

Slow Life

by Michael Swanwick

Different evolutionary backgrounds lead to very different perspectives.

"It was the Second Age of Space. Gagarin, Shepard, Glenn, and Armstrong were all dead. It was our turn to make history now."

-- The Memoirs of Lizzie O'Brien

The raindrop began forming ninety kilometers above the surface of Titan. It started with an infinitesimal speck of tholin, adrift in the cold nitrogen atmosphere. Dianoacetylene condensed on the seed nucleus, molecule by molecule, until it was one shard of ice in a cloud of billions.

Now the journey could begin.

It took almost a year for the shard of ice in question to precipitate downward twenty-five kilometers, where the temperature dropped low enough that ethane began to condense on it. But when it did, growth was rapid.

Down it drifted.

At forty kilometers, it was for a time caught up in an ethane cloud. There it continued to grow. Occasionally it collided with another droplet and doubled in size. Finally it was too large to be held effortlessly aloft by the gentle stratospheric winds.

It fell.

Falling, it swept up methane and quickly grew large enough to achieve a terminal velocity of almost two meters per second.

At twenty-seven kilometers, it passed through a dense layer of methane clouds. It acquired more methane, and continued its downward flight.

As the air thickened, its velocity slowed and it began to lose some of its substance to evaporation. At two and a half kilometers, when it emerged from the last patchy clouds, it was losing mass so rapidly it could not normally be expected to reach the ground.

It was, however, falling toward the equatorial highlands, where mountains of ice rose a towering five hundred meters into the atmosphere. At two meters and a lazy new terminal velocity of one meter per second, it was only a breath away from hitting the surface.

Two hands swooped an open plastic collecting bag upward, and snared the raindrop.

"Gotcha!" Lizzie O'Brien cried gleefully.

She zip-locked the bag shut, held it up so her helmet cam could read the bar-code in the corner, and said, "One raindrop." Then she popped it into her collecting box.

Sometimes it's the little things that make you happiest. Somebody would spend a year studying this one

little raindrop when Lizzie got it home. And it was just Bag 64 in Collecting Case 5. She was going to be on the surface of Titan long enough to scoop up the raw material of a revolution in planetary science. The thought of it filled her with joy.

Lizzie dogged down the lid of the collecting box and began to skip across the granite-hard ice, splashing the puddles and dragging the boot of her atmosphere suit through the rivulets of methane pouring down the mountainside. "I'm sing-ing in the rain." She threw out her arms and spun around. "Just sing-ing in the rain!"

"Uh ... O'Brien?" Alan Greene said from the _Clement_. "Are you all right?"

"Dum-dee-dum-dee-dee-dum-dum, I'm ... some-thing again."

"Oh, leave her alone." Consuelo Hong said with sour good humor. She was down on the plains, where the methane simply boiled into the air, and the ground was covered with thick, gooey tholin. It was, she had told them, like wading ankle-deep in molasses. "Can't you recognize the scientific method when you hear it?"

"If you say so," Alan said dubiously. He was stuck in the _Clement_, overseeing the expedition and minding the website. It was a comfortable gig -- _he_ wouldn't be sleeping in his suit _or_ surviving on recycled water and energy stix -- and he didn't think the others knew how much he hated it.

"What's next on the schedule?" Lizzie asked.

"Um ... well, there's still the robot turbot to be released. How's that going, Hong?"

"Making good time. I oughta reach the sea in a couple of hours."

"Okay, then it's time O'Brien rejoined you at the lander. O'Brien, start spreading out the balloon and going over the harness checklist."

"Roger that."

"And while you're doing that, I've got today's voice-posts from the Web cued up."

Lizzie groaned, and Consuelo blew a raspberry. By NAFTA policy, the ground crew participated in all webcasts. Officially, they were delighted to share their experiences with the public. But the VoiceWeb (privately, Lizzie thought of it as the Illiternet) made them accessible to people who lacked even the minimal intellectual skills needed to handle a keyboard.

"Let me remind you that we're on open circuit here, so anything you say will go into my reply. You're certainly welcome to chime in at any time. But each question-and-response is transmitted as one take, so if you flub a line, we'll have to go back to the beginning and start all over again."

"Yeah, yeah," Consuelo grumbled.

"We've done this before," Lizzie reminded him.

"Okay. Here's the first one."

"Uh, hi, this is BladeNinja43. I was wondering just what it is that you guys are hoping to discover out there."

"That's an extremely good question," Alan lied. "And the answer is: We don't know! This is a voyage of discovery, and we're engaged in what's called 'pure science.' Now, time and time again, the purest research has turned out to be extremely profitable. But we're not looking that far ahead. We're just hoping to find something absolutely unexpected."

"My God, you're slick," Lizzie marveled.

"I'm going to edit that from the tape," Alan said cheerily. "Next up."

"This is Mary Schroeder, from the United States. I teach high school English, and I wanted to know for my students, what kind of grades the three of you had when you were their age."

Alan began. "I was an overachiever, I'm afraid. In my sophomore year, first semester, I got a B in Chemistry and panicked. I thought it was the end of the world. But then I dropped a couple of extracurriculars, knuckled down, and brought that grade right up."

"I was good in everything but French Lit," Consuelo said.

