

CLARKESWORLD

ISSUE 139



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CLARKESWORLD

APRIL 2018 - ISSUE 139

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Clarkesworld Magazine (ISSN: 1937-7843) • Issue 139 • April 2018

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www.clarkesworldmagazine.com

Carouseling

RICH LARSON

Ostap is putting the finishing touches on a cartoon tardigrade when Alyce calls him. The render is blown up to the size of a sumo, its butcher-paper skin creased and wrinkled around chubby tendril-tipped legs, its eyeless head dominated by a lamprey mouth. He'll need to make it less terrifying before he sends it to the art department.

He shrinks it away and answers the call. "*Hujambo*."

"*Hujambo*, yourself, handsome," Alyce says. "You know you don't have to learn Swahili before you come visit, right? There's English pretty much everywhere. And babeltech for everywhere else."

"*Sawa*," Ostap says, using up another third of his Swahili vocabulary. "How was the lab today? The test run?"

"Nothing blew up. So, good." Alyce's cam comes on, filling half his goggles. Her dark hair is tied back and she's wearing the pajamas with the miniature sheep on them. "Tomorrow's a go."

Ostap sees the familiar stucco wall of her bedroom behind her. There's a slice of window that he knows overlooks Nyalí Beach. He's combed over the maps of her neighborhood a dozen times since she moved to Mombasa, trying to imagine her in every street view.

The lab is farther inland, outside the city, and lab is a small word for a super-facility with miles of machinery that make the old Hadron Collider look like a toy. Alyce has tried to explain to him what exactly goes on there, has tried to explain about the Slip, but Ostap was never much for formulas and when he let his eyes glaze over and drool dribble from the corner of his mouth he was only half joking.

"Time to shatter the rules of quantum mechanics?" Ostap asks.

"Yeah. Actually." She pauses, her mouth set in a way Ostap knows is between worry and anticipation. "If this works, it'll make history."

"I can't wait," Ostap says. "I love it when you make history." Her forehead is still creased; he tries to elicit her smile: "Do you worry about your ego expanding to dangerous sizes once you're famous?"

"Does the universe worry about its constantly-expanding borders?" Alyce asks back, in a grandiose voice, and when Ostap laughs she finally does grin. "How about you? What are you working on today?"

When she asks she always makes it seem as if freelance art is just as important as mind-bending physics.

From the other half of his goggles, Ostap sends her the render plus an animation to make the tardigrade strut in place, its pudgy body wobbling slightly with every step.

"Still designing for that kid's show," he says. "This is Terry the Tardigrade, who teaches kids to not be . . ." He trails off, winding his hand through the air.

Alyce rolls her eyes upward in concentration. "Microscopic."

"Tardy," Ostap says. "Teaches them to not be tardy. I'm helping raise good little meat drones."

Alyce clicks her tongue. "Art School Ostap would be so ashamed."

"Yes," Ostap agrees. "But Art School Ostap was sort of a prick." He revolves the render again. "I'm going to change the mouth. Make it smilier. It's supposed to look friendly."

"I thought it was like, be on time or Terry the Tardigrade will eat you?"

"I'll change the mouth."

Alyce laughs, her loud laugh that seems too big for her body, and for a moment Ostap wants to ask her then and there. But it wouldn't be fair. Not on the eve of the test. He'll ask her in Mombasa.

"Dance with me?" he says instead.

"Yes," she says. "Yes. Definitely. Let me grab the linkwear." She disappears off-screen and Ostap hears her rummaging. He minimizes her in his goggles and retrieves a padded shirt and gloves from their hook on the wall.

The linkwear shirt is all smartfabric, kinetic battery, feedback pads and sensors, linked wirelessly to its twin an ocean away. Small blue status lights wink on as he slides it over his head. Gloves next, tickling his palms with phantom pressure. Then he goes to the center of his bare apartment, stands in the footprints he marked with duct tape, and waits for Alyce to sync up.

Suddenly he can feel her in his arms, feel her chest pushed against his chest and her left arm draped perfectly over his right shoulder and her right hand clasped loose in his left. The familiar shape of her body

trips some wire deep in his brain; for a second he thinks he can smell her citrus shampoo.

“Pick a song,” he says.

“Just a second. Here.”

The first notes of the melody bloom in his earbuds. It’s an old favorite, a slow *kizomba* song remixed by a Swiss-Angolan artist they were obsessed with a year ago. He sinks his hip into the piano and feels Alyce sink with him. The percussion kicks in, soft but steady, thumping in his earbuds like an electronic heartbeat.

He slides forward, one, two, *marca*, and they dance. He can’t feel the brush of her legs against his legs, but Alyce says that’s better, in a way; it makes him lead with his frame instead of cheating with little nudges to her thighs. He can’t feel her cheek against his cheek. But he can feel the warmth and pressure of her body, the subtle shifts of her weight, and when he closes his eyes it’s close enough.

Ostap glides around his empty apartment and guides her around hers, breaking and connecting, slowing and accelerating with the flow of the music. By now the exact dimensions of her room are cemented in his head and he doesn’t have to worry about banging her into her wall or nightstand. They dance another song, and another, then break so Alyce can get a drink of water from her fridge, then dance one final song and end with a dramatic dip two beats too early, which sets them both laughing.

When it’s nearly midnight in Mombasa, Ostap peels off his gloves. They tried sleeping in the linkwear once, but it wasn’t comfortable—it’s better saved for dancing or used together with Alyce’s wireless toys.

“You going to take the linkwear to work with you tomorrow?” he asks. “That way I’d be there for the history-making. You know, in spirit.”

Alyce laughs. “Maybe.”

“Goodnight. Good luck with the test.” Ostap pauses, grasping for syllables, then uses the last third of his newly-learned Swahili. “*Ninakupenda.*”

Alyce is quiet for a moment that seems like forever, then makes a satisfied noise in her throat. “I love you too.”

“My mistake,” Ostap says. “I thought that meant ‘I’m looking for the washroom.’”

“Sure.” Alyce’s lip twitches. “I love you too, asshole.”

Ostap kisses the air just before she ends the call.

SEVEN FEARED DEAD IN KENYA AFTER QUANTUM TEST FACILITY ACCIDENT

At approximately 5:30AM local time, emergency services responded to multiple automated and human reports of an incident at the Nguyen-Bohr superlab located outside the Kenyan city of Mombasa. First responders extinguished an electrical fire at the entrance of the facility, but upon entering were unable to locate the seven members of the science team logged as present at the time of the incident.

A witness described the scene as “unreal, catastrophic,” and drone-captured images [see below] show the extensive nature of the damage, in which large chunks of the concrete structure and surrounding earth seem to have been torn away.

The superlab, which is the largest of its kind in the world, is used to study quantum phenomena. An experiment involving possible FTL particle travel was scheduled to occur today, but due to the nature of the damage, no autologs have been recovered. The Mombasa Fire Brigade suggested that bodies may be unrecoverable for the same reason.

The last guests have left and Ostap is pouring out the leftover wine, balefully watching Merlot glug and splash into his steel sink. All he wants to do is drink. He wants to drink until the alcohol hollows him out to a dull happiness, spins him a warm protective cocoon to keep him that way until morning. Ostap was never a maudlin drunk.

But he was an alcoholic. Which is why an implant in his stomach, a tiny origami enzyme factory, now breaks down any alcohol long before he can absorb it. Alyce paid for half of the surgery, since he was still treading debt at the time. It felt like love then. It now feels like a middle finger from beyond the grave.

Ostap sets the empty bottle on the counter and looks around his apartment. There are still a few glasses here and there, dregs turning sticky in the bottoms. His roving end table has returned to its usual spot by the sofa with the remainders of the spring rolls and seaweed chips. Reginald, the autocleaner he and Alyce named together one silly night, is wiping a splatter of dipping sauce off the floor. Above it, the smartwall is still flickering clips and snaps of her. People wrote little notes on them with a stylus or just their fingers.

The memorial party was a bad idea. One of Alyce's friends from Uni asked him to host it, because his apartment is central, and he agreed because he hardly leaves it anyways these days. And secretly, he hoped it might help in some way the wake and funeral had not.

Instead, the night was a collision of awkward physics types and overdramatic artists, all of whom seemed to have come just to give him pitying looks or too-tight hugs or snippets of advice like *you can always talk to someone* and *don't start memory archiving* or *you'll be in there forever*.

And he had to thank them and pretend like he hadn't spent the past week lying boneless on his couch watching every single second he and Alyce had recorded together. He'd tried to get rid of the goggle marks around his eyes with cold water and vigorous rubbing before people started arriving, but it hadn't worked.

Almost worse than being pitied was having to pity them all back. Some of them had known Alyce since they were only kids, which made him feel a strange mixture of sympathy, because they had lost more of her than he had, and jealousy, for the same reason. He spent a good chunk of the party hiding in the bathroom, where the tiny knots he has felt in his stomach for weeks knotted themselves even tighter.

Now, staring at the wall of notes he agreed to upload somewhere, he wonders if he deserves to be sad at all. Compared to her friends and family who have known her forever, he is an interloper. His status is inflated only because he was the last person to be in love with her: as if sleeping with her for a year and one month makes his grief just as valid as theirs. He feels like he knew her better than anyone, but it's a half-hormones illusion.

And he can't even get drunk.

Reginald jostles him on its way to load the empty glasses into the dishwasher. Without thinking, Ostap gives it a savage kick. The little robot sails across the room; it manages to keep hold of the glasses but one shatters anyway when it smashes to the faux-wood floor.

Ostap watches Reginald rock back and forth on its white plastic shell, trying to right itself. Something about it triggers the tears that have been building up behind his eyes all night. They spill out and down his cheeks, salty hot, as he goes over to crouch beside the autocleaner.

"Sorry." He flips it over gently. "Sorry, sorry, I didn't mean it."

He sits cross-legged, patting Reginald on the back as it starts to wolf down the shards of broken glass. He wipes his eyes with the back of his right hand then wipes his nose with the back of his left. Squints at the smartwall, which is cycling through snaps from Alyce's last birthday: they went to an overpriced restaurant on the wharf where all the servers wore chamsuits to be less obtrusive, and spent half the evening thanking thin air.

The snap shows Alyce grinning, triumphant, because they managed to catch one in the background. A server had been rolling down the

neck of their chamsuit to scratch themselves, placing a tiny sliver of skin beside a levitating drinks tray. *From the look on your face*, Ostap used to tell her, *you'd think it was hard evidence of extraterrestrial life*.

He slumps down so he's lying on the floor of his apartment. He wants to clear the notes and images away, play music loud enough to swallow the sound of his undignified snuffling, but he can't choke out either command. So he just lies there, listening to his own ragged breathing and to Reginald's shuffling feet.

Then he hears something else: the soft rustling of smartfabric flexing against itself. He stops crying. Stops breathing. Dangling from the hook on his wall, the linkwear he hasn't touched for a month is coming online. Ostap gets to his feet. The blue status lights pulse and he is drawn to them like a moth; he staggers to the wall, suspecting that he is dreaming again.

