker, and constantly checks the reel holding his text. He is to speak next, his first address to the Bitterwater Company of Scholars. It is an audition of sorts -- Broadtail hopes the members find his work interesting enough to invite him to join them.

Smoothshell 24 Midden finishes her address on high-altitude creatures and takes a few questions from the audience. They aren't easy questions, either, and Broadtail worries about making a fool of himself before all these respected scholars. When she finishes, Longpincer 16 Bitterwater clacks his pincers for quiet.

"Welcome now to Broadtail 38 Sandyslope, who comes to us from a great

distance to speak about ancient languages. Broadtail?"

Broadtail nearly drops his reel, but catches it in time and scuttles to the end of the room. It is a wonderful chamber for speaking, with a sloped floor so that everyone can hear directly, and walls of quiet pumice stone. He finds the end of his reel and begins, running it carefully between his feeding-tendrils as he speaks aloud. His tendrils feel the knots in the string as it passes by them. The patterns of knots indicate numbers, and the numbers match words. He remembers being careful to space his knots and tie them tightly, as this copy is for the Bitterwater library. The reel is a single unbroken cord, expensive to buy and horribly complicated to work with -- very different from the original draft, a tangle of short notes tied together all anyhow.

Once he begins, Broadtail's fear dissipates. His own fascination with his topic asserts itself, and he feels himself speeding up as his excitement grows. When he pauses, he can hear his audience rustling and scrabbling, and he supposes that is a good sign. At least they aren't all going torpid.

The anchor of his speech is the description of the echo-carvings from the ruined city near his home vent of Continuous Abundance. By correlating the images of the echo-carvings with the number markings below them, Broadtail believes he can create a lexicon for the ancient city builders. He reads the Company some of his translations of other markings in the ruins.

Upon finishing, he faces a torrent of questions. Huge old Roundhead 19 Downcurrent has several tough ones -- he is generally recognized as the expert on ancient cities and their builders, and he means to make sure some provincial upstart doesn't encroach on his territory.

Roundhead and some others quickly home in on the weak parts of Broadtail's argument. A couple of them make reference to the writings of the dead scholar Thickfeelers 19 Swiftcurrent, and Broadtail feels a pang of jealousy because he can't afford to buy copies of such rare works. As the questions continue, Broadtail feels himself getting angry in defense of his work, and struggles to retain his temper. The presentation may be a disaster, but he must remain polite.

At last it is over, and he rolls up his reel and heads for a seat at the rear of the room. He'd like to keep going, just slink outside and swim for home, but it would be rude.

A scholar Broadtail doesn't recognize scuttles to the lectern and begins struggling with a tangled reel. Longpincer sits next to Broadtail and speaks privately with shell-taps. "That was very well done. I think you describe some extremely important discoveries."

"You do? I was just thinking of using the reel to mend nets."

"Because of all the questions? Don't worry. That's a good sign. If the hearers ask questions it means they're thinking, and that's the whole purpose of this Company. I don't see any reason not to make you a member. I'm sure the others agree."

All kinds of emotions flood through Broadtail -- relief, excitement, and sheer happiness. He can barely keep from speaking aloud. His shell-taps are rapid. "I'm very grateful. I plan to revise the reel to address some of Roundhead's questions."

"Of course. I imagine some of the others want copies, too. Ah, he's starting."

The scholar at the lectern begins to read a reel about a new system for measuring the heat of springs, but Broadtail is too happy to pay much attention.

At midnight, Rob was lying on his bunk trying to come up with some excuse not to go with Henri. Say he was sick, maybe? The trouble was that he was a rotten liar. He tried to make himself feel sick -- maybe an upset stomach from ingesting seawater? His body unhelpfully continued to feel okay.

Maybe he just wouldn't go. Stay in bed and lock the door. Henri could hardly complain to Dr. Sen about him not going on an unauthorized dive. But Henri could and undoubtedly would make his life miserable with nagging and

blustering until he finally gave in.