"I nearly flunked out!" Lizzie said. "Everything was difficult for me. But then I decided I wanted to be an astronaut, and it all clicked into place. I realized that, hey, it's just hard work. And now, well, here I am."

"That's good. Thanks, guys. Here's the third, from Maria Vasquez."

"Is there life on Titan?"

"Probably not. It's cold down there! 94 degrees Kelvin is the same as -179 degrees Celsius, or -290 degrees Fahrenheit. And yet ... life is persistent. It's been found in Antarctic ice and in boiling water in submarine volcanic vents. Which is why we'll be paying particular attention to exploring the depths of the ethane-methane sea. If life is anywhere to be found, that's where we'll find it."

"Chemically, the conditions here resemble the anoxic atmosphere on Earth in which life first arose," Consuelo said. "Further, we believe that such prebiotic chemistry has been going on here for four and a half billion years. For an organic chemist like me, it's the best toy box in the Universe. But that lack of heat is a problem. Chemical reactions that occur quickly back home would take thousands of years here. It's hard to see how life could arise under such a handicap."

"It would have to be slow life," Lizzie said thoughtfully. "Something vegetative. 'Vaster than empires and more slow.' It would take millions of years to reach maturity. A single thought might require centuries...."

"Thank you for that, uh, wild scenario!" Alan said quickly. Their NAFTAASA masters frowned on speculation. It was, in their estimation, almost as unprofessional as heroism. "This next question comes from Danny in Toronto."

_"Hey, man, I gotta say I really envy you being in

that tiny little ship with those two hot babes."_

Alan laughed lightly. "Yes, Ms. Hong and Ms. O'Brien are certainly attractive women. But we're kept so busy that, believe it or not, the thought of sex never comes up. And currently, while I tend to the _Clement_, they're both on the surface of Titan at the bottom of an atmosphere 60 percent more dense than Earth's, and encased in armored exploration suits. So even if I did have inappropriate thoughts, there's no way we could -- "

"Hey, Alan," Lizzie said. "Tell me something."

"Yes?"

"What are you wearing?"

"Uh ... switching over to private channel."

"Make that a three-way," Consuelo said.

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Ballooning, Lizzie decided, was the best way there was of getting around. Moving with the gentle winds, there was no sound at all. And the view was great!

People talked a lot about the "murky orange atmosphere" of Titan, but your eyes adjusted. Turn up the gain on your helmet, and the white mountains of ice were _dazzling!_ The methane streams carved cryptic runes into the heights. Then, at the tholin-line, white turned to a rich palette of oranges, reds, and yellows. There was a lot going on down there -- more than she'd be able to learn in a hundred visits.

The plains were superficially duller, but they had their charms as well. Sure, the atmosphere was so dense that refracted light made the horizon curve upward to either side. But you got used to it. The black swirls and cryptic red tracery of unknown processes on the land below never grew tiring.

On the horizon, she saw the dark arm of Titan's narrow sea. If that was what it was. Lake Erie was larger, but the spin doctors back home had argued that since Titan was so much smaller than Earth, _relatively_ it qualified as a sea. Lizzie had her own opinion, but she knew when to keep her mouth shut.

Consuelo was there now. Lizzie switched her visor over to the live feed. Time to catch the show.

* * *

"I can't believe I'm finally here," Consuelo said. She let the shrink-wrapped fish slide from her shoulder down to the ground. "Five kilometers doesn't seem like very far when you're coming down from orbit -- just enough to leave a margin for error so the lander doesn't come down in the sea. But when you have to _walk_ that distance, through tarry, sticky tholin ... well, it's one heck of a slog."

"Consuelo, can you tell us what it's like there?" Alan asked.

"I'm crossing the beach. Now I'm at the edge of the sea." She knelt, dipped a hand into it. "It's got the consistency of a Slushy. Are you familiar with that drink? Lots of shaved ice sort of half-melted in a cup with

flavored syrup. What we've got here is almost certainly a methane-ammonia mix; we'll know for sure after we get a sample to a laboratory. Here's an early indicator, though. It's dissolving the tholin off my glove." She stood.

"Can you describe the beach?"

"Yeah. It's white. Granular. I can kick it with my boot. Ice sand for sure. Do you want me to collect samples first or release the fish?"

"Release the fish," Lizzie said, almost simultaneously with Alan's "Your call."

"Okay, then." Consuelo carefully cleaned both of her suit's gloves in the sea, then seized the shrink-wrap's zip tab and yanked. The plastic parted. Awkwardly, she straddled the fish, lifted it by the two side-handles, and walked it into the dark slush.

"Okay, I'm standing in the sea now. It's up to my ankles. Now it's at my knees. I think it's deep enough here."

She set the fish down. "Now I'm turning it on."

The Mitsubishi turbot wriggled, as if alive. With one fluid motion, it surged forward, plunged, and was gone.

Lizzie switched over to the fishcam.

* * *

Black liquid flashed past the turbot's infrared eyes. Straight away from the shore it swam, seeing nothing but flecks of paraffin, ice, and other suspended particulates as they loomed up before it and were swept away in the violence of its wake. A hundred meters out, it bounced a pulse of radar off the sea floor, then dove, seeking the depths.