With trembling hands, he lifts the shirt off its hook and pulls it over his head. When the company gathered up all of Alyce's things and shipped them back to her parents in Antwerp, the linkwear never made it. Ostap knows because he asked Alyce's mother, who said no, nothing like that, probably some sticky-fingered neighbor made off with it.

But there's another possibility. Maybe Alyce really did take it with her to the lab on the day things all went to hell. As a way for him to almost be there. Ostap puts on the gloves. With his pulse pounding, he goes to the taped footprints in the center of his apartment and closes his eyes.

They never recovered her body. Any of the bodies. Ostap saw the images, the way whole swathes of earth had been carved up and carried off by some invisible hand. He fantasized, for a little while, that Alyce had only been transported away, which meant she could return. But he thought that was only masochism.

The linkwear syncs. A familiar body presses against him and Ostap's heart skips a beat. The proportions are right. The height, the shape. He reminds himself it could be saved data. A glitch. Feedback error.

He squeezes Alyce's hand, and she squeezes back hard.

"Ostap Bender." Ostap enunciates this time. "I've got some questions about the Nguyen-Bohr lab."

Doctor Anunoby is on East Africa Time; hopefully she doesn't realize it's the middle of the night where Ostap is calling from.

"I've given statements already," she says. "Use those. Don't call my personal line."

Ostap is standing on the tape marks again, still wearing the shirt and gloves. The last whisper of pressure came hours ago, but he doesn't dare

remove them. "I'm not a reporter. I found the line in Alyce's contacts. She was my . . ." Ostap's throat clogs dry. He didn't ask. He'd been planning to ask in Mombasa. "Alyce Kerensky was my partner."

"Oh." A pause. "I'm sorry for your loss."

"You worked with her right up until last year," Ostap says. "Same project. Right?"

"That's right."

"She told me a little about it." Ostap inhales. "About the Slip."

"Some of us called it that, yes."

"It was the FTL theory. About how particles could skip, at the right energy levels." Ostap has some of the literature in his left goggle, but he can barely wrestle through the abstract. In his right goggle he's trawling the conspiracy forums, the ones he swore off, where people think the scientists were taken by aliens or kidnapped by government agents. "They would disappear and then reappear farther along the beamline. Like they were going into some kind of pocket and coming out again."

There's a long pause before Anunoby replies. "We don't know what happened to Alyce and her team. We have no idea. The instruments were compromised. Half the hardware, just gone. There's no precedent for it. It's going to take years to try to sort out what happened, and if we ever do we'll have local government up our asses about safety measures for, I don't know. For rapture."

"I think they're in the Slip," Ostap blurts. "I think they're alive. At least, Alyce is. I felt her in our linkwear."

"Oh." Anunoby's voice cracks slightly. "There's a trauma group. For friends and family. I can send you the information."

"That's not what this is," Ostap says. "She took the linkwear with her the day it happened. I mean. I think she did. And tonight I felt her squeeze my hand."

"The amount of energy you need to put a particle in the Slip would vaporize human tissues."

"Pretend I'm not losing my mind." Ostap flexes his fingers in the gloves. "What should I do? If it happens again?"

Anunoby sighs. "Be ready for it. Try to backtrace the signal. Try to communicate with whoever's on the other end. I'll send you the trauma group info in the meantime."

"Thanks."

When it happens again Ostap is sprawled on the couch, half submerged in a dream, a caffeine spray still clutched in his hand. Alyce's fingers

against his chest make him turn his head instinctively, searching for her lips. He doesn't find them. He jerks fully awake and his eyes fly open.

Alyce's fingers drop away save one; it feels like her index. Ostap holds perfectly still, hardly breathing, as she draws a circle on his chest. A serpentine curve follows it, and he realizes it was an O, not a circle, and now she is finishing the S and starting the T. He waits until his name is complete, until she places the dot of the question mark:

OSTAP?

Ostap's hands are shaking. He reaches until he phantom-feels Alyce's torso, then writes back on her ribcage:

YES

She hugs him, wrapping both arms around him hard and clinging there. Ostap hugs back. The embrace is tight and desperate and he wants it to never end. She used to cling to him like that after sex sometimes, weaving her legs around him too and swearing she wasn't an octopus, telling him she *definitely* only had four limbs and to disregard any extras he might feel.

Right now Ostap feels nothing but relief, an endorphin wave crashing over him. Alyce is alive. He looks over at the screen of his tablet, which is hooked up to the linkwear GPS node. According to the trace, Alyce's signal is coming from nowhere at all. Cold slithers through his warm.

He finally peels an arm free and starts the next message. He gets the R backwards; hopefully she understands it anyways:

WHR U?

Then he stays perfectly still, concentrating as her invisible finger traces a reply.

LAB. NEVR LEFT.

Getting the linkwear through airport security is nerve-shredding—extra scans, extra interrogations—but Ostap makes it onto the plane without them confiscating anything. He stows his bag in the overhead, then slides past a white-haired woman to get to his seat. She gives him a curious glance as he loosens the seatbelt to fit it over his padded shirt. The pillow around her neck is so plump she can barely see over the top of it.

"Is that a comfort vest?" she asks. "One of those things that hugs you if you start having an anxiety attack?"

"Yes," Ostap says, because that's more or less how he explained it to security.

"No shame in that," she says. "I get nervous still. I've been flying, what, fifty years. Still get nervous."

“There’s always ginger ale,” Ostap says. “I think the ginger ale helps. And watching cartoons.”

He finds Alyce’s phantom hand, how he’s done every few minutes since they established contact, and squeezes. She gives two back.

He keeps picturing her in the Slip. She described it to him in painstaking detail, switching from drawing letters to tapping out Morse code that Ostap needed his goggles to translate. She says she’s still in the observation room, or at least somewhere that looks like it. But with some differences.

She’s only been there for a day at most. Her last memory is unexpected activity on the third beamline. Color is muted, everything a soft cold blue. Light and motion warp in strange ways, leaving misplaced reflections and lingering blurs.

Sometimes she thinks she sees flickers of the other scientists, of Bagley, Chiozza, Xu, and the rest, moving around the observation room. She can’t interact with them. Aside from the linkwear, none of her personal electronics work. None of the lab tech works.

She can’t detect air currents. She’s breathing, but she held her breath for just over seven minutes and showed no ill effects, meaning she might not need to. She is not sure—and this is where Ostap had to stop her and hold her—if she is still alive, in the strictest sense of the word. He told her he would take undead Alyce over dead Alyce any day. And that Dr. Anunoby would figure out a way to get her out.

“Been to Kenya before?” the white-haired woman asks. “I’m visiting my son. He’s on the coast.”

“I haven’t,” Ostap says. “I’ve been planning it for a long time, though.” He pauses. “*Hujambo*.”

“Oh, you’re going to blow them away. Where are the cartoons?”

Ostap helps her scroll through the kid’s channels until he finds her *The Almost Adventures of Terry the Tardigrade*. Then he puts his earbuds in and settles back in his seat, tapping his finger against Alyce’s palm:
OMW.

Dr. Anunoby is taller than he imagined her, spindly limbs in a black pantsuit, flyaway hair. She picks him out of the arrival rush and Ostap removes his glove to shake hands. His palm is already slick with sweat from the brief walk through the tarmac-shimmering heat between airplane and airport. Alyce warned him it was hot in March. Told him to bring good sunblock or he’d spontaneously combust on the beach.

Dr. Anunoby asks the perfunctory questions about his flight as she steers him to the exit, and Ostap can tell she has never been tardy in her life. A boxy black Chinese rental is waiting for them outside. He

slides gratefully back into air conditioning. Dr. Anunoby slides in after him, eyeing the linkwear.

"So you've been communicating entirely by touch."

"Yes. Well, Morse code. Haven't thought up anything better."

"May I?"

After a moment's hesitation, Ostap peels off his right glove and hands it over. She puts it on, flexing her fingers, and he guides her hand to Alyce's shoulder. For a terrifying instant he thinks Dr. Anunoby won't feel anything, that she'll frown and gently confirm that he is losing his mind. But then her eyes widen slightly. Ostap pulls up a Morse code translator for her and watches in silence, his bare hand clenched tight on his thigh.

"What are you saying?" he asks, when he fails to keep track of her pulses.

"Asking a very specific question about how we met," Dr. Anunoby says.

"Just to be sure it's not an elaborate hoax?"

She nods. "You don't seem like the type for an elaborate hoax. But I need to ask. For my own peace of mind."

Ostap watches out the window while he waits. They're on the highway now, parallel to the Mombasa-Nairobi raised rail, driving in its shadow. Passenger pods flash like silverfish along the retrofitted magnetics. The soil is rust red and the trees are a lush dark green. When the car pulls off onto a smaller road, they have to drive through a scanner gate.

"Thank you," Dr. Anunoby says, returning the glove. "It's incredible. It's really incredible."

Ostap puts the glove back on and gropes for Alyce's hand, interweaves his fingers with hers. "So?" he asks. "How are we going to get her back?"

Dr. Anunoby purses her lips as the car glides to a halt. "There's something I didn't tell you. I couldn't tell you until I was sure."

Ostap's stomach churns. The tiny knots are back, coiled tighter than ever, carouseling. "What?"

"We're starting to find bodies." Dr. Anunoby pushes open the car door. "Come up the hill."

She gets out and Ostap stumbles after her. The sun is too harsh for his flimsy airport shades; he squints his eyes behind them. The heat beats him around the head and shoulders as he follows her over gravel parking lot to a slope of red-brown earth. His knees are weak and watery, but he climbs it anyway. A breeze ruffles his hair and cools his sweaty forehead as they near the top.

When they crest the hill, he sees the damage the drone photos didn't do justice. The external hub of the Nguyen-Bohr lab, now charred rubble, is large enough on its own. But the facility extended for miles

beneath the surface, and has now been sectioned out in huge swathes by some unseen surgical blade.

For a moment Ostap's eyes rebel at the scope of the scene, the unnatural composition. It looks more like effects, like something he would render in his goggles, than anything real. He can see layers of packed dirt, concrete, wiring, all neatly sheared to the same exact proportions. The electrical fires were a sideshow. The real damage was done by something else. Or maybe by nothing at all.

He looks at the massive pit where the observation room once was. There's an emergency crew down there, reflective jackets gleaming in the sunshine. He can see them loading something onto a stretcher.

"The first one showed up just after you called me," Dr. Anunoby says. "Bits of skeleton and muscle all mixed up with chunks of the floor. With metal and wiring. They scraped enough DNA to identify it as Dr. Simmons. Xu followed the same way about an hour ago. It's like the . . . the Slip . . . is spitting them back out. But not intact."

Ostap's tongue is too dry to talk. He tries twice before he gets the first word out. "We can bring her back safe. Somehow."

"We're ants," Dr. Anunoby says. She nods her chin at the destruction. "We don't understand how this happened. No other facility in the world has the tech to run the test again, not even CERN, and if they tried it might end up even worse. We made a mistake."

Ostap sinks to his haunches, spreads one hand in the hot dust for balance. His vision constricts like black rubber. He dimly feels Dr. Anunoby crouching beside him, pushing a water bottle into his free hand. He feels Alyce give his arm a questioning squeeze. His breathing slowly returns to normal.