And of course the truth was that Rob did want to go. He really wanted to be the one in the stealth suit, getting within arm's reach of the Ilmatarans and filming them up close, instead of getting a few murky long-distance drone pictures. Probably everyone else at Hitode Station felt the same way. Putting them here, actually on the sea bottom of Ilmatar, yet forbidding them to get close to the natives, was like telling a pack of horny teenagers they could get naked in bed together, but not touch.

He checked his watch. It was 0020. He got up and slung his camera bag over his shoulder. Damn Henri anyway.

Rob made it to the dive room without encountering anyone. The station wasn't like a space vehicle with round-the-clock shifts. Everyone slept from about 2400 to 0800, and only one poor soul had to stay in the control room in case of emergency. Tonight it was Dickie Graves on duty, and Rob suspected that Henri had managed to square him somehow so that the exterior hydrophones wouldn't pick up their little jaunt.

He took one of the drones off the rack and ran a quick check. It was a flexible robot fish about a meter long, more Navy surplus -- American, this time. It wasn't especially stealthy, but instead was designed to mimic a mackerel's sonar signature. Presumably the Ilmatarans would figure it was some native organism and ignore it. His computer linked up with the drone brain by laser. All powered up and ready to go. He told it to hold position and await further instructions, then dropped it into the water. Just to be on the safe side, Rob fired up a second drone and tossed it into the moon pool.

Next the impellers. They were simple enough -- a motor, a battery, and a pair of counter-rotating propellors. You controlled your speed with a thumb switch on the handle. They were supposedly quiet, though in Rob's experience they weren't any more stealthy than the ones you could rent at any dive shop back on Earth. Some contractor in Japan had made a bundle on them. Rob found two with full batteries and hooked them on the edge of the pool for easy access.

Now for the hard part: suiting up without any help. Rob took off his frayed and slightly smelly insulated jumpsuit and stripped to the skin. First the diaper -- he and Henri were going to be out for eight hours, and getting the inside of his suit wet would invite death from hypothermia. Then a set of thick fleece longjohns, like a child's pajamas. The water outside was well below freezing; only the pressure and salinity kept it liquid. He'd need all the insulation he could get.

Then the drysuit, double-layered and also insulated. In the chilly air of the changing room he was getting red-faced and hot with all this protection on. The hood was next, a snug fleece balaclava with built-in earphones. Then the helmet, a plastic fishbowl more like a space helmet than most diving gear, which zipped onto the suit to make a watertight seal. The back of the helmet was packed with electronics -- biomonitors, microphones, sonar unit, and an elaborate heads-up display which could project text and data on the inside of the faceplate. There was also a freshwater tube, from which he sipped before going on to the next stage.

Panting with the exertion, Rob struggled into the heavy APOS backpack, carefully started it up _before_ attaching the hoses to his helmet, and took a few breaths to make sure it was really working. The APOS gear made the whole Ilmatar expedition possible. It made oxygen out of seawater by electrolysis, supplying it at ambient pressure. Little sensors and a sophisticated computer adjusted the supply to the wearer's demand. The oxygen mixed with a closed-loop argon supply; at the colossal pressures of Ilmatar's ocean bottom, the proper air mix was about 1,000 parts argon to 1 part oxygen. Hitode Station and the subs each had bigger versions, which was how humans could live under six kilometers of water and ice.

The price, of course, was that it took six days to go up to the surface. The pressure difference between the 300 atmospheres at the bottom of the sea and the half standard at the surface station meant a human wouldn't

just get the bends if he went up quickly -- he'd literally explode. There were other dangers, too. All the crew at Hitode took a regimen of drugs to ward off the scary side effects of high pressure.

With his APOS running (though for now its little computer was sensible enough to simply feed him air from the room outside), Rob pulled on his three layers of gloves, buckled on his fins, put on his weight belt, switched on his shoulder lamp, and then crouched on the edge of the moon pool to let himself tumble backward into the water. It felt pleasantly cool, rather than lethally cold, and he bled a little extra gas into his suit to keep him afloat until Henri could join him.

He gave the drones instructions to follow at a distance of four meters, and created a little window on his faceplate to let him watch through their eyes. He checked over the camera clamped to his shoulder to make sure it was working. Everything nominal. It was 0120 now. Where was Henri?