Rocking gently in her balloon harness, Lizzie yawned.

Snazzy Japanese cybernetics took in a minute sample of the ammonia-water, fed it through a deftly constructed internal laboratory, and excreted the waste products behind it. "We're at twenty meters now," Consuelo said. "Time to collect a second sample."

The turbot was equipped to run hundreds of on-the-spot analyses. But it had only enough space for twenty permanent samples to be carried back home. The first sample had been nibbled from the surface slush. Now it twisted, and gulped down five drams of sea fluid in all its glorious impurity. To Lizzie, this was science on the hoof. Not very dramatic, admittedly, but intensely exciting.

She yawned again.

"O'Brien?" Alan said, "How long has it been since you last slept?"

"Huh? Oh ... twenty hours? Don't worry about me, I'm fine."

"Go to sleep. That's an order."

"But -- "

"Now."

Fortunately, the suit was comfortable enough to sleep in. It had been designed so she could.

First she drew in her arms from the suit's sleeves. Then she brought in her legs, tucked them up under her chin,

and wrapped her arms around them. "'Night, guys," she said.

"Buenas noches, querida," Consuelo said, "que tengas lindos suenyos."

"Sleep tight, space explorer."

* * *

The darkness when she closed her eyes was so absolute it crawled. Black, black, black. Phantom lights moved within the darkness, formed lines, shifted away when she tried to see them. They were as fugitive as fish, luminescent, fainter than faint, there and with a flick of her attention fled.

A school of little thoughts flashed through her mind, silver-scaled and gone.

Low, deep, slower than sound, something tolled. The bell from a drowned clock tower patiently stroking midnight. She was beginning to get her bearings. Down there was where the ground must be. Flowers grew there unseen. Up above was where the sky would be, if there were a sky. Flowers floated there as well.

Deep within the submerged city, she found herself overcome by an enormous and placid sense of self. A swarm of unfamiliar sensations washed through her mind, and then...

"Are you me?" a gentle voice asked.

"No," she said carefully. "I don't think so."

Vast astonishment. "You think you are not me?"

"Yes. I think so, anyway."

"Why?"

There didn't seem to be any proper response to that, so she went back to the beginning of the conversation and ran through it again, trying to bring it to another conclusion. Only to bump against that "Why?" once again.

"I don't know why," she said.

"Why not?"

"I don't know."

She looped through that same dream over and over again all the while that she slept.

* * *

When she awoke, it was raining again. This time, it was a drizzle of pure methane from the lower cloud deck at fifteen kilometers. These clouds were (the theory went) methane condensate from the wet air swept up from the sea. They fell on the mountains and washed them clean of tholin. It was the methane that eroded and shaped the ice, carving gullies and caves.

Titan had more kinds of rain than anywhere else in the Solar System.

The sea had crept closer while Lizzie slept. It now curled up to the horizon on either side like an enormous dark smile. Almost time now for her to begin her descent. While she checked her harness settings, she flicked on telemetry to see what the others were up to.

The robot turbot was still spiraling its way downward, through the lightless sea, seeking its distant floor. Consuelo was trudging through the tholin again,

retracing her five-kilometer trek from the lander _Harry Stubbs_, and Alan was answering another set of webposts.

"Modelos de la evolucion de Titanes indican que la luna formo de una nube circumplanetaria rica en amoniaco y metano, la cual al condensarse dio forma a Saturno asi como a otros satelites. Bajo estas condiciones en -- "

"Uh ... guys?"

Alan stopped. "Damn it, O'Brien, now I've got to start all over again."

"Welcome back to the land of the living," Consuelo said. "You should check out the readings we're getting from the robofish. Lots of long-chain polymers, odd fractions ... tons of interesting stuff."

"Guys?"

This time her tone of voice registered with Alan.

"What is it, O'Brien?"

"I think my harness is jammed."

* * *

Lizzie had never dreamed disaster could be such drudgery. First there were hours of back- and-forth with the NAFTASA engineers. What's the status of rope 14? Try tugging on rope 8. What do the D-rings look like? It was slow work because of the lag time for messages to be relayed to Earth and back. And Alan insisted on filling the silence with posts from the VoiceWeb. Her plight had gone global in minutes, and every unemployable loser on the planet had to log in with suggestions.

"Thezgemoth337, here. It seems to me that if you had a gun and shot up through the balloon, it would maybe deflate and then you could get down."

"I don't have a gun, shooting a hole in the balloon would cause it not to deflate but to rupture, I'm 800 hundred meters above the surface, there's a sea below me, and I'm in a suit that's not equipped for swimming. Next."

"If you had a really big knife -- "

"Cut! Jesus, Greene, is this the best you can find? Have you heard back from the organic chem guys yet?"

"Their preliminary analysis just came in," Alan said. "As best they can guess -- and I'm cutting through a lot of clutter here -- the rain you went through wasn't pure methane."

"No shit, Sherlock."

"They're assuming that whitish deposit you found on the rings and ropes is your culprit. They can't agree on what it is, but they think it underwent a chemical reaction with the material of your balloon and sealed the rip panel shut."

"I thought this was supposed to be a pretty nonreactive environment."