"I can be the one to tell her," Dr. Anunoby says, with a tremor in her voice. "If you want. It can be me. I think she already suspects."

"Then why would I get to talk to her again?" Ostap demands, anger going off in his chest like a flare. He surges to his feet, wobbling only once. "If it's for nothing? If there's nothing I can do?"

For the first time, the linkwear feels like a straitjacket. He wants to rip it away and hurl it off the hill. Alyce squeezes his wrist again, tighter now. She knows something is wrong.

Dr. Anunoby shakes her head. "I'll wait down there," she says, and starts back down the hill.

Ostap barely hears her. He paces a tight frantic circle. He beats his hands against the ground; stops, flinches, wonders if Alyce can feel it. He shouts no particular word and the wind strips it away. Finally he sinks down to his knees and goes still.

Alyce's finger presses against his chest. He repeats the letters aloud, wrestling each one out of his windpipe, and watches her message form in his goggles.

No way back

He waits for the question mark, but it doesn't come. He runs his hands over the parts of her body he can reach, caressing her neck, her shoulders, her arms. He moves his finger to her palm.

No.

She pushes back, tap press press. He waits. Waits. The last letter forms and he chokes on a laugh.

Well fuck.

He hugs her as tightly as he can, closing his eyes, imagining the brush of her hair in his face, her temple against his neck. She clings back. He realizes, with a sick feeling all through his body, that he can ask her now. It will be grand and symbolic and mean nothing, because she's not coming back. Not alive. It will be a farce. She'll say yes because there is nothing else to say at the end of the world.

Ostap tells her about the bodies. Alyce is still for a long time, long enough to put panic in Ostap's throat. Then she has messages for her parents. For her friends. Observations for Dr. Anunoby and her colleagues. She etches them out with trembling fingers and Ostap transcribes them all. It's slow. Painstaking. The tension is piano-wire taut, because Ostap knows each letter might be the last one. He knows she might be the next barely body to arrive. The question is building up in his mouth.

The messages trail off, and Ostap tries to imagine what she's feeling but can't. He has his overshirt draped over his head to shield him from the sun, but it's cooling off now. The sky is slowly turning red for sunset. Dr. Anunoby is still waiting, like a statue, beside the car. She is an ant. Ostap is an ant. Alyce is a particularly good ant. So he supposes it wouldn't have mattered anyway.

Shaking badly, he starts to write:

Made history.

He waits.

Yes.

He writes again, heart thumping out of his chest. It's slow, so slow. On each letter he thinks of a dozen other things he could turn it into.

We should

She squeezes him so tight he has to stop. He wonders, in a panic, if it's happening. If she's being ripped back out of the Slip. Then she finishes the sentence.

Marry.

This is why he had one more chance to talk to her. For this one unsullied surge of happiness. He knows it won't last. Can't last. But it is, and she is, and they are. He has a hundred more things he wants to say, the things he hopes are true: that he loves her more than he's ever loved anyone, that he would follow her into the Slip and be ghosts or corpses with her, that he was going to ask her on Nyali Beach under the moonlight. He writes:

I do.

And she writes:

I do too.

Then Ostap gets to his feet and presses one last word into her skin:

Dance?

He feels her chest pushed against his chest. Her left arm over his right shoulder. Her right hand clasped in his left hand. He can almost feel Alyce's heartbeat against his own. They dance with no music, one, two, *marca*. Ostap is sure he would be stepping on her feet if her feet were there, but it doesn't matter.

They glide around the top of the rust-red hill and around the soft blue observation room, in and out of the Slip, until the light is gone and he can't feel any part of her.

ABOUT THE AUTHOR

Rich Larson was born in Galmi, Niger, has studied in Rhode Island and worked in the south of Spain, and now lives in Ottawa, Canada. His work appears in numerous Year's Best anthologies and has been translated into Chinese, Vietnamese, Polish, Czech, French and Italian. He was the most prolific author of short science fiction in 2015, 2016 and possibly 2017 as well. His debut novel, *Annex*, comes out from Orbit Books in July 2018, and his debut collection, *Tomorrow Factory*, follows in October 2018 from Talos Press.

Without Exile

ELEANNA CASTROIANNI

*But when the radiant light of the sun rose, we beheld the
Aegean flowering with corpses—Aeschylus, Agamemnon*

Luciole. I dreamed I was swimming in the seas of my homeland again. My hair turned into seaweed thick with petrol; my mouth tasted like radiation and uranium. I opened my eyes—lashes threaded with sticky fish entrails—and found myself on a starboat made out of the silken carcasses of sand-sparrows. I see fingers and nacre-colored fingernails, fingertips burned to sable, spidery blood vessels twirling like ribbons on the tails of kites still riding the wind. Every time I think I have escaped that life, a tidal wave of fear rises again to engulf me.

Star seas are full of dead bodies. We're drowning in an ocean of floating body parts.

"Another ship has crashed, sir."

Your even, soothing voice draws me out of my rapture. Luciole, you are programmed to speak the profoundest horrors in the levellest voice I've ever heard.

We're in my office, the paper-thin walls making it barely quiet, and I turn away from the window because the view of the universe makes me, to this day, sick with nausea. "Report," I say.

Magenta and lime green lights syncopate on your interface. By now I am able to get a good hint of your whims and emotions even though you don't have a human face. "Twenty-three emergency pods have reached Sandpiper Station since yesterday."

And how many more have crashed into space debris, blowing up with all their human cargo? I won't ask; I don't want to know.

"Fifteen more have reached Swallow and Stork," you go on. Civilians, militia, media, governments, both rich and poor—everyone's complaining

and asking why station AI can't block access. They forget that life pods were only made to be picked up by nearby vessels; that they do not appear on station systems because they weren't designed for this. No one ever thought that people would be so desperate to attempt intra-system travel in such poorly-made vessels.

"Survivors?" I mutter. My tongue is dry; my brow sweaty. But I've been doing this for a while. I'm a professional. I ought to know how to keep calm.

"About one hundred and forty," you say. Each pod is meant to hold a maximum of five people, so they left loaded with more than ten each. Those who survived, are so, so incredibly lucky. "Expect severe health problems due to radiation, zero gravity, and poor health conditions. All survivors have taken shelter in the Flower Cemetery."

"More of them in the Cemetery? There's no space left down there."

"That's where they are, sir. Nowhere else they can go," you ground me with your matter-of-factness. If you had any shoulders, you would shrug. "Shall we start? You have appointments."

I nod and dive into my paperwork briefly before we leave my cardboard-thin office.

The image of an arm won't leave my eyes: an arm, a disembodied arm. It's been with me for twenty years now, almost like an extra limb I've grown. I've learned to ignore its presence, along with other monsters. But today it persists and distracts me from one moment to the next.

Luciole, my friend. When I speak to you of home, you are the only one who stays silent and expressionless, as if every image of rocky shores sinks into your circuitry, every spoonful of neranj sweet preserve travels inside your software, to burrow somewhere warm and transform into memory.

I don't know if it's the parent's eyes or the child's that pluck something in me.

With you by my side I walk through the camp—a thick forest of tents, waste, and human limbs. I push aside the hanging laundry, make my way between children chasing each other, blissful in the moment. I'm wearing my padded jacket and still get shivers. The air is colder here; the station won't waste energy to regulate temperature on the level where *pod people* live. It's a small station anyway, meant to act as an in-between stop for the Turm when they travel from one side of their Empire to the other. When you're stuck here, there's nowhere to go. Home is hell. Here is a slightly better version of hell: one in which you die slowly, hope the only staple to sustain you.

My head is always misty when I'm in the camps. Memories of cold bean soup and dark brown urine mingle with the present and I'm not sure which planet I'm standing on, which day, which reality. But I'm not a child anymore. People know me and greet me—other lawyers, a few humanitarian workers, some beneficiaries. "Want me to tell you the poem of the day, sir?" you ask. Luciole, your obsession with poetry is one of a kind. I welcome it. "*The shores of my homeland, how they're full of corpses—I write this poem because I can't leave them flowers.*"

Your words shake me out of my trance, back into this world. Every time I'm here I realize there's so little I can do. I am only a corporate lawyer, sent to Sandpiper by my company as part of its corporate responsibility program. "Nell is from Koohar, isn't she?" my bosses said. "She will do great at Sandpiper then." All my papers say I'm Turm, because Turm Empire wanted so badly to forget where I come from, but whenever it's convenient they remember my true origin.

I could have said no to this position, really. Someone else could be handling it better than I do now—without the sickness, without the flashbacks and the fugues. And now the child is tugging at my sleeve, and the parent is staring at me with those eyes that demand something, but are too stubborn to speak up. I'm standing transfixed between them, a ghost caught between two worlds.

"Lawyer, you're meeting with us today," she says in Luti, a Koohar language I can't speak but recognize by the sing-song inflection. You translate inside my head, voice flat and smooth like a sinking sunset.

I draw a quick confirmation as you feed me through the mini-com the few data we have for this family: names, ages, origin, dates of arrival. My company's other lawyer had been working with them for a while, but it seems that he suddenly handed them over to me with no further explanation. Your data only state *cultural reasons* for the switch.

I've learned by now that this is code for *Koohari too difficult to deal with*. "Yes," I find myself saying, "let's have a meeting now, shall we? I'm Nell."

My impromptu office is three walls leftover medicine supplies containers, one wall micro-plastics glass that engulfs Sandpiper into its bubble, keeping breathing air inside and cosmic radiation outside. Outside, where the wide, wild space looms, full of stars, debris, and human-made vessels. Among them float dead bodies, thousands of them, but they are too small to see with naked eye. They will merge with the space debris, dissipate into the merciless void of the universe. No trace. Back to stardust.

We sit on the floor. "Uruna," I read the parent's name from the notes you're feeding me. My data doesn't say and I'm quite bad myself at discerning it, so I have to ask: "Gender?"

“Soom,” she replies calmly, then points at her child. “Katii is nutu.”

I nod and wonder how much of this will the asylum officers care to understand this time—Koochar genders are completely incomprehensible to them. For lack of better terms, *soom* means child-rearing female; *nutu* means child-bearing male. For the Turm Empire, this distinction makes no sense. They neither have the language to accommodate it nor do they care to do that.

“My child is ill,” Uruna says before I can ask anything else. It is the only thing she has in mind now and rightfully so. Survivors of pods often arrive as bundles of star-travel disease. Nothing of it is infectious, yet still it’s too easy to brand them as ‘pod people,’ as dehumanized health hazards. “They won’t give me any medicine. They told me that only in Turm system they can fix him.”

Little Katii is no more than eight. I can already see the sagging skin, devoid of luminosity, the thinning hair falling off in patches. Radiation has poisoned him, but it’s not his illness that makes me think that something about him is uneasy and familiar, like looking into a mirror that distorts your image only slightly. His red-rimmed eyes won’t leave mine. Katii is a silent one, but he has a fire burning inside.

“You can’t travel further in yet,” I say. You momentarily distract me by folding a piece of reusable paper with your small, metallic, three-joint hands. “I’m here to help you with your asylum application. With refugee status, you and your child can be sent to inner Turm system. And from there somewhere more permanent. Okay?”