Kerlerec lumbered into view ten minutes later. In the bulky stealth suit he looked like a big black toad. The foam cover of his faceplate was hanging down over his chest, and Rob could see that he was red and sweating. Henri waddled to the edge of the pool and fell back into the water with an enormous splash. After a moment he bobbed up next to Rob.

"God, it is hot in this thing. You would not believe how hot it is. For once I am glad to be in the water. Do you have everything?"

"Yep. So how are you going to use the camera in that thing? Won't it spoil the whole stealth effect?"

"I will not use the big camera. That is for you to take pictures of me at long range. I have a couple of little cameras inside my helmet. One points forward to see what I see, the other is for my face. Link up."

They got the laser link established and Rob opened two new windows at the bottom of his faceplate. One showed him as Henri saw him -- a pale, stubbly face inside a bubble helmet -- and the other showed Henri in extreme close-up. The huge green-lit face beaded with sweat looked a bit like the Great and Powerful Oz after a three-day drunk.

"Now we will get away from the station and try out your sonar on my suit. You will not be able to detect me at all."

Personally Rob doubted it. Some Russian had made a cool couple of million Euros selling Henri and his sponsors at ScienceMonde a failed prototype or just a fake.

The two of them descended until they were underneath Hab One, only a couple of meters above the seafloor. The light shining down from the moon pool made a pale cone in the silty water, with solid blackness beyond.

Henri led the way away from the station, swimming with his headlamp and his safety strobe on until they were a few hundred meters out. "This is good," he said. "Start recording."

Rob got the camera locked in on Henri's image. "You're on."

Henri's voice instantly became the calm, friendly but all-knowing voice of Henri Kerlerec, scientific media star. "I am here in the dark ocean of Ilmatar, preparing to test the high-tech stealth diving suit which will enable me to get close to the Ilmatarans without being detected. I am covering up the faceplate with the special stealth coating now. My cameraman will try to locate me by sonar. Because the Ilmatarans live in a completely dark environment, they are entirely blind to visible light, so I will leave my safety strobe and headlamp on."

Rob opened up a window to display sonar images and began recording. First on passive -- his computer could build up a vague image of the surroundings just from ambient noise and interference patterns. No sign of Henri, even though Rob could see his bobbing headlamp as he swam back and forth ten meters away.

Not bad, Rob had to admit. Those Russians know a few things about sonar baffling. He tried the active sonar. The seabottom and the rocks flickered into clear relief, an eerie false-color landscape where green meant soft and yellow meant hard surfaces. The ocean itself was completely black on active.

Henri was a green-black shadow against a black background. Even with the computer synthesizing both the active and passive signals, he was almost impossible to see.

"Wonderful!" said Henri when Rob sent him the images. "I told you: completely invisible! We will edit this part down, of course -- just the sonar images with me explaining it in voiceover. Now come along. We have a long trip ahead of us."

The Bitterwater Company are waking up. Longpincer's servants scuttle along the halls of his house, listening carefully at the entrance to each guest chamber and informing the ones already awake that a meal is ready in the main hall.

Broadtail savors the elegance of having someone to come wake him when the food is ready. At his own house, all would starve if he waited for his apprentices to prepare the meals. He wonders briefly how they are getting along without him. The three of them are reasonably competent, and can certainly tend his pipes and crops without him. Broadtail does worry about how well they can handle an emergency -- what if a pipe breaks or one of his nets is snagged? He imagines returning home to find chaos and ruin.

But it is so very nice here at Longpincer's house. Mansion, really. The Bitterwater vent isn't nearly as large as Continuous Abundance or the other town vents, but Longpincer controls the entire flow. Everything for ten cables in any direction belongs to him. He has a staff of servants and hired workers. Even his apprentices scarcely need to lift a pincer themselves.

Broadtail doesn't want to miss the meal. Longpincer's larder is as opulent as everything else at Bitterwater. As he crawls to the main hall he marvels again at the thick growths on the walls and floor. Some of his own farm pipes don't support this much life. Is it just that Longpincer's large household generates enough waste to support lush indoor growth? Or is he rich enough to pipe some excess vent water through the house itself? Either way it's far more than Broadtail's chilly property and tepid flow rights can achieve.