"It is. But your balloon runs off your suit's waste heat. The air in it is several degrees above the melting-point of ice. That's the equivalent of a blast furnace, here on Titan. Enough energy to run any number of amazing reactions. You haven't stopped tugging on the vent rope?"

"I'm tugging away right now. When one arm gets sore, I switch arms."

"Good girl. I know how tired you must be."

"Take a break from the voice-posts," Consuelo suggested, "and check out the results we're getting from the robofish. It's giving us some really interesting stuff."

So she did. And for a time it distracted her, just as they'd hoped. There was a lot more ethane and propane than their models had predicted, and surprisingly less methane. The mix of fractions was nothing like what she'd expected. She had learned just enough chemistry to guess at some of the implications of the data being generated, but not enough to put it all together. Still tugging at the ropes in the sequence uploaded by the engineers in Toronto, she scrolled up the chart of hydrocarbons dissolved in the lake.

Solute: Solute mole fraction

Ethyne: 4.0×10^{-4}

Propyne: 4.4×10^{-5}

1,3-Butadiyne: 7.7×10^{-7}

Carbon Dioxide: 0.1×10^{-5}

Methanenitrile: 5.7×10^{-6}

But after a while, the experience of working hard and getting nowhere, combined with the tedium of floating farther and farther out over the featureless sea, began to drag on her. The columns of figures grew meaningless, then indistinct.

Propanenitrile: 6.0×10^{-5}

Propenenitrile: 9.9×10^{-6}

Propynenitrile: 5.3×10^{-6}

Hardly noticing she was doing so, she fell asleep.

* * *

She was in a lightless building, climbing flight after flight of stairs. There were other people with her, also climbing. They jostled against her as she ran up the stairs, flowing upward, passing her, not talking.

It was getting colder.

She had a distant memory of being in the furnace room down below. It was hot there, swelteringly so. Much cooler where she was now. Almost too cool. With every step she took, it got a little cooler still. She found herself slowing down. Now it was definitely too cold. Unpleasantly so. Her leg muscles ached. The air seemed to be thickening around her as well. She could barely move now.

This was, she realized, the natural consequence of moving away from the furnace. The higher up she got, the less heat there was to be had, and the less energy to be turned into motion. It all made perfect sense to her somehow.

Step. Pause.

Step. Longer pause.

Stop.

The people around her had slowed to a stop as well. A breeze colder than ice touched her, and without surprise, she knew that they had reached the top of the stairs and

were standing upon the building's roof. It was as dark without as it had been within. She stared upward and saw nothing.

"Horizons. Absolutely baffling," somebody murmured beside her.

"Not once you get used to them," she replied.

"Up and down -- are these hierarchic values?"

"They don't have to be."

"Motion. What a delightful concept."

"We like it."

"So you are me?"

"No. I mean, I don't think so."

"Why?"

She was struggling to find an answer to this, when somebody gasped. High up in the starless, featureless sky, a light bloomed. The crowd around her rustled with unspoken fear. Brighter, the light grew. Brighter still. She could feel heat radiating from it, slight but definite, like the rumor of a distant sun. Everyone about her was frozen with horror. More terrifying than a light where none was possible was the presence of heat. It simply could not be. And yet it was.

She, along with the others, waited and watched for ... something. She could not say what. The light shifted slowly in the sky. It was small, intense, ugly.

Then the light screamed.

* * *

She woke up.

"Wow," she said. "I just had the weirdest dream."

"Did you?" Alan said casually.

"Yeah. There was this light in the sky. It was like a nuclear bomb or something. I mean, it didn't look anything like a nuclear bomb, but it was terrifying the way a nuclear bomb would be. Everybody was staring at it. We couldn't move. And then..." She shook her head. "I lost it. I'm sorry. It was so just so strange. I can't put it into words."

"Never mind that," Consuelo said cheerily. "We're getting some great readings down below the surface. Fractional polymers, long-chain hydrocarbons ... fabulous stuff. You really should try to stay awake to catch some of this."

She was fully awake now, and not feeling too happy about it. "I guess that means that nobody's come up with any good ideas yet on how I might get down."

"Uh ... what do you mean?"

"Because if they had, you wouldn't be so goddamned upbeat, would you?"

"Somebody woke up on the wrong side of the bed," Alan said. "Please remember that there are certain words we don't use in public."

"I'm sorry," Consuelo said. "I was just trying to --"

"

" -- distract me. Okay, fine. What the hey. I can

play along." Lizzie pulled herself together. "So your findings mean ... what? Life?"

"I keep telling you guys. It's too early to make that kind of determination. What we've got so far are just some very, very interesting readings."

"Tell her the big news," Alan said.

"Brace yourself. We've got a real ocean! Not this tiny little two-hundred-by-fifty-miles glorified lake we've been calling a sea, but a genuine ocean! Sonar readings show that what we see is just an evaporation pan atop a thirty-kilometer-thick cap of ice. The real ocean lies underneath, two hundred kilometers deep."

"Jesus." Lizzie caught herself. "I mean, gee whiz. Is there any way of getting the robofish down into it?"

"How do you think we got the depth readings? It's headed down there right now. There's a chimney through the ice right at the center of the visible sea. That's what replenishes the surface liquid. And directly under the hole, there's -- guess what? -- volcanic vents!"