She has heard all this before, yet something about her looks unconvinced. She’s wary; the experience with the previous lawyer could not have been very good. Still, she nods. By now you have finished folding and you hand a small, elegant paper-bird to Katii. “Sand-sparrow,” he says and his eyes light up. The color is unmistakably that of the desert, the golden-purple plumage of sand-sparrows. He shows it to his mother, who smiles sweetly back at him. They both look more relaxed and I’m thankful you are so good at this sort of thing, Luciole. As I go through my paperwork, Uruna strokes Katii’s thinning hair. She mutters a lullaby and your mellow lights join them in their sleepiness. I’d rather not have the child with us as we do the interview preparation, but he is sleeping so peacefully I can’t bring myself to separate them just now.

I choose my approach carefully. Whatever trauma she is carrying with her, it is impossible to not relive during our talk. But I want to soften the impact, to make sure I know what really happened so I can help her. After a few questions on her origin, I ask, “Tell me, Uruna, why did you leave?”

“Everything collapsed.” She’s staring at the darkness of the galaxy outside. Her voice is small and distant, as if coming from a faraway ocean. “The world collapsed.” She turns to look at me.

Uruna’s eyes are the color of my mother’s eyes.

I shake the memory from me, quickly, violently. I can’t afford to deal with this now. I will return to pick it up later.

I cough.

Koohar’s biggest problem is its ecological disaster, one that’s been going on for years and years after decades of catastrophic wars. Water now covers four fifths of the planet and animals are near-extinct. Yet such disasters are never reason enough to give asylum to people fleeing from them, because that would mean accepting everyone and not only a select few. Somehow you’re expected to stay on a planet that’s trying to kill you.

“I know this,” I say, “but it won’t get you refugee status. We have to think through what you will say in your interview. Truthful things, but carefully laid out. What about the war?”

“The Haz ruined everything,” she answers vaguely, as expected. Eyes wander again, as if we’re at school and I’m the persistent teacher and all Uruna wants is to play outside. I’ll have to lay the architecture of my questions carefully, like a funnel. Start from the bigger and narrow it down to the miniscule.

“Are there any instances of fear for your lives from the Haz? Things that happened to your extended family, perhaps, and which you can tell the officer?” Everyone has someone like that. I know I did.

She thinks for a moment, then answers, “Yes,” letting unsaid words linger on her lips. Finally, she starts to speak.

It’s not a linear narrative. She jumps from one thing to the next, from one day five years ago to what happened last week. You are transcribing everything and I trust your software to sort out a few things for me. Uruna surprises me by starting from the shores of Antu—from my hometown. Turns out she was an immigrant there, working to gather and dry kelp, when she got caught up in the conflict with the Haz. She speaks of her birth-mother’s family and of her neighbors, and of Kati’s birth-father and his other raising-mother too. “Then a bomb exploded,” she says. “Torn them both to pieces. We only found an arm.”

I close my eyes; the image of the arm comes back to me, intrudes my thoughts.

Uruna is calm, much calmer than I am, and other lawyers would be shocked at how she can recite such horrors and carry that taciturn half-smile; at how she can still speak of her home fondly, even after all

the things that happened to her there. I only know I'm not surprised at all: sympathy is for the privileged. *Pity would be no more*, you said once in the words of an old poet, *if we did not make somebody poor*.

Again, I push the image of the arm away. I try to hold on as myself is slipping away from me.

You hand me a glass of water at the right moment, then offer some to Uruna. I gently ask her to repeat parts of this story, to establish the relations between her relatives and make the timeline as clear as possible without exhausting or vexing her. "These stories are what you need to get your application accepted," I tell her when we're done. The arm is here with me again. It hasn't left. It never leaves. "Tell them as you told me. If they ask you to repeat them, don't change them. Don't give them reasons to doubt you're telling the truth."

Uruna frowns, arched, thick eyebrows conferring in annoyance. Her voice rises and shakes, as if all pent-up emotion was to be channeled in this answer alone. "Doubt what? We climbed on a crumbling pod to get here. We left our homes. You think we wanted that? Why would we lie?"

Her indignant inflection is so different from your flat translation. Her anger is a real piece of work: everyone comes to me scared, ready to blurt out any lie that will grant them passage out of this in-between purgatory. But Uruna is enraged.

"You are right," I tell her and drink more water. It flows cold down my throat and does nothing to quench my thirst. "But this is how the procedure goes. They're trying to trim the edges and grant asylum only to the most vulnerable ones. You are a parent with a child—a sick one too—and your stories from home justify your fear. If all goes well in your interview, there won't be a problem."

Uruna's suspicious look makes me think she doesn't completely trust me. I don't know what else to do. My head is empty by now; my palms itch and sting. The room has started darkening and my breath is not enough.

"Lawyer, are you alright?" Uruna asks in concern.

"Sir, your vitals indicate need for rest and medication."

"Yes, Luciole." I meet Uruna's eyes one last time—my mother's eyes. "I am sorry. I have to rest. You will have to meet with our psychologist now. I can arrange more meetings with another lawyer, but I hope you feel more confident in your interview?"

"Of course," she says quickly, hiding—unsuccessfully—a generous portion of self-doubt. She strokes Katii's hair one last time, meets my eyes with a hint of worry. She thanks me, then gently picks him up in her arms and leaves.

“Sir,” you say once I’ve lied down on the floor. The tranquilizer works fast and I’m sinking in the numbness. “That young human looked a lot like you. The smaller one, I mean.”

I laugh, my laughter turning into a cough. Luciole. All the things I try not to notice, to hide from myself. You pick them up and hurl them right back at me. “Cheeky, Luciole. That’s why I chose you.”

The single red light on your interface indicates pleasure. “I know.”

The arm and I have a long history, Luciole.

Back then, it was a woman’s arm. Soom, I think, because the long, calloused fingers looked like my raising-mother’s who worked the fields daily. I can’t recall my mother’s face, but the image and texture of her fingers have always stayed with me. How they wrapped around the crocus-colored tunics she wore, how she folded them around my nettle-and-hemp dress.

I thought I had forgotten my mother’s eyes but Uruna had the exact same hue in her pupils. It was like looking straight into my mother’s face.

Tonight, nightmares wake me up many times. Something has been suffocating me. You play soothing sounds of bird chirrups and running river water for me.

“Sir, why did you come to Sandpiper?” you surprise me. Again, this is a question outside your protocol. This is you, the personality that is Luciole, the office bot, speaking.

“My company sent me,” I tell you something you already know and we are both aware I’m trying to avoid an honest answer. In the darkness, only a small white light comes from you, tracing the contours of my bed frame and duvet.

“Maybe they ought to send you back,” you say, ruthless. “Your flashbacks are causing you too much stress.”

Ah, Luciole. Your care is something I won’t forget, ever. You’d be excellent in this job on your own.

“You know I won’t leave.”

Pause. The white light is flickering like a distant star. “I know, sir. But you’re not the right person for this.”

“Who is then?”

You stay silent. You and I both know that the only people who can do this right, are all the wrong people.

“You changed your statement? Why?”

Uruna is excessively stubborn today, arms crossed over her chest, eyeing me with my mother’s eyes as if I’ve done some unspeakable

evil. I don't know what went wrong between us. Since that first day she never trusted me completely, never allowed me to help her.

When she does not reply, I try to explain as calmly as I can. "I told you it was very important to not retract anything. When we first met, I reassured you that with history such as yours, I can get you out of here. Yet you changed statements."

"What do you want me to do now?" she bursts. "It is what it is!"

I understand she's more embarrassed and angry at herself than she is at me. She feels alone in this, but truth is, she's not—it's terribly easy for the applicants to get confused during the long interviews. The rules are strict. One fake-sounding statement and you're all done.

Katii isn't with us—a friend is looking after him because he's feeling too weak today. And I can tell Uruna is anxious to return to the child, always turning her head towards the sounds and voices coming from the camp.

"You are right," I admit. It's no use to keep this conversation going. My own guilt engulfs me: I was too ill to help her prepare. I didn't even join her at the interview. "It is what it is. I should have done my job better."

At my sharing of responsibility, Uruna loosens up. Her stubborn mask gives way into genuine distress and disappointment. Tears fill her eyes, but they're tears of anger. I remember angry tears. I used to cry of anger too. "I told them many times over! How Katii has four parents, and so does everyone." She's making fists, spitting the words like fire. "They thought I was lying! Making up things about my parents and relatives. Because I said *father* and *mother* several times and they couldn't figure out who was who!"

Exactly as I feared. Even though we rehearsed many times and made sure to clarify who did what, even though there are so many asylum seekers from Koohar right now, to Turm ears it all sounds like a hopelessly tangled ball of yarn. Even the most cooperative of the asylum officers, those who will patiently ask clarifications on who is who, might eventually find the account flawed and unconvincing.

Although it's hard, it's not impossible to clear up this mess. The law allows us to ask for a second audience due to malpractice.

Then Uruna surprises me, catching me off guard. "You don't look like Turm. You look more like us."

While I was lost in my own thoughts she had been examining my face. We have the same sandy skin, the same wild curls, the same arched eyebrows. But I dye my hair and keep it sleek, pluck my eyebrows and hide my complexion under makeup. "Can you tell?" I laugh.

She points at my ears. No one ever wondered if there was anything wrong with my ears. But Uruna sees something others can't see. "Only *esom* have this ear-shape," she says.

Esom. Child-bearing female. What I would have been. "I am *esom*," I admit, a knowledge I took with me from Koohar. I was nine when I left, and the miniscule changes that split the two genders into four start at eight. "But for the Turm, it doesn't matter. I'm just a woman."

"Woman," Uruna says, pondering the word. "Maybe it's better to be just *woman*." In my notes fed through the mini-com, I see you have translated the Luti word for *girl*. *Woman* does not exist on Koohar. "What does it mean for adults?" she asks, trying to understand people who stay a dyad and don't transform a second time. Suddenly, it is Uruna who's interviewing me and it's uneasy. This is one way applicants try to gain more control, even to manipulate. I should stay on top of this, yet I want to answer. I've never talked about being *esom* with anyone after I left.

"It means both potential child-bearer *and* raiser. Both *soom* and *esom*," I explain. "The Turm think that when you have children, you raise them too."

She laughs, but her laugh is tinged with disgust. "That's ridiculous!"

I shrug. "It's okay. I won't have children. I can't." I'm not sure if I was born like this or if my infertility is the aftermath of several things I've been through during those days I wandered as a child around camps, loosely guarded camps, horrendously chaotic camps. The fate of loneliness this knowledge has sealed for me is something I do not think about.

Uruna's eyes widen. "*Naya!*" she says, but you won't translate this word. I check your translation notes from Luti language and they look empty: the entry is missing. Another Koohar thing too complex to translate? "*Sir, I'm looking this up,*" you whisper in my head.

Her face softens, in distant sadness and a tiny bit of understanding. "You're so unlucky," she tells me and embarrassment consumes me. In Koohar, where people take so much pride in looking after the next generation whichever way they can, I'm a child-bearer who's infertile—what else could I receive except pity? Our little talk is getting dangerously out of hand. Then she asks what I've been fearing all along: "How did you end up in Turm?"