As he approaches the main hall Broadtail can taste a tremendous and varied feast laid out. It sounds as if half a dozen of the Company are already there; it says much for Longpincer's kitchen that the only sounds Broadtail can hear are those of eating.

He finds a place between Smoothshell and a quiet individual whose name Broadtail can't recall. He runs his feelers over the food before him and feels more admiration mixed with jealousy for Longpincer. There are cakes of pressed sourleaf, whole towfin eggs, fresh jellyfronds, and some little bottom-crawling creatures Broadtail isn't familiar with, neatly impaled on thorns and still wiggling.

Broadtail can't recall having a feast like this since he inherited the Northslope property and gave the funeral banquet for old Flatbody. He is just reaching for a third jellyfrond when Longpincer clicks loudly for attention from the end of the hall.

"I suggest a small excursion for the Company," he says. "About ten cables beyond my boundary stones upcurrent is a small vent, too tepid and bitter to be worth piping. I forbid my workers to drag nets there, and I recall finding several interesting creatures feeding at the vent. I propose swimming there to look for specimens."

"May I suggest applying Sharpfrill's technique for temperature measurement to those waters?" says Smoothshell.

"Excellent idea!" cries Longpincer. Sharpfrill mutters something about not having his proper equipment, but the others bring him around. They all finish eating (Broadtail notices several of the company stowing delicacies in pouches, and grabs the last towfin egg to fill his own), and set out for the edge of Longpincer's property.

Swimming is quicker than walking, so the party of scholars cruise at just above net height. At that height Broadtail can only get a general impression of the land below, but it all seems neat and orderly -- a

well-planned network of stone pipes radiating out from the main vent, carrying the hot, nutrient-rich water to nourish thousands of plants and bacteria colonies. Leaks from the pipes and the waste from the crops and Longpincer's household feeds clouds of tiny swimmers, which in turn attract larger creatures from the cold waters around. Broadtail notes with approval the placement of Longpincer's nets, in staggered rows along the prevailing current. With a little envy he estimates that Longpincer's nets probably produce as much wealth as his own entire property.

Beyond the boundary stones the scholars instinctively gather into a more compact group. There is less conversation and more careful listening and pinging. Longpincer assures them that he allows no bandits or scavengers around his vent, but even he pings behind them once or twice, just to make sure. But all anyone can hear are a few wild children, who flee quickly at the approach of adults.

Henri and Ron didn't talk much on the way to the vent community. Both of them were paying close attention to the navigation displays inside their helmets. Getting around on Ilmatar was deceptively easy: take a bearing by inertial compass, point the impeller in the right direction, and off you go. But occasionally Ron found himself thinking about just how hard it would be to navigate without electronic help. The stars were hidden by a kilometer of ice overhead, and Ilmatar had no magnetic field worth speaking of. It was barely possible to tell up from down -- if you had your searchlights on and could see the bottom and weren't enveloped in a cloud of silt -- but maintaining a constant depth depended entirely on watching the sonar display and the pressure gauge. A human without navigation equipment on Ilmatar would be blind, deaf, and completely lost.

At 0500 they were nearing the site. "Passive sonar only," said Henri. "And we must be as quiet as possible. Can you film from a hundred meters away?"

"It'll need enhancement and cleaning up afterward, but yes."

"Good. You take up a position there -- " Henri gestured vaguely into the darkness.

"Where?"

"That big clump of rocks at, let me see, bearing one hundred degrees, about fifty meters out."

"Okay."

"Stay there and do not make any noise. I will go on ahead toward the vent. Keep one of the drones with me."

"Right. What are you going to do?"

"I will walk right into the settlement."

Shaking his head, Rob found a relatively comfortable spot among the stones. While he waited for the silt to settle, he noticed that this wasn't a natural outcrop -- these were cut stones, the remains of a structure of some kind. Some of the surfaces were even carved into patterns of lines. He made sure to take pictures of everything. The other xeno people back at Hitode would kill him if he didn't.