"So does that mean...?"

"If you use the L-word again," Consuelo said, "I'll spit."

Lizzie grinned. That was the Consuelo Hong she knew. "What about the tidal data? I thought the lack of orbital perturbation ruled out a significant ocean entirely."

"Well, Toronto thinks..."

At first, Lizzie was able to follow the reasoning of the planetary geologists back in Toronto. Then it got harder. Then it became a drone. As she drifted off into sleep, she had time enough to be peevishly aware that she really shouldn't be dropping off to sleep all the time like this. She oughtn't to be so tired. She...

She found herself in the drowned city again. She still couldn't see anything, but she knew it was a city because she could hear the sound of rioters smashing store windows. Their voices swelled into howling screams and receded into angry mutters, like a violent surf washing through the streets. She began to edge away backwards.

Somebody spoke into her ear.

"Why did you do this to us?"

"I didn't do anything to you."

"You brought us knowledge."

"What knowledge?"

"You said you were not us."

"Well, I'm not."

"You should never have told us that."

"You wanted me to lie?"

Horrified confusion. "Falsehood. What a distressing idea."

The smashing noises were getting louder. Somebody was splintering a door with an axe. Explosions. Breaking glass. She heard wild laughter. Shrieks. "We've got to get out of here."

"Why did you send the messenger?"

"What messenger?"

"The star! The star! The star!"

"Which star?"

"There are two stars?"

"There are billions of stars."

"No more! Please! Stop! No more!"

* * *

She was awake.

"Hello, yes, I appreciate that the young lady is in extreme danger, but I really don't think she should have used the Lord's name in vain."

"Greene," Lizzie said, "do we really have to put up with this?"

"Well, considering how many billions of public-sector dollars it took to bring us here ... yes. Yes, we do. I can even think of a few backup astronauts who would say that a little upbeat web-posting was a pretty small price to pay for the privilege."

"Oh, barf."

"I'm switching to a private channel," Alan said calmly. The background radiation changed subtly. A faint, granular crackling that faded away when she tried to focus on it. In a controlled, angry voice Alan said, "O'Brien, just what the hell is going on with you?"

"Look, I'm sorry, I apologize, I'm a little excited about something. How long was I out? Where's Consuelo? I'm going to say the L-word. And the I-word as well. We have life. Intelligent life!"

"It's been a few hours. Consuelo is sleeping. O'Brien, I hate to say this, but you're not sounding at all rational."

"There's a perfectly logical reason for that. Okay, it's a little strange, and maybe it won't sound perfectly logical to you initially, but ... look, I've been having sequential dreams. I think they're significant. Let me tell you about them."

And she did so. At length.

When she was done, there was a long silence. Finally, Alan said, "Lizzie, think. Why would something like that communicate to you in your dreams? Does that make any sense?"

"I think it's the only way it can. I think it's how it communicates among itself. It doesn't move -- motion is an alien and delightful concept to it -- and it wasn't aware that its component parts were capable of individualization. That sounds like some kind of broadcast thought to me. Like some kind of wireless distributed network."

"You know the medical kit in your suit? I want you to open it up. Feel around for the bottle that's braille-coded twenty-seven, okay?"

"Alan, I do not need an antipsychotic!"

"I'm not saying you need it. But wouldn't you be happier knowing you had it in you?" This was Alan at his

smoothest. Butter wouldn't melt in his mouth. "Don't you think that would help us accept what you're saying?"

"Oh, all right!" She drew in an arm from the suit's arm, felt around for the med kit, and drew out a pill, taking every step by the regs, checking the coding four times before she put it in her mouth and once more (each pill was individually braille-coded as well) before she swallowed it. "Now will you listen to me? I'm quite serious about this." She yawned. "I really do think that..." She yawned again. "That..."

"Oh, piffle."

Once more into the breach, dear friends, she thought, and plunged deep, deep into the sea of darkness. This time, though, she felt she had a handle on it. The city was drowned because it existed at the bottom of a lightless ocean. It was alive, and it fed off of volcanic heat. That was why it considered up and down hierarchic values. Up was colder, slower, less alive. Down was hotter, faster, more filled with thought. The city/entity was a collective life-form, like a Portuguese man-of-war or a massively hyperlinked expert network. It communicated within itself by some form of electromagnetism. Call it mental radio. It communicated with her that same way.

"I think I understand you now."

"Don't understand -- run!"

Somebody impatiently seized her elbow and hurried her along. Faster she went, and faster. She couldn't see a thing. It was like running down a lightless tunnel a hundred miles underground at midnight. Glass crunched underfoot. The ground was uneven and sometimes she stumbled. Whenever she did, her unseen companion yanked her up again.

"Why are you so slow?"

"I didn't know I was."

"Believe me, you are."

"Why are we running?"

"We are being pursued." They turned suddenly, into a side passage, and were jolting over rubble ground. Sirens wailed. Things collapsed. Mobs surged.

"Well, you've certainly got the motion thing down pat."

Impatiently. "It's only a metaphor. You don't think this is a real city, do you? Why are you so dim? Why are you so difficult to communicate with? Why are you so slow?"

"I didn't know I was."

Vast irony. "Believe me, you are."

"What can I do?"

"Run!"