By now I know there's no way out of this. But maybe if I talk about myself she will start trusting me. Maybe it's the right moment to take her on my side. "I was a refugee in the Two Systems War. Grew up in camps around the solar system. When I was eleven, a Turm family adopted me. I don't remember much of my life before."

"I remember Two Systems," Uruna says, "I was five or six back then." Only now she must have realized how close we are, how many things connect us.

I am mistaken. "So you're Turm," she announces her verdict. It hurts, but finally I have an answer to why she can't trust me. "Through and through," she twists the knife. "You ran to save yourself from the Turm, then they adopted you. Thought they were doing you a favor?"

"Maybe I am Turm," I say, uncertain how to deal with this. To the Koohari woman I represent Turm Empire. But to the Turm, I'm still an orphan their own wars created, a mirror to the actions they tried to banish by giving me a second chance to live. "But I'm also Koohari, from Antu," I assert, trying too late to gain control of the conversation, "and I'm here to help you. Will you trust me?"

The frown returns on her face, the distraction that was my past having ended. "What do you want me to do?" she mutters. "You said you can't help me now."

"I can help," I say with confidence, clutching onto this little opening to drag myself back on top of the conversation. "Look, the Station's in real trouble. They really want to remove from here as many of you as they can. We can ask for a second interview. Or if your application gets rejected we can always appeal. About the misunderstandings, we can justify them with memory gaps. There's always a solution. We will keep fighting. Okay?"

She finally looks a little more convinced and promises to work with me to prepare a second interview. You assist us, translating and keeping notes, tiny red lights of worry betraying you.

Beyond Uruna, I can see an arm. I close my eyes and it's still there. "*You can't catch me,*" I say to myself. "*You're dead.*"

Luciole. What is home?

I wish I could tell you more about the rocky shores and the neranj spoon preserve, about the flocks of migratory sand-sparrows traveling the planet, chasing hot gusts of wind. I wish I could, but my memory is blown up in splinters and all I've told you about rocky shores and neranj spoon preserves is all reconstructed things, all an effort to remember through pictures and video footage and music. Something I decided to do on my own when I was in college and took an elective on the geopolitics and culture of the system Koohar's in. Koohar is still a foreign land to me; a foreign land that's running in my veins.

"Sir. They are asking you to return to Oonti."

How could I not be grateful when they took me, an orphan refugee, to grow up as part of a middle-class Turm family? To have food and

shelter and two parents. Access to education and a much-coveted Turm citizenship. My Koohar name was forgotten; I was a new person now. I walked the silver-gray streets of Oonti to my school, studied calculus and the language of the Empire. Koohar was the place where bodies were blown up by bombs. Where my mother died. Where disembodied arms could be found on the ground on your way back home from school. Where home does not exist anymore.

“You can choose to stay if you want. If you don’t, they will send someone else.”

Memory gaps are very real, Luciole. A psychologist told me once that trauma is like a giant metal ball and memory is a tiny glass one. When trauma drops onto memory, it shatters it into such tiny fragments, that days and moments get hopelessly mixed up, that your sixth birthday ends up next to the day they killed your father and you can’t tell the story differently because you don’t know how it really happened, not anymore. They say brain surgery can fix these things now. But who in their right mind would choose to bring back fragments of memories that are hidden and forgotten? Let the song of sand-sparrows wither in my memory if the whistling song of bombs might fade too.

My mother’s eyes and hands, my brother’s scraped knees, the sweet and sour taste of flower cakes and the feel of cool saltwater under my toes. I thought those memories were gone forever. Now that Koohar’s almost destroyed, they’re coming back to me—refugees themselves, fleeing.

“I think you should take this opportunity, sir. You’ve done as much as you can here.”

Could it be because I talk to you of home all the time that home keeps returning to me? Are you the one storing those memories, wrapping them into a soft cocoon of spit thread, and nurturing them into moths and butterflies?

If exiles can’t dream of home then how can they keep on living?

The wide universe around us feels colder today.

I’m meeting with Uruna at my office again. I wish there were places to take her, places to see, but Uruna is not allowed out of the camp. We’re sitting in a prison within a prison.

“What do you mean Katii is gone?” I blink at her, trying to make sense out of your translated words.

She looks embarrassed, yet her jaw is set, unrepentant, her eyes fixed somewhere beyond me where I can never see. “I couldn’t wait. The application takes such a long time . . . And C-Doctors have no medication for my child. They say they’ve run out of supplies.”

"Where is your child, Uruna?" I ask again, hoping to hear something a little less terrible than what I have in mind.

"I sent him to inner Turm," she mutters, this time meeting my eyes. I know she will defend her choice to the end. "They won't deny Katii treatment there."

"How?" I insist. "Smugglers? They're on Sandpiper?"

She nods. "They made the passport. And said it's easier for me to get sent there later on, if Katii is there alone. Other people told me the same thing. That it's the law and can't be changed. This will help the application. Why didn't you tell me?"

Her accusing question at the end leaves me stunned. Again, she's making an enemy out of me. How could I have been so stupid, to not warn her about smugglers? "Uruna . . . no," I try to explain. "Smugglers lie because they want your money. This is the law, yes, that families ought to reunite. But it's not easy. It never happens. Maybe one person in thousand."

She licks her lips, her frown deepens. She's only starting to realize what she has done. "But it's the law. Why don't they apply it?"

"Because the law is vague and asks for hundreds of other things to grant you protection," I say. By now, my words have turned into whispers. My own will has been sapped. "Don't you get it? The law wasn't made to bring you in. It was meant to keep you out."

Confusion, then understanding. She knows she's made a big mistake and I don't wish to aggravate her guilt for leaving her sick child alone. Katii is floating somewhere among the stars. She sets her eyes on one of them, where she hopes her child might have a better life.

"I'm willing to wait," she says, tears in her voice. "Maybe I'll be the one in a thousand."

I'm holding my breath. "How much did you pay?" I ask quietly.

"All I had. Not enough to go with him." She turns to look at me again, suspicion back on her face. "Maasa said your company wants to take you back home. Will you leave us then?"

News travels fast. I haven't decided yet. "What? Of course I won't." I'm not even sure I'm lying, but there's nothing else I can say. "I will do my best, Uruna. If he reaches inner Turm safely, then we can track Katii's whereabouts. We can even communicate. Don't be afraid."

At last, she sinks her cheeks into her hands. As she is weeping quietly, I recognize it—calloused joints, burned fingertips, patches of dried blood. The arm is here again. Maybe it will stay with her, leaving me in peace at last.

"Do you ever want to go back?" she asks, wiping her eyes and nose. "Not Turm. Koohar. You left too young. Almost an age with Katii."

Worry, concern. I think the distance between us has started bridging itself. Too late, but it has.

"I don't remember much," I admit. "But maybe." Yes.

She shakes her head. "It's all gone now. The land is ruined. There's nothing left." I keep silent; I don't know what to say. For both of us, Koohar can only live in memories now. "I thought you were Turm and hated you. Then noticed you're Koohar and hated you more. You look and act everything Turm. How could I trust you?"

I nod. "Right."

"But all I want for Katii now is to live and grow up in inner Turm, somewhere nice." She meets my eyes again, an honest shine in them—my mother's eyes. "Like you did. Look at you. You're doing fine." I don't want to ruin her illusion that I'm doing fine. She will have no hope left if I do that. "Maybe an adoptive family would be good. He will turn Turm, yes. But maybe he won't forget his poor mother. Do you remember yours?"

Hope. With a pang I realize that my poor self that she pitied the other day, was hope to her, to her child. I survived, even as a product of a system that had tried to destroy me. Still, I survived.

"I thought I had forgotten her," I say. "But you look so much like her."

She nods, accepting my words. "Nell. What was your Koohar name? Do you remember?"

"I do. My mother called me Nuruli."

"Nuruli." *Sand-sparrow.* "What a fine name to remind one of home. Want me to talk to you about Antu?"

I nod. So I sit and listen to the woman with my mother's eyes, to that generous gift she's giving me. As she speaks I blink through the haze and the arm, for once, is nowhere to be seen. I know it still sits somewhere inside me, merged with parts of me, entirely unrecognizable now.

Luciole. Have I ever told you about the camps? About how small joys flowered in the midst of misery?

"Sir, you're too pale. Have a seat. Drink some water."

The air is thick with human smells and sharp with cold. My breath is crafting crystals in the air. I'm here to help, but I can barely help myself, Luciole.

"She sent Katii off," I mutter. "I hope I won't lose her too. She looks ready to jump ship any moment now."

"She does look a little hard to pin down," you say, unimpressed. "But it's not your fault, sir. So . . . you're staying to help her?"

"I'm staying." I know you're disapproving, Luciole, I know you do. Like a mother and a father, you keep hoping for me to make the decision

that's hurting me least. I change the topic quickly. "I have a gift for you," I say. The poetry data disk was the best one I could find on Sandpiper, although a little shabby for someone so knowledgeable as you.

The explosion of colorful lights speaks to me of your joy, even as you say, cynically, "Ah. Thank you, sir. Poetry is useless, though."

"How can *you* say that?"

You are already copying the disk, scanning through the text. "All poetry can do is dig graves for the things that are left unmourned."

"And that is *useless*?"

I can read satisfaction coming from you. "You understand poetry then, sir."

You pour me some tea and I can hear a faint humming as you go through the poetry passages, carefully curating your favorites. My fingers soften around the hot mug. Moments of peace amidst chaos are sometimes the only thing we can hold onto.

"Sir, I found a translation for *naya*, remember? Naya are blessed in Koohar."

I shake my head. "I would be an embarrassment to my mother had she lived to see me grow up."

"You are mistaken, sir. Naya are childless women. They help everyone, keep knowledge. They are the greatest poets ever known. It's very rare, to be of fifth nature. You would have guided the Koohari well, back home."

"I'm not so sure about that," I cough. Your words strike me. There is so much I don't know about Koohar. "Then why did Uruna call me unlucky?"

"Because you were chased out. Never had the chance to be what you would have been. Doesn't it make sense?" Your ability to use logic so aptly is a skill I covet. You cease your scanning through the poetry data, focus all attention on me. "Maybe it's a good idea to stay here, sir. Become *naya*."

"I know nothing. I remember nothing." The harsh reality of my words is crushing me. The feeling of helplessness has never, ever truly left me. "There's so little I can do. I'm as trapped as everyone else."

"You survived once," you assert. "You already know how to do it. That's precious data you have there."

Is it? How did I do it? At what cost? I don't know. Surviving becomes reflex. Uruna and Katii know it too.

Luciole, how can we go on without exile? We, who live by the ever-changing horizon fixed in our eyes, the place we always long to go but never can. We, who live by orbit alone, always at a distance and with nowhere else to go.

I close my eyes and the arm is still somewhere there. But behind it I see other shapes, lingering in their larval dreams, waiting to be born.

“Talk to me of home, Luciole.”

You blink at me, electric eyes of warm light. Something in the world is changing, flowering, as much as it’s flowering in me. “Of the home you lost, or the home you’ll build?”