Henri went marching past in a cloud of silt. The big camera was going to be useless with him churning up the bottom like that, so Rob relied entirely on the drones. One followed Henri about ten meters back, the second was above him looking down. The laser link through the water was a little noisy from suspended particulates, but he didn't need a whole lot of detail. The drone cameras could store everything internally, so Rob was satisfied with just enough sight to steer them. Since he was comfortably seated and could use his hands, he called up a virtual joystick instead of relying on voice commands or the really irritating eye-tracking menu device.

"Look at that!" Henri called suddenly.

"What? Where?"

Henri's forward camera swung up to show eight Ilmatarans swimming along in formation, about ten meters up. They were all adults, wearing belts and harnesses stuffed with gear. A couple carried spears. Ever since the first

drone pictures of Ilmatarans, they had been described as looking like giant lobsters, but watching them swim overhead, Rob had to disagree. They were more like beluga whales in armor, with their big flukes and blunt heads. Adults ranged from three to four meters long. Each had a dozen limbs folded neatly against the undersides of their shells: walking legs in back, four manipulators in front, and the big praying-mantis pincers on the front pair. They also had raspy feeding tendrils and long sensory feelers under the head. The head itself was a smooth featureless dome, flaring out over the neck like a coal-scuttle helmet -- the origin of the Ilmatarans' scientific name _Salletocephalus structor._ Henri's passive microphones picked up the clicks and pops of the Ilmatarans' sonar, with an occasional loud ping like a harpsichord note.

The two humans watched as the group soared over Henri's head. "What do you think they're doing?" asked Rob when they had passed.

"I am not sure. Perhaps a hunting party. I will follow them."

Rob wanted to argue, but knew it was pointless. "Don't go too far."

Henri kicked up from the bottom and began to follow the Ilmatarans. It was hard for a human to keep up with them, even when wearing fins. Henri was sweaty and breathing hard after just a couple of minutes, but he struggled along. "They are stopping," he said after ten minutes, sounding relieved.

The Ilmatarans were dropping down to a small vent formation, which Rob's computer identified as Maury 3b. Through the drone cameras Rob watched as Henri crept closer to the Ilmatarans. At first he moved with clumsy stealth, then he abandoned all pretense and simply waded in among them. Rob waited for a reaction, but the Ilmatarans seemed intent on their own business.

A rock is missing. Broadtail remembers a big chunk of old shells welded together by ventwater minerals and mud, just five armspans away across-current. But now it's gone. Is his memory faulty? He pings again.

There it is, just where it should be. Odd. He goes back to gathering shells.

" -- you hear me? Broadtail!" It is Longpincer. He appears out of nowhere just in front of Broadtail, sounding alarmed.

"I'm here. What's wrong?"

"Nothing," says Longpincer. "My own mistake."

"Wait. Tell me."

"It's very odd. I remember hearing you clattering over the rocks, then silence. I recall pinging and sensing nothing."

"I remember a similar experience $\operatorname{--}$ a rock seeming to disappear and then appear again."

Smoothshell comes up. "What's the problem?" After they explain she asks, "Could there be a reflective layer here? Cold water meeting hot does that."

"I don't feel any change in the water temperature," says Longpincer.
"The current here is strong enough to keep everything mixed."

"Let's listen," says Broadtail. The three of them stand silently, tails together, heads outward. Broadtail relaxes, letting the sounds and interference patterns of his surroundings create a model in his mind. The vent is there, rumbling and hissing. Someone is scrabbling up the side -- probably Sharpfrill with his jars of temperature-sensitive plants. Roundhead and the quiet person are talking together half a cable away, or rather Roundhead is talking and his companion is making occasional polite clicks. Two others are swishing nets through the water upcurrent.

But there is something else. Something moving nearby. He can't quite hear it, but it blocks other sounds and changes the interference patterns. He reaches over to Smoothshell and taps on her leg. "There is a strange effect in the water in front of me, moving slowly from left to right."

She turns and listens that way while Broadtail taps the same message on Longpincer's shell. "I think I hear what you mean," she says. "It's like a big lump of very soft mud, or pumice stone."