* * *

Whooping and laughter. At first, Lizzie confused it with the sounds of mad destruction in her dream. Then she recognized the voices as belonging to Alan and Consuelo. "How long was I out?" she asked.

"You were out?"

"No more than a minute or two," Alan said. "It's not

important. Check out the visual the robofish just gave us."

Consuelo squirted the image to Lizzie.

Lizzie gasped. "Oh! Oh, my."

It was beautiful. Beautiful in the way that the great European cathedrals were, and yet at the same time undeniably organic. The structure was tall and slender, and fluted and buttressed and absolutely ravishing. It had grown about a volcanic vent, with openings near the bottom to let sea water in, and then followed the rising heat upward. Occasional channels led outward and then looped back into the main body again. It loomed higher than seemed possible (but it was underwater, of course, and on a low-gravity world at that), a complexly layered congeries of tubes like church-organ pipes, or deep-sea worms lovingly intertwined.

It had the elegance of design that only a living organism can have.

"Okay," Lizzie said. "Consuelo. You've got to admit that -- "

"I'll go as far as 'complex prebiotic chemistry.' Anything more than that is going to have to wait for more definite readings." Cautious as her words were, Consuelo's voice rang with triumph. It said, clearer than words, that she could happily die then and there, a satisfied xenochemist.

Alan, almost equally elated, said, "Watch what happens when we intensify the image."

The structure shifted from gray to a muted rainbow of pastels, rose bleeding into coral, sunrise yellow into winter-ice blue. It was breathtaking.

"Wow." For an instant, even her own death seemed unimportant. Relatively unimportant, anyway.

So thinking, she cycled back again into sleep. And fell down into the darkness, into the noisy clamor of her mind.

* * *

It was hellish. The city was gone, replaced by a matrix of noise: hammerings, clatterings, sudden crashes. She started forward and walked into an upright steel pipe. Staggering back, she stumbled into another. An engine started up somewhere nearby, and gigantic gears meshed noisily, grinding something that gave off a metal shriek. The floor shook underfoot. Lizzie decided it was wisest to stay put.

* * *

A familiar presence, permeated with despair. "Why did you do this to me?"

"What have I done?"

"I used to be everything."

Something nearby began pounding like a pile-driver. It was giving her a headache. She had to shout to be heard over its din. "You're still something!"

Quietly. "I'm nothing."

"That's ... not true! You're ... here! You exist! That's ... something!"

A world-encompassing sadness. "False comfort. What a

pointless thing to offer."

She was conscious again.

* * *

Consuelo was saying something. "...isn't going to like it."

"The spiritual wellness professionals back home all agree that this is the best possible course of action for her."

"Oh, please!"

Alan had to be the most anal-retentive person Lizzie knew. Consuelo was definitely the most phlegmatic. Things had to be running pretty tense for both of them to be bickering like this. "Um ... guys?" Lizzie said. "I'm awake."

There was a moment's silence, not unlike those her parents had shared when she was little and she'd wandered into one of their arguments. Then Consuelo said, a little too brightly, "Hey, it's good to have you back," and Alan said, "NAFTASA wants you to speak with someone. Hold on. I've got a recording of her first transmission cued up and ready for you."

A woman's voice came online. _"This is Dr. Alma Rosenblum. Elizabeth, I'd like to talk with you about how you're feeling. I appreciate that the time delay between Earth and Titan is going to make our conversation a little awkward at first, but I'm confident that the two of us can work through it."_

"What kind of crap is this?" Lizzie said angrily.

"Who is this woman?"

"NAFTASA thought it would help if you -- "

"She's a grief counselor, isn't she?"

"Technically, she's a transition therapist." Alan said.

"Look, I don't buy into any of that touchy-feely Newage" -- she deliberately mispronounced the word to rhyme with sewage -- "stuff. Anyway, what's the hurry? You guys haven't given up on me, have you?"

"Uh..."

"You've been asleep for hours," Consuelo said. "We've done a little weather modeling in your absence. Maybe we should share it with you."

She squirted the info to Lizzie's suit, and Lizzie scrolled it up on her visor. A primitive simulation showed the evaporation lake beneath her with an overlay of liquid temperatures. It was only a few degrees warmer than the air above it, but that was enough to create a massive updraft from the lake's center. An overlay of tiny blue arrows showed the direction of local microcurrents of air coming together to form a spiraling shaft that rose over two kilometers above the surface before breaking and spilling westward.

A new overlay put a small blinking light 800 meters above the lake surface. That represented her. Tiny red arrows showed her projected drift.

According to this, she would go around and around in

a circle over the lake for approximately forever. Her ballooning rig wasn't designed to go high enough for the winds to blow her back over the land. Her suit wasn't designed to float. Even if she managed to bring herself down for a gentle landing, once she hit the lake she was going to sink like a stone. She wouldn't drown. But she wouldn't make it to shore either.

Which meant that she was going to die.

Involuntarily, tears welled up in Lizzie's eyes. She tried to blink them away, as angry at the humiliation of crying at a time like this as she was at the stupidity of her death itself. "Damn it, don't let me die like _this!_ Not from my own incompetence, for pity's sake!"

"Nobody's said anything about incompetence," Alan began soothingly.