“Of the place we’ll always return to.”

ABOUT THE AUTHOR

Eleanna Castroianni is a multi-lingual, nomadic subject with roots extending from the depths of Anatolia all the way to its Mediterranean coasts and beyond. Among other things, she is a gender and geography scholar, oral storyteller, teacher of languages, and refugee rights advocate. Her work has appeared or is forthcoming in *Beneath Ceaseless Skies*, *Podcastle*, and *Liminality*. She lives in Athens, Greece.

Violets on the Tongue

NIN HARRIS

Grand-Daddy would start thrumming at twenty hours, even if it could be the middle of the night, or of the morning. The vibrations filled the heads of everyone within a twenty-five kilometer radius with harmonics. The world became a giant MRI chamber at twenty hours GMT. They should know. Every single one of them had to go through MRI clearance before they were allowed into the interdimensional tunnel-throughs that had brought them. *Here*. They did not even know what twenty hours GMT signified on Sesen. Was it really nighttime? How could they tell if the sun was the sun and the moons were moons, when night and day were not dissimilar? The stars came out in the morning. The moons filled the skies with varicolored radiance at night. Those were the most obvious indicators.

Eshe navigated the honeycombed network of caves, her hands tucked deep within her cloudy-gray parka. The swiftly dropping temperature was one way of knowing that it was nighttime. Eshe wished she had not forgotten her mittens, but the call of the mammoth crystal was far too strong, the pull far too compelling. Ignoring was not an option—her limbs seemed to move before her mind did. The other apiarists avoided the almost cylindrical hollow that was Grand-Daddy's Cavern but the music drew her in every time.

The music filled her with a desire to engage with the throbbing mass of colors, and light. Often it felt like Grand-Daddy was more than just a crystal, as though it was the heart of the entire planet. It thrummed like a breathing organism.

She met Lashav the first time Grand-Daddy had called to her.

The Barlishya's lightly furred arms were raised to the radiating crystal almost as though she was basking in his glow. Lashav had transformed

into a cheetah in her panicked surprise, her fangs bared, her tight-muscled form crouched to attack before she changed her mind, jumping up on her favorite ledge to curl up.

Frightened, Eshe had left the cavern. The next night, Grand-Daddy had called to her again with a thrumming that Eshe could not ignore even if she wanted. Lashav was there in clothed humanoid form.

"I am sorry, I cannot always control the change," Lashav said.

Her tone was meek but her eyes were bold, and assessing Eshe in a way that made her feel like bees were crawling beneath her skin. She exhaled, and inhaled. It was difficult to remember these days to do something so basic. As air traveled back into her body, Eshe began to feel uncomfortable with Lashav's regard. She fidgeted in discomfort. "No, no, it is not your fault. I am still new here, and you are new to me," Eshe said as she involuntarily took a step back, willing herself not to look away from the Barlishya woman.

"You are a hatchling," Lashav said. It was a statement, not a question.

"No, not quite. I lived a full life on Earth, before . . ."

"Before what your people call dark matter pulled you apart and then put you together again?"

Lashav was as sharp as a finely whetted knife. Her eyes bore into Eshe with the perception of multitudes. How much of the over-soul was in this Barlishya woman? Eshe shivered a little against the hungry, yet oddly judgmental intensity of Lashav's gaze.

"Yes, that is what the physicists on the relocation team say. But the rest of us are not as clear on the details," she said.

"Dark matter pulled you apart and put you together again, the same way it did us. Aided by your bunian who are entities forged from dark matter as well."

"Huh." This information was new to Eshe. "They come from dark matter? How is that possible?"

"You find that impossible. And yet," Lashav said, pausing significantly before she continued, "and yet you traveled through dimensions to reach this world, did you not? A world where this . . . dark matter is stronger in concentration than in the world you have left behind."

"Did the bunian come from this world then?" Eshe asked.

Lashav shook her head with mild distaste, her silvery mane framing a pert, nut-brown face. "Not from this world, nor from this dimension, or they would not have been able to splinter the over-soul in that way."

Lashav made it sound like a physical pain. Eshe involuntarily took her hand and then just as impulsively dropped it. The Barlishya's eyes went very wide.

"I am sorry," Eshe said. "I only meant to comfort you, I shouldn't have touched you."

"Comfort, what is this thing?" Lashav asked. Her brow was furrowed in concentration as she absorbed the new concept with far more difficulty than the ease with which she had been talking about dark matter.

"To soothe you, make you feel better. We achieve this through the touching of skin, and of . . . fur, I suppose. The heat, pressure, and friction is meant to comfort our consciousness."

"You mean to couple and to mate?" Lashav gave Eshe a speculative look.

"No." To Eshe's utter surprise, she found herself blushing. "There is more than one way to touch, and to make another person feel better. It does not always include coupling or mating."

Lashav considered this. "I suppose this is true. I think our matings are not the same as yours, anyway. We are hatched, when we were not splintered. All is new to us, because so much of what we were is lost."

"How is that so?" Eshe asked. Humanity had committed some sort of destruction here too, Eshe surmised. She despaired. In escaping the destruction of their own planet, had they wreaked some kind of unforgivable schism here as well?

"When the bunian emissaries entered the over-soul, they dissolved into dark matter. They splintered the soul, and seeded the soul with schematics of what was desired in this world."

Her knees did not feel able to support her body, and so Eshe sank to the sandy ground of the cavern. "I'm sorry," Eshe said. "I'm so sorry. We are monsters. We let them do this to you."

"No," Lashav sat down beside Eshe and put her hand over Eshe's.

"You did not do this thing to us. You have no blame. Let me, what is that word you Arrivals use . . . let me comfort you."

Lashav sat beside Eshe and held her hands.

"Tell me what to do to make it right. To make it hurt less," Eshe whispered to Lashav, her lashes glimmering with droplets of nearly-shed tears.

"Grand-Daddy will tell you. That is why he called you here," Lashav said, her eyes fixed on the thrumming crystal. Violet and cerulean blue lights shimmered at the penumbra of the incandescent white heart of the living crystal. They both stared, the one in a trance, the other, in a near-hypnotized wonder while they clasped each other's hands.

Eshe visited Grand-Daddy every night after that second night, and Lashav would be waiting for her. They learned the language of comfort

long before they learned the myriad ways of exploring each other. Through flesh, through skin. Through touch, through taste.

Eshe's final decade on Earth had felt like sleepwalking.

Dislocation dogged her every waking moment, padding behind her like a faithful pet. It hummed in her veins through hours spent in the lab, through various seminars and briefings as they prepared to leave a world that was about to die. Nothing seemed to contain meaning when one was certain of the annihilation of one's home. Eshe barely tasted the food she ate, and could barely allow herself to care for the lovers she took on and discarded like last night's leftovers.

Eshe sometimes remembered her condominium in Serdang that was full of different tapestries and figurines representing Neith, the Egyptian goddess of war and weaving. It had been a teenage fascination that grew into a kind of personal obsession, a digital exploration of a part of Egypt that was not wholly her heritage. Her ancestors had been Egyptian Christian. Her mother Elpis however, walked her own path through faith and science. As did Eshe.

Eshe's condominium had sprawled on the twenty-first floor, a generous gift from Elpis when her daughter had turned twenty-one. It overlooked a golf course and a lavish country club patronized by entrepreneurs, lower cabinet ministers of the Malaysian government and MLM scamlords moonlighting as venture capitalists. The apartment would have been seen as an indulgence by many—Elpis said she wanted to be sure her children all had the gift of a better life than the one she had led. She did not provide much information about her flight from Egypt.

Neither Eshe nor her siblings felt they had the right to ask.

Whenever Eshe tried to recollect the exact size and depth of her apartment, her memories juxtaposed with documentaries about Neith, and Isis, and Horus, and Sobek she had watched, along with numerous online databases she had trawled. It was as though all of the information she had imbibed had scrambled her memories.

Eshe had never known a world in which she didn't have to relocate because it was going to be destroyed. It was therefore hard to feel extreme nostalgia for something she always knew she was going to lose. And if she did now sometimes miss the taste of kushari, she wasn't entirely sure if she was remembering correctly the texture of rice, pasta, and lentils tossed in tomato sauce that was such a mainstay of her childhood. Taste, smell, and touch remained her constant, her anchor for all of her memories. Vision and sound could be deceiving, but there was at least

some kind of verisimilitude of the act of consumption, of the way taste and sensation rolled about in one's mouth.

She had a childhood soaked in the borrowed nostalgia of her parents, and of her grandparents. She inherited the demons and ghosts that nipped at the heels of both Elpis and her Hakka father, John. Her mother's struggles with visa and permanent resident status in Malaysia, her father's own inherited anger over racial inequity and May 13th, that day of mass terror that marked forever the moment in which the trajectory of Malaysia's destiny would depart from its original course. Memory had never been an uncomplicated thing. You'd think a child born from two fragmented diasporas would be used to this. But this was different. This dissonance contained a different flavor entirely.

At night, Eshe would walk to the apiary to continue her scheduled observations of the bees of Sesen, uncompromisingly alien with their alternating stripes of indigo, black, and cobalt blue. The hum of the bees often seemed to resonate at the same frequency as Grand-Daddy's thrumming. After she had started drinking untreated honey, there were days when she swore it was the same thing.

"Humanity nearly wiped out the bees on Earth at one point," Shakuntala had once said to her as Eshe followed her on their rounds.

"Yes, but that was before my time," Eshe watched white-winged cranes fly towards the forest that receded towards the Southern Mountain Range, presumably to roost before moonshine crept over the top of the trees. "My mother wrote extensive notes about it, about how she'd tried to create different protective environments for the bees she cultivated in Cameron Highlands."

"Elpis was a great apiarist," Shakuntala's face wore the soft cast of remembrance, her voice subdued as she said, "I enjoyed working with her a lot. But, you're here now, and we can utilize some of your mother's experiments in figuring out the best homes for these bees."

"We don't have pesticides on Sesen so that should simplify some aspects of our research," Eshe commented.

Shakuntala said, "That is right, and the society of astrobiologists have already ensured that most forms of pesticides will be banned. We've already seen their ill-effect on the planet we've had to abandon."

"Has the society of agriculture agreed to this?" Eshe was skeptical, but she was still newly come from Earth, and Shakuntala had spent nearly fifteen years on Sesen.

"We've seen how deeply we fucked up the home we left," Shakuntala met Eshe's eyes.

"You did not see how bad it was towards the end," Eshe's eyes blinked rapidly as she remembered the looting, the indiscriminate slaughter, and the full-on religious panic during the final days, before they escaped via the tunnel-throughs. No more liquid, only blinking. Some nights it felt as though all of the liquid had drained out.

"Here, help me with this wall," Shakuntala beckoned at her, forestalling further reminiscences of a planet that no longer existed. Eshe stepped towards to the other side of the hexagon-shaped fibrous panel that Shakuntala was using to build the walls.

The more senior astrobiologists had wasted no time in constructing artificial hives so they could study the habits of the bees of Sesen when they arrived on Sesen. These hives were lightweight. With some cheekiness they had agreed to construct them in the shape of the Calabi-Yau manifolds as a homage to the work of the string theorists who had helped with the development of the tunnel-throughs.