"Yes," Broadtail agrees. "Except that it's moving. I'm going to ping it

now." He tenses his resonator muscle and pings as hard as he can, loud enough to stun a few small swimmers near his head. All the other Company members about the vent stop what they are doing.

He hears the entire landscape in front of him -- quiet mud, sharp echoes from rocks, muffled and chaotic patterns from patches of plants. And right in the center, only a few armspans in front of him, is a hole in the water. It's big, whatever it is: almost the size of a young adult, standing upright like a boundary marker.

Henri was completely gonzo. He was rattling off narration for the audience completely off the top of his head. Occasionally he would forget to use his media star voice and give way to an outburst of pure cackling glee. Rob was pretty excited, too, watching through the cameras as Henri got within arm's reach of the Ilmatarans.

"Here we see a group of Ilmatarans gathering food around one of the seabottom vents. Some are using hand-made nets to catch fish, while these three close to me appear to be scraping algae off the rocks."

"Henri, you're using Earth life names again. Those aren't fish, or algae either."

"Never mind that now. I will dub in the proper words later if I must. The audience will understand better if I use words they understand. This is wonderful, don't you think? I can pat them on the backs if I want to!"

"Remember, no contact."

"Yes, yes." Back into his narrator voice. "The exact nature of Ilmataran social organization is still not well understood. We know they live in communities of up to a hundred individuals, sharing the work of food production, craft work, and defense. The harvest these bring back to their community will be divided among all."

"Henri, you can't just make stuff up like that. Some of the audience are going to want links to more info about Ilmataran society. We don't know how they allocate resources."

"Then there is nothing to say that this is untrue. Robert, people do not want to hear that aliens are just like us. They want wise angels and noble savages. Besides, I am certain I am right. The Ilmatarans behave exactly like early human societies. Remember I am an archaeologist by training. I recognize the signs." He shifted back into media mode. "Life is difficult in these icy seas. The Ilmatarans must make use of every available source of food to ward off starvation. I am going to get closer to these individuals so that we can watch them at their work."

"Don't get too close. They might be able to smell you or something."

"I am being careful. How is the picture quality?"

"Well, the water's pretty cloudy. I've got the drone providing an overhead view of you, but the helmet camera's the only thing giving us any detail."

"I will bend down to get a better view, then. How is that?"

"Better. This is great stuff." Rob checked the drone image. "Uh, Henri, why are they all facing toward you?"

"We must capture it," says Longpincer. "I don't remember reading about anything like this."

"How to capture something we can barely make out?" asks Broadtail.

"Surround it," suggests Smoothshell. She calls to the others. "Here, quickly! Form a circle!"

With a lot of clicking questions the other members of the Bitterwater Company gather around -- except for Sharpfrill, who is far too absorbed in placing his little colonies of temperature indicators on the vent.

"Keep pinging steadily," says Longpincer. "As hard as you can. Who has a net?"

"Here!" says Raggedclaw.

"Good. Can you make it out? Get the net on it!"

The thing starts to swim upward clumsily, churning up lots of sediment and making a faint but audible swishing noise with its tails. Under

Longpincer's direction the Company form a box around it, like soldiers escorting a convoy. Raggedclaw gets above it with the net. There is a moment of struggling as the thing tries to dodge aside, then the scientists close in around it.

It cuts at the net with a sharp claw, and kicks with its limbs. Broadtail feels the claw grate along his shell. Longpincer and Roundhead move in with ropes, and soon the thing's limbs are pinned. It sinks to the bottom.

"I suggest we take it to my laboratory," says Longpincer. "I am sure we all wish to study this remarkable creature."

It continues to struggle, but the netting and ropes are strong enough to hold it. Whatever it is, it's too heavy to carry swimming, so the group must walk along the bottom with their catch while Longpincer swims ahead to fetch servants with a litter to help. They all ping about them constantly, fearful that more of the strange silent creatures are lurking about.

"Robert! In the name of God, help me!" The laser link was full of static and skips, what with all the interference from nets, Ilmatarans, and sediment. The video image of Henri degenerated into a series of still shots illustrating panic, terror, and desperation.