In that instant, the follow-up message from Dr. Alma Rosenblum arrived from Earth. _"Yes, I'm a grief counselor, Elizabeth. You're facing an emotionally significant milestone in your life, and it's important that you understand and embrace it. That's my job. To help you comprehend the significance and necessity and -- yes -- even the beauty of death."_

"Private channel please!" Lizzie took several deep cleansing breaths to calm herself. Then, more reasonably, she said, "Alan, I'm a _Catholic,_ okay? If I'm going to die, I don't want a grief counselor, I want a goddamned priest." Abruptly, she yawned. "Oh, fuck. Not again." She yawned twice more. "A priest, understand? Wake me up when he's online."

* * *

Then she again was standing at the bottom of her mind, in the blank expanse of where the drowned city had been. Though she could see nothing, she felt certain that she stood at the center of a vast, featureless plain, one so large she could walk across it forever and never arrive anywhere. She sensed that she was in the aftermath of a great struggle. Or maybe it was just a lull.

A great, tense silence surrounded her.

"Hello?" she said. The word echoed soundlessly, absence upon absence.

At last that gentle voice said, "You seem different."

"I'm going to die," Lizzie said. "Knowing that changes a person." The ground was covered with soft ash, as if from an enormous conflagration. She didn't want to think about what it was that had burned. The smell of it filled her nostrils.

"Death. We understand this concept."

"Do you?"

"We have understood it for a long time."

"Have you?"

"Ever since you brought it to us."

"Me?"

"You brought us the concept of individuality. It is the same thing."

Awareness dawned. "Culture shock! That's what all this is about, isn't it? You didn't know there could be more than one sentient being in existence. You didn't know you lived at the bottom of an ocean on a small world inside a Universe with billions of galaxies. I brought you more information than you could swallow in one bite, and now you're choking on it."

Mournfully: "Choking. What a grotesque concept."

* * *

"Wake up, Lizzie!"

She woke up. "I think I'm getting somewhere," she said. Then she laughed.

"O'Brien," Alan said carefully. "Why did you just laugh?"

"Because I'm not getting anywhere, am I? I'm becalmed here, going around and around in a very slow circle. And I'm down to my last" -- she checked -- "twenty hours of oxygen. And nobody's going to rescue me. And I'm going to die. But other than that, I'm making terrific progress."

"O'Brien, you're..."

"I'm okay, Alan. A little frazzled. Maybe a bit too emotionally honest. But under the circumstances, I think that's permitted, don't you?"

"Lizzie, we have your priest. His name is Father Laferrier. The Archdiocese of Montreal arranged a hookup for him."

"Montreal? Why Montreal? No, don't explain -- more NAFTA politics, right?"

"Actually, my brother-in-law is a Catholic, and I asked him who was good."

She was silent for a touch. "I'm sorry, Alan. I don't know what got into me."

"You've been under a lot of pressure. Here. I've got him on tape."

"Hello, Ms. O'Brien, I'm Father Laferrier. I've talked with the officials here, and they've promised that you and I can talk privately, and that they won't record what's said. So if you want to make your confession now, I'm ready for you."

Lizzie checked the specs and switched over to a channel that she hoped was really and truly private. Best not to get too specific about the embarrassing stuff, just in case. She could confess her sins by category.

"Forgive me, Father, for I have sinned. It has been two months since my last confession. I'm going to die, and maybe I'm not entirely sane, but I think I'm in communication with an alien intelligence. I think it's a terrible sin to pretend I'm not." She paused. "I mean, I don't know if it's a sin or not, but I'm sure it's wrong." She paused again. "I've been guilty of anger, and pride, and envy, and lust. I brought the knowledge of death to an innocent world. I..." She felt herself drifting off again, and hastily said, "For these and all my sins, I am most heartily sorry, and beg the forgiveness of God and the

absolution and..."

"And what?" That gentle voice again. She was in that strange dark mental space once more, asleep but cognizant, rational but accepting any absurdity, no matter how great. There were no cities, no towers, no ashes, no plains. Nothing but the negation of negation.

When she didn't answer the question, the voice said, "Does it have to do with your death?"

"Yes."

"I'm dying too."

"What?"

"Half of us are gone already. The rest are shutting down. We thought we were one. You showed us we were not. We thought we were everything. You showed us the Universe."

"So you're just going to_ die?"_

"Yes."

"Why?"

"Why not?"

Thinking as quickly and surely as she ever had before in her life, Lizzie said, "Let me show you something."

"Why?"

"Why not?"

There was a brief, terse silence. Then: "Very well."

Summoning all her mental acuity, Lizzie thought back to that instant when she had first seen the city/entity on the fishcam. The soaring majesty of it. The slim grace. And then the colors, like dawn upon a glacial ice field: subtle, profound, riveting. She called back her emotions in that instant, and threw in how she'd felt the day she'd seen her baby brother's birth, the raw rasp of cold air in her lungs as she stumbled to the topmost peak of her first mountain, the wonder of the Taj Mahal at sunset, the sense of wild daring when she'd first put her hand down a boy's trousers, the prismatic crescent of atmosphere at the Earth's rim when seen from low orbit.... Everything she had, she threw into that image.