"Are the Calabi-Yau shapes effective, or are they just something we've been using because it amuses us?" Eshe asked.

Shakuntala grunted as she hammered joints together. "Both, really. The Sesen bees seem to like these interlinked hives, and the honey they produce tastes better than the more generic hives."

"I'd like to experiment with that, if you don't mind," Eshe said as she reached for a hammer of her own from the toolbox set on a stool beside Shakuntala.

Shakuntala took some time fixing the joints of one of the walls before she asked, "What are you planning to do?"

"Experiment with flavor. The honeys we had on Earth were so rich, so heady . . ."

"As are the honey produced by these bees," Shakuntala interrupted.

"Yes, yes. But there's not enough variety, depth, texture," Eshe waved her hands in the air, including the one that clutched at the hammer.

Shakuntala gently touched her hands, stilling her near-dangerous movements. "I think what you mean to say is that the honey here does not taste like home."

"Nothing tastes, feels, or looks like home," Eshe said.

"That's the point, Eshe. We can never go back. That home is gone. Now. We can sit here grieving. Or we can finish building this wall. And then the next one. Until we've got ourselves the biggest complex of hives in Calabi-Yau shapes in this apiary."

Eshe nodded, her eyes still blinking. She rubbed them with the back of her hand, the itch was growing to be troublesome. She reminded herself to ask the medical unit for some eye drops.

"I cried for ten months after my arrival. We were the pioneer batch, it was terrifying. We had no basis for comparison. None. And we knew what we had left behind would never be waiting for our return," Shakuntala gently squeezed Eshe's shoulders.

It was dusk when they finished constructing the hive that would be joined to the others.

"Come on, I'll walk you to the mess," Shakuntala said. They padlocked the door that opened into the hive. Tomorrow they would release a batch of bees into it.

Eshe zipped up her parka as she shivered in the cold Sesen wind. Above them, birds that were both similar and yet fundamentally dissimilar from the birds she had known on Earth flew, released like the breath that fluttered in her chest when she exhaled. Grief was the periodic reminder that you were holding your breath in for too long, a breath that needed to be released so you could live, even if you did not understand why living was necessary, why any of this was necessary, Eshe mused.

"There were no birds like these when we first arrived," Shakuntala said as she pulled on her mittens. Eshe pulled on her own as she watched.

"How did they manage to bioengineer so quickly, even with what they did to the over-soul?" Eshe asked. "I mean, there's only so much dark matter can do on its own, right? The building blocks of creation, how far can that process go, how does it get accelerated? It doesn't make much sense to me."

"That's a mystery to me as well," Shakuntala said, "although the manner of multiplication and mutation of genes may be said to be almost . . . magical. Almost Vedic, as a matter of fact. But apart from that, what do we know? Our machines made on Earth have all but stopped functioning, and we've been learning which of our technologies can be used, and which need to be changed."

They entered the long, dimly-lit mess hall where food was served buffet-style much in the same way they'd been served in university cafeterias back in Malaysia. Eshe closed her eyes as she always did to take in the aromas, feeling the pulling sensation of memories she did not know she could fully claim as her own.

Shakuntala turned to Eshe. "I'm going to let you have materials to build different kinds of hives. See what you can do with your experimentations with honey."

"Thank you, I really appreciate it," Eshe said.

Shakuntala dished aloo gobi onto her aluminum plate, saying, "We all need something to divert ourselves from what's been done to us,

and to this world. We're—well, most of us at least—trying in our own way to atone."

"How did you know?"

"That you seek atonement for what the Bunian Empire did to the planet? Perhaps I know because I feel much the same way, Eshe."

Ah. Eshe met Shakuntala's eyes in acknowledgement. There was nothing she could say that felt adequate. A smile would be disrespectful. "Thank you, Shakuntala."

"This is another way in which I choose to atone," Shakuntala said.

Eshe took a scoop of dhal, and another scoop of kushari onto her own plate, adding a small container of salad, and two pieces of eesh baladi bread. There were Egyptian cooks in the mess, some of whom had actually worked in Malaysia. It was a comfort, but there was always the sense that what they were eating was as real as they were.

Which was to say, they were a negligible reality.

Gyasi had said more than once that simulacrum experienced phenomena in a wholly different way. Eshe would reply very sensibly that they were experiencing phenomena differently because everything about Sesen was different and yet painfully similar to Earth. The over-soul had shaped itself into something livable for its new inhabitants, creating a symbiotic relationship between human and planet.

The truth was that she was haunted. She *knew* she was not the same person who had grown up in Serdang in Malaysia to agnostic parents. The method through which they had Arrived on Sesen had ensured that they were not the same.

"We're a different composition altogether," Gyasi would say, his eyes red-rimmed and wild, "different compounds of consciousness and matter."

"Prove it," Eshe would counter obstinately. Memory was to Eshe the bedrock of her being. If memory existed, so did Eshe. However, for Gyasi, their memories were as false as their senses.

"Perhaps you're not Eshe and I'm not Gyasi, did you ever think of that?" Gyasi said to her one afternoon in the cavern that served as their laboratory on Sesen. "Perhaps we have been reconstituted from more than one person in the same space, and these memories we have of Earth are composite memories."

"We're astrobiologists and apiarists, not neuroscientists nor philosophers, Gyasi," Eshe said.

"Biology is the science of organic things. We apprehend organic things through our senses. It remains a mystery if the senses we have

now correspond to the senses we had back on Earth. You've mentioned the aftertaste of violets more than once in relation to the honey provided by the hives, Eshe. But how do we even know what violets taste like?"

Gyasi looked genuinely distressed by this thought, even as he uttered it. Eshe could think of nothing to say to comfort him, so she placed a hand on his wrist and gave it a comforting squeeze. The younger apiarist fell silent, and then the friction of skin upon skin evoked other memories that Gyasi would swear were not *real*.

At night, Gyasi would write tortured poetry that would win him the regard of the younger apiarists. He flung himself into a series of affairs, both men and women. For a very long time, he dated Anthony Lim, one of the Administrators. That had been an uneasy partnership that dissolved after Anthony grew tired of equal servings of pragmatic philosophy and untrammelled ontological angst. Eshe had comforted Gyasi when the breakup occurred, as he did her, when she broke up with three women within three weeks, in spectacularly tempestuous displays of dissatisfaction.

She started drinking the untreated honey.

The honey slowly changed the way Eshe viewed the world. It transformed her perception of the color of the multihued sky. She no longer saw lines and various material forms as solid. Everything was changing, and when she looked at things she saw gradations of color, and the shifting of lines and curves.

Her irises enlarged preternaturally. That change brought a difference in the perception of color. Her skin changed and had a deepened sensitivity to every tactile impression of the new world. Nothing felt the same, not fur, not skin, not the taste of violets on the tongue. If qualia was externalized perception, then the physiological changes that came with drinking untreated honey had changed not just her biology but her ontology. Everything that was in flux before became solid, and so immediate that it frightened her. It was as though there was no filter between her private thoughts and externalized experience. Perhaps, she had lost the intrinsic nature of the woman she had been before. Grief had fluttered away with the other birds she released when she exhaled.

"I know what you're going to ask me, Gyasi. You ask me the same question with every flavor we put out. How do we know if rain forest honey really tastes like this?" Eshe mimicked Gyasi's voice right down to the morose lowered tone on the last two syllables.

Gyasi smoothed his hair back before pulling the mass of ringlets upwards into a messy topknot that he secured with a pencil, his bead

bracelets and silver bangles jangling against lightly furred upper arms of dark brown.

“It is a legitimate question, Eshe. We’re walking, living, and breathing Putnam’s thought experiments. You know that the way we are perceiving things is different. Everything feels and tastes and looks and sounds different. Fuck.” He cursed as he made a mistake in the ledger. Gyasi struck out the line and started again on the next line. He said, “Fuck it, Eshe. Even you look different. You keep drinking the untreated honey, and you’re starting to look as freaky as that alien lover of yours who looks like a furry cosplayer’s erotic dream come to life. Your eyes are starting to look like insect eyes. Beautiful, but also scary. You’re no longer Eshe. You’re a simulacrum on a twin world. We’re living and breathing Putnam’s hypothesis.”

“Not quite, Gyasi, or we would have twins back on Earth. Earth is no more, and Sesen was modified by the over-soul to accommodate us. As best it could. Also, stop checking out my girlfriend, you lecherous bastard.”

Gyasi ignored this, saying, “We’re ghosts then, badly composited twins of the selves we left behind. And we still don’t know why the over-soul was so accommodating. We’re Arrivals. We want to believe we’re migrants, but look at us changing things. We’re *colonizers*, Eshe. Why would the over-soul want to change things for us? We’re messing with the biorhythm of the bees using those crystals. It feels unethical.”

Eshe poured the honey into the last jar. She capped and then sealed the jar, placing it on the shelf with the rest of type XXVII. They would keep five specimens of the honey for future reproduction, but the rest would be distributed amongst the human colonies on the main continent, with some kept to be artificially replicated for the outlying colonies. Even here, the elite got the best of everything. But they had already known they were not leaving a planet about to be destroyed to go to a better world, not when the Administrators were handpicked from dominant oligarchies.

They had been working together for so many years before they had arrived on Sesen that they became each other’s yardsticks for how much they had changed. From the outside, it felt as though Gyasi had not changed at all, but for the perpetual hollow expression in his eyes and the downward turn of his mouth. Even towards the end of their days on Earth, Gyasi had been jocular. Here, his jokes felt as staged as his bravado.

His eyes were as haunted as the eyes of her Barlishya lover.

“Gyasi. Can’t we just enjoy the fact that we’ve produced this gorgeous honey without descending into ontological angst? Just once? The crystals

thrum regardless of what we do, and the world is in flux. Everything is changing, everything is malleable. What we're doing is just helping the planetary over-soul. This is a new world. We are new too. Can't you just relax for one evening?"

Gyasi unbuttoned his lab coat and placed it on one of the swivel chairs.

"For you, I can try, Eshe. But as for enjoying myself, I fully intend on doing so," He planted a kiss on her forehead and then headed for the door.

"Where are you going?"

"I have a date," His grin was a desperate attempt at nonchalance, not at all aided by the unrelenting haunted aspect of his eyes, "after all, enjoying ourselves is important, isn't it?"

Eshe decided to ignore the bait.

"You're standing too close again. Do you want Grand-Daddy to consume you?"

Lashav asked. The Barlishya had been resting her head on her knees, bearing the familiar signs of post-shape-shifting fatigue.

"What harm could it do? I've been here so many times in the past month."

"You're neither Arlishya, nor Barlishya. Grand-Daddy still has problems understanding your kind. It still does not understand *me* and my kin even though we're all *of* the over-soul. Grand-Daddy cannot comprehend a world in which everything is splintered and not connected to the over-soul."

"While I cannot comprehend a world in which everything is merely one thing," Eshe's smile was flinty.

"Perhaps one day you will," Lashav said as she gracefully slid down from her ledge, her long legs finding easy purchase on the cavern floor.