"Don't worry!" he called back, although he had no idea what to do. How could he rescue Henri without revealing himself and blowing all the contact protocols to hell? For that matter, even if he did reveal himself, how could he overcome half a dozen full-grown Ilmatarans?

"Ah, bon Dieu!" Henri started what sounded like praying in French. Rob muted the audio to give himself a chance to think, and because it didn't seem right to listen in.

He tried to list his options. Call for help? Too far from the station, and it would take an hour or more for a sub to arrive. Go charging in to the rescue? Rob really didn't want to do that, and not just because it was against the contact regs. On the other hand he didn't like to think of himself as a coward, either. Skip that one and come back to it.

Create a distraction? That might work. He could fire up the hydrophone and make a lot of noise, maybe use the drones as decoys. The Ilmatarans might drop Henri to go investigate, or run away in terror. Worth a shot, anyway.

He sent the two drones in at top speed, and searched through his computer's sound library for something suitable to broadcast. "Ride of the Valkyries"? Tarzan yells? "O Fortuna"? No time to be clever; he selected the first item in the playlist and started blasting Billie Holiday as loud as the drone speakers could go. Rob left his camera gear with Henri's impeller, and used his own to get a little closer to the group of Ilmatarans carrying Henri.

Broadtail hears the weird sounds first, and alerts the others. The noise is coming from a pair of swimming creatures he doesn't recognize, approaching fast from the left. The sounds are unlike anything he remembers — a mix of low tones, whistles, rattles, and buzzes. There is an underlying rhythm, and Broadtail is sure this is some kind of animal call, not just noise.

The swimmers swoop past low overhead, then, amazingly, circle around together for another pass, like trained performing animals. "Do those creatures belong to Longpincer?" Broadtail asks the others.

"I don't think so," says Smoothshell. "I don't remember seeing them in his house."

"Does anyone have a net?"

"Don't be greedy," says Roundhead. "This is a valuable specimen. We shouldn't risk it to chase after others."

Broadtail starts to object, but he realizes Roundhead is right. This thing is obviously more important. Still -- "I suggest we return here to search for them after sleeping."

"Agreed.

The swimmers continue diving at them and making noise until Longpincer's servants show up to help carry the specimen.

Rob had hoped the Ilmatarans would scatter in terror when he sent in

the drones, but they barely even noticed them -- even with the speaker volume maxed out. He couldn't tell if they were too dumb to pay attention, or smart enough to focus on one thing at a time.

He gunned the impeller, closing in on the little group. Enough subtlety. He could see the lights on Henri's suit about fifty meters away, bobbing and wiggling as the Ilmatarans carried him. Rob slowed to a stop about ten meters from the Ilmatarans. The two big floodlights on the impeller showed them clearly.

Enough subtlety and sneaking around. He turned on his suit hydrophone. "Hey!" He had his dive knife in his right hand in case of trouble.

Broadtail is relieved to be rid of the strange beast. He is getting tired and hungry, and wants nothing more than to be back at Longpincer's house snacking on threadfin paste and heat-cured eggs.

Then he hears a new noise. A whine, accompanied by the burble of turbulent water. Off to the left about three lengths there is some large swimmer. It gives a loud call. The captive creature struggles harder.

Broadtail pings the new arrival. It is very odd indeed. It has a hard cylindrical body like a riftcruiser, but at the back it branches out into a bunch of jointed limbs covered with soft skin. The thing gives another cry and waves a couple of limbs.

Broadtail moves toward it, trying to figure out what it is. Two creatures, maybe? And what is it doing? Is this a territorial challenge? He keeps his own pincers folded so as not to alarm it.

"Be careful, Broadtail," Longpincer calls.

"Don't worry." He doesn't approach any closer, but evidently he's already too close. The thing cries out one more time, then charges him. Broadtail doesn't want the other Bitterwater scholars to see him flee, so he splays his legs and braces himself, ready to grapple with this unknown monster.

But just before it hits him, the thing veers off and disappears into the silent distance. Listening carefully lest it return, Broadtail backs toward the rest of the group and they resume their journey to Longpincer's house.