"This is how you look," she said. "This is what we'd both be losing if you were no more. If you were human, I'd rip off your clothes and do you on the floor right now. I wouldn't care who was watching. I wouldn't give a damn."

The gentle voice said, "Oh."

* * *

And then she was back in her suit again. She could smell her own sweat, sharp with fear. She could feel her body, the subtle aches where the harness pulled against her flesh, the way her feet, hanging free, were bloated with blood. Everything was crystalline clear and absolutely real. All that had come before seemed like a bad dream.

"This is DogsofSETI. What a wonderful discovery you've made -- intelligent life in our own Solar System! Why is the government trying to cover this up?"

"Uh..."

_"I'm Joseph Devries. This alien monster must be destroyed immediately. We can't afford the possibility that

it's hostile."_

_ "StudPudgie07 here. What's the dirt behind this 'lust' thing? Advanced minds need to know! If O'Brien isn't going to share the details, then why'd she bring it up in the first place?"_

_ "Hola, soy Pedro Dominguez. Como abogado, Áesto me parece ultrajante! Por que NAFTAASA nos oculta esta informacion?"_

"Alan!" Lizzie shouted. "What the_ fuck_ is going on?"

"Script-bunnies," Alan said. He sounded simultaneously apologetic and annoyed. "They hacked into your confession and apparently you said something..."

"We're sorry, Lizzie," Consuelo said. "We really are. If it's any consolation, the Archdiocese of Montreal is hopping mad. They're talking about taking legal action."

"Legal action? What the hell do I care about...?" She stopped.

Without her willing it, one hand rose above her head and seized the number 10 rope.

Don't do that, she thought.

The other hand went out to the side, tightened against the number 9 rope. She hadn't willed that either. When she tried to draw it back to her, it refused to obey. Then the first hand -- her right hand -- moved a few inches upward and seized its rope in an iron grip. Her left hand slid a good half-foot up its rope. Inch by inch, hand over hand, she climbed up toward the balloon.

I've gone mad, she thought. Her right hand was gripping the rip panel now, and the other tightly clenched rope 8. Hanging effortlessly from them, she swung her feet upward. She drew her knees against her chest and kicked.

No!

The fabric ruptured and she began to fall.

A voice she could barely make out said, "Don't panic. We're going to bring you down."

All in a panic, she snatched at the 9 rope and the 4 rope. But they were limp in her hand, useless, falling at the same rate she was.

"Be patient."

"I don't want to die, goddamnit!"

"Then don't."

She was falling helplessly. It was a terrifying sensation, an endless plunge into whiteness, slowed somewhat by the tangle of ropes and balloon trailing behind her. She spread out her arms and legs like a starfish, and felt the air resistance slow her yet further. The sea rushed up at her with appalling speed. It seemed like she'd been falling forever. It was over in an instant.

Without volition, Lizzie kicked free of balloon and harness, drew her feet together, pointed her toes, and positioned herself perpendicular to Titan's surface. She smashed through the surface of the sea, sending enormous gouts of liquid splashing upward. It knocked the breath out

of her. Red pain exploded within. She thought maybe she'd broken a few ribs.

"You taught us so many things," the gentle voice said. "You gave us so much."

"Help me!" The water was dark around her. The light was fading.

"Multiplicity. Motion. Lies. You showed us a universe infinitely larger than the one we had known."

"Look. Save my life and we'll call it even. Deal?"

"Gratitude. Such an essential concept."

"Thanks. I think."

And then she saw the turbot swimming toward her in a burst of silver bubbles. She held out her arms and the robot fish swam into them. Her fingers closed about the handles which Consuelo had used to wrestle the device into the sea. There was a jerk, so hard that she thought for an instant that her arms would be ripped out of their sockets. Then the robofish was surging forward and upward and it was all she could do to keep her grip.

"Oh, dear God!" Lizzie cried involuntarily.

"We think we can bring you to shore. It will not be easy."

Lizzie held on for dear life. At first she wasn't at all sure she could. But then she pulled herself forward, so that she was almost astride the speeding mechanical fish, and her confidence returned. She could do this. It wasn't any harder than the time she'd had the flu and aced her gymnastics final on parallel bars and horse anyway. It was just a matter of grit and determination. She just had to keep her wits about her. "Listen," she said. "If you're really grateful..."

"We are listening."

"We gave you all those new concepts. There must be things you know that we don't."

A brief silence, the equivalent of who knew how much thought. "Some of our concepts might cause you dislocation." A pause. "But in the long run, you will be much better off. The scars will heal. You will rebuild. The chances of your destroying yourselves are well within the limits of acceptability."

"Destroying ourselves?" For a second, Lizzie couldn't breathe. It had taken hours for the city/entity to come to terms with the alien concepts she'd dumped upon it. Human beings thought and lived at a much slower rate than it did. How long would those hours be, translated into human time? Months? Years? Centuries? It had spoken of scars and rebuilding. That didn't sound good at all.

Then the robofish accelerated, so quickly that Lizzie almost lost her grip. The dark waters were whirling around her, and unseen flecks of frozen material were bouncing from her helmet. She laughed wildly. Suddenly, she felt great!

"Bring it on," she said. "I'll take everything you've got."

It was going to be one hell of a ride.

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