Everyone agrees that this expedition is stranger than anything they remember. Longpincer seems pleased.

Rob stopped his impeller and let the drones catch up. He couldn't think of anything else to do. The Ilmatarans wouldn't be scared off, and there was no way Rob could attack them. Whatever happened to Henri, Rob did not want to be the first human to harm an alien.

The link with Henri was still open. The video showed him looking quite calm, almost serene.

"Henri?" he said. "I tried everything I could think of. I can't get you out. There are too many of them."

"It is all right, Robert," said Henri, sounding surprisingly cheerful.
"I do not think they will harm me. Otherwise why go to all the trouble to capture me alive? Listen: I think they have realized I am an intelligent being like themselves. This is our first contact with the Ilmatarans. I will be humanity's ambassador."

"You think so?" For once Rob found himself hoping Henri was right.

"I am certain of it. Keep the link open. The video will show history being made."

Rob sent in one drone to act as a relay as the Ilmatarans carried Henri into a large rambling building near the Maury 3a vent. As he disappeared inside, Henri managed a grin for the camera.

Longpincer approaches the strange creature, laid out on the floor of his study. The others are all gathered around to help and watch. Broadtail has a fresh reel of cord and is making a record of the proceeding. Longpincer begins. "The hide is thick, but flexible, and is a nearly perfect sound absorber. The loudest of pings barely produce any image at all. There are four limbs. The forward pair appear to be for feeding, while the rear limbs

apparently function as both walking legs and what one might call a double tail for swimming. Roundhead, do you know of any such creature recorded elsewhere?"

"I certainly do not recall reading of such a thing. It seems absolutely unique."

"Please note as much, Broadtail. My first incision is along the underside. Cutting the hide releases a great many bubbles. The hide peels away very easily; there is no connective tissue at all. I feel what seems to be another layer underneath. The creature's interior is remarkably warm."

"The poor thing," says Raggedclaw. "I do hate causing it pain."

"As do we all, I'm sure," says Longpincer. "I am cutting through the under-layer. It is extremely tough and fibrous. I hear more bubbles. The warmth is extraordinary -- like pipe-water a cable or so from the vent."

"How can it survive such heat?" asks Roundhead.

"Can you taste any blood, Longpincer?" adds Sharpfrill.

"No blood that I can taste. Some odd flavors in the water, but I judge that to be from the tissues and space between. I am peeling back the under-layer now. Amazing! Yet another layer beneath it. This one has a very different texture -- fleshy rather than fibrous. It is very warm. I can feel a trembling sensation and spasmodic movements."

"Does anyone remember hearing sounds like that before?" says Smoothshell. "It sounds like no creature I know of."

"I recall that other thing making similar sounds," says Broadtail.

"I now cut through this layer. Ah -- now we come to viscera. The blood tastes very odd. Come, everyone, and feel how hot this thing is. And feel this! Some kind of rigid structures within the flesh."

"It is not moving," says Roundhead.

"Now let us examine the head. Someone help me pull off the shell here. Just pull. Good. Thank you, Raggedclaw. What a lot of bubbles! I wonder what this structure is?"

The trip back was awful. Rob couldn't keep from replaying Henri's death in his mind. He got back to the station hours late, exhausted and half out of his mind. As a small mercy Rob didn't have to tell anyone what had happened —they could watch the video.

There were consequences, of course. But because the next supply vehicle wasn't due for another twenty months, it all happened in slow motion. Rob knew he'd be going back to Earth, and guessed that he'd never make another interstellar trip again. He didn't go out on dives; instead he took over drone maintenance and general tech work from Sergei, and stayed inside the station.

Nobody blamed him, at least not exactly. At the end of his debriefing, Dr. Sen did look at Rob over his little Gandhi glasses and say, "I think it was rather irresponsible of you both to go off like that. But I am sure you know that already."

Sen also deleted the "Death to HK" list from the station's network, but someone must have saved a copy. The next day it was anonymously relayed to Rob's computer with a final method added: "Let a group of Ilmatarans catch him and slice him up."

Rob didn't think it was funny at all.

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