The lovers learned the configurations of their own skin by discovering the pigments and crevices of each other. Eshe knew Lashav when she was a woman, and sometimes knew her when she molded and shifted into humanoid representations of other beasts.

Sometimes, these shape-shiftings would occur when she told Lashav about the Gods and Goddesses of Upper and Lower Egypt. When she talked about Anubis, or of Sobek, Lashav would transform into a jackal or a crocodile in wonder, as though wanting to *be* the stories she was enjoying. When Eshe talked about Neith who was both the warrior and the weaver, Lashav would want to know more about weaving. It did not take long before Eshe had to construct the first weaving-shuttle and loom on Sesen, just so Lashav could understand how weaving worked.

The knowing could not always happen, not when quills started growing from Lashav's back. On many nights, she would be awakened by the soft snuffling of a fully manifested cat, or a wolf or a fox or a raccoon, leaping onto her bunk to sleep at her feet. By morning, she would be spooned within the long, golden-brown limbs and torso of a Barlishya with large eyes of liquid black and beautifully spiraled ears.

Eshe had explored the contours of those ears with a curious tongue, trying to identify the flavor of an alien skin. That alien skin felt like it had the consistency of honey made liquid. When she kissed Lashav and imbibed her nectar, she experienced once again the aftertaste of violets. *Violets on the tongue in everything that she tasted.*

She often wondered about the over-soul, and if she was making love with the entire planet when their limbs were entangled. It came and went when she was with Lashav, a wondering that had no basis in her daily experiences but which teased the back of her mind.

Lashav came closer to her, pulling her by the hand as she voiced this thought.

"You Arrivals have such strange ideas about what our world should be. About what *you* should be," Lashav said as she hooked her arm around Eshe's waist, her palm sliding up and down the small of the apiarist's back.

Eshe shivered as she said, "It is how we make the unfamiliar familiar. We need that. We don't even know who we are anymore. We need to know."

"I can understand that. I don't know this world anymore, I don't know if I ever did," Lashav said.

The desperation in her voice alerted Eshe to what was about to happen. Eshe's pulse quickened as Lashav drew her down to the sandy floor. It was too close to the thrumming. She shivered as Lashav nuzzled first into her collarbone and then moving on to the curve of her shoulder, swiftly bared by inquisitive fingers.

"Here, Lashav? Right next to Grand-Daddy? I thought you said not to go too close."

"We're not as close as you were before. This is reasonably safe. Besides, *he* won't care, and none of your kind visit this cave. They're too afraid. Of me. Of us. Of this world. You're the only one. *The only one.* Honey."

Honey. The word that was an endearment on the planet that she had left. The word that was her lived reality in Serdang. The word that she had taught her lover.

That moment remained in their memories, even when the promise of "the only one" was proved to have the veracity of a moment of intense

corporeal communion. The truth became a lie the night Gyasi heard Grand-Daddy's thrumming, and his feet brought him to the cavern.

They had enjoyed nearly half an Earthly century together, but Grand-Daddy's thrumming had grown hungrier recently. Insistent as the imperative towards aging, even if aging came slow, very slowly for the human Arrivals who found their physiology altered by their journey. This thrumming felt like the music of the over-soul, the song of constellations, and of galaxies exploding. The sound *tasted* like the dark matter that had helped the physicists find a way to tunnel through to this world. The thrumming was like the wings of a million hummingbirds. It had the aftertaste of the purest, most distilled honey that could be produced by the hives of Sesen bees, magnified by about a thousand. It was as though the thrumming was melting her limbs from the inside. She had no idea that sound could have a taste, a taste that was so familiar, like the first time her mother had spread honey on flatbread for her.

A shifting in Lashav's position woke Eshe. Lashav was curled into herself in a defensive gesture that made Eshe thoughtful. Gyasi had been spooning Eshe earlier, but he was now spread-eagle on the woven blankets they had brought with them, along with candles that had been lit as they meditated together in the cavern as Grand-Daddy dominated their conscious thought.

What if we had been reconstituted? Gyasi had asked her, all of those years ago, when they were both young, and terrified without being aware of how frightened they were. Even Eshe, despite what the untreated honey had done to her.

What if we had been remade, and we are not what we once were?

What if. What if moving through dark matter meant that they were no longer the people they were on Earth? What if they were all simulacrum?

Or ghosts?

Eshe turned back suddenly. She moved towards Lashav who was whimpering in her sleep. She bent down from the waist to give her lover a kiss on the shoulder. She brushed the palm of her hand tenderly over Gyasi's smooth bald pate, watching him as he slept, his features made cherubic by age. It was an unconsciously maternal gesture.

Was she doing this?

She thought she had escaped the ontological undoing, the unmaking caused by the trauma of Arrival. But this felt altogether different. This was a yearning. A yearning that vibrated through her bones, filling her as she imbibed of the alien nectar, and entangled herself with limbs nightly that were more of that thick, sweet liquid made flesh.

She was drinking the over-soul.

Correction. *They were all drinking the over-soul.*

Eshe moved back towards Grand-Daddy. She braced her palms against the smooth, crystalline quartz surface. It was hot. It felt like Grand-Daddy was melting her brains, her bones, and her consciousness.

"What are you doing, Eshe?"

Gyasi's sleep-blurred voice startled her.

"I cannot resist Grand-Daddy's song anymore, Gyasi."

"I know, none of us can. We've stopped each other from doing this over the years. But it's going to happen now, isn't it? That's why we're here, isn't it?"

"We? I wasn't going to involve either of you."

"You can't go without us, Eshe," Lashav said, getting up, "we all needed to be ready at the same time for this."

"I think we've always known what Grand-Daddy's song was about, and why it sounded so strongly in our heads in particular. We knew why it wanted us. We agreed to come here tonight because we *knew*. We knew you were going to do it." Gyasi said, his voice soft and gentle.

Eshe looked at her partners. She knew she could not deny them what she wanted for herself. She nodded, and opened her arms. Lashav came first, the raccoon ears that always protruded from her hair in times of fear quivering, her raccoon tail elongating to twine around her lovers. Eshe could barely register the hands pulling at her waist, and the arms and tail embracing her. Her eyes were fixed on the incandescence at the heart of Grand-Daddy, her tongue consumed by the taste of violets. They were overcome by a crystalline ecstasy, a fierce joy they never knew they had been striving for with each melting union of flesh and fluid.

Eshe/Lashav/Gyasi melted into the embrace of the over-soul.

They woke up into a consciousness that embraced galaxies, and cradled a planet of living crystals. *They* fed it fractured memories of world myths. Memories that Gyasi had deemed false. He was now resigned to the verisimilitude of what they had brought across.

Their bodies shifted, splitting. Gyasi felt his maw elongating and changing as the over-soul fed on the stories of its lovers shaped him into the Crocodile.

Eshe was transmuted into *The Woman Who Weaves*, master of The Grand Complect that was to guide and shape the civilizations of Sesen in the centuries to come, effectively disrupting the planned trajectory of human civilization on Sesen that the Administrators had so carefully laid out.

Grand-Daddy thrummed as it made a mythology for the still-new world out of the fragmented memories of the planet it had consumed. It was a mythology that would wipe out the oligarchies of the old world, and the cultural memories of those who had Arrived.

The over-soul felt she had every cause to feel pleased with herself.

Future statues and temple friezes depicting the over-soul as the Cat or as the Raccoon-Daughter of the Seven Sentient Moons would wear the same smug smile she wore when she joined with her spouses in the embrace back into the core of her splintered being.

Perhaps Eshe and Gyasi had been transformed before they had ever entered Sesen. Perhaps they were never the humans they had been on Earth. But there was one thing Lashav, or the Cat knew, because it was the one thing she had wanted so badly she remade the planet's core consciousness for them. She remade *herself* for this new reality.

Here at least, they would never die.

ABOUT THE AUTHOR

Nin Harris is an author, poet, and tenured postcolonial Gothic scholar who exists in a perpetual state of *unheimlich*. Nin writes Gothic fiction, cyberpunk, nerdcore post-apocalyptic fiction, planetary romances and various other forms of hyphenated weird fiction. Nin's publishing credits include: *Clarkesworld*, *Uncanny Magazine*, *Strange Horizons*, and *Lightspeed*. Nin is currently seeking representation for *Watermyth*, the first novel of the Cantata of the Fourfold Realms mythic clockpunk fantasy sequence.

Logistics

A.J. FITZWATER

Alls I want is a goddamn tampon. Is that so much to ask at the end of the world?

Yo. Name's Enfys. This is, uh, my channel as I wander in search of tampons and the meaning of life in what's left of Western Europe. Seems, I'm, um, immune to the phage. So far, so apocalyptic.

Not so good at, uh, this talking stuff, but this is as good a way as any since people aren't totally into face to face right now. Anyone could be a latent carrier. Plus, it's a way to feel less mad. Until I go mad from talking to myself.

Guess you're wondering about, um, this lopsided-ness. Welp, I was on the table in Stockholm getting chest reconstruction surgery when Calais went down in a blaze of glory. Surgeons panicked, sewed me up, left me half the person I should have been. Ugh. Scars itch. Can't feel my nipple. So that sucks.

So, why would you do a dumb thing like major surgery in the middle of a worldwide epidemic, I hear you ask. Well, no one knew we were in the middle of anything coz the CDC said they had it under control. I thought, hey, mutant flesh-eating bacteria. It's like HIV in the '80s, or Ebola in '16, or the Monkey Flu in '21. We'll deal. Movie of the week in six months.

Didn't even know about Zero Point Jacksonville or population estimates until I left Sweden. By that time things were starting to make a bit of sense and everyone had a channel. Guess that's what happens when most your newsrooms are wiped out, huh.

Half the world's population, gone. Just like that. Geez.

Ugh, this is turning into one of those "where were you when" things. I dunno, do you need to hear mine? Everyone's had it rough and lost

people. I don't have it near as bad as others. I wanted to do something different. Coz, need, and I can't be the only one, right? So.

SHOW ME THE TAMPONS.

Seriously. The African co-op did great work collecting and warehousing goods before everything north of the equator was sent up in smoke by those WHO idiots, but they could have left something behind in the emergency caches for those of us who are the subset of still wandering and still bleeding.

Anyway. I'm heading south through Germany. No, I won't put location tags on. Message me. Point me other channels. Help me out here please. Leaves in my undies is uncomfortable.

Enfys out.

. . . mazed anyone saw it considering . . . oh, it's going now? Uh, hi again. Enfys still on the search for sanitary products in the afterlife.

So, um, thanks for watching. It's nice to know you're out there. The last people I spent meat time with was the lift I got from Malmo and they dropped me off in Hamburg. Well, what was left of Hamburg. Wall of smoke started freaking them out.

As for suggestions on where to find me those sweet tampons. Someone said "try a roadside cache," and yo, were you even paying attention? Next cache I find I'll record so you can see what us wanderers are up against.

Dionysus365—yo, sup—said resource crews were still scouring what's left of Berlin and there were untouched pharmacies buuuut I was too late. Smoke cloud over the city is huge. Tried to flag down one of the road trains but when they're on full auto nothing stops them until they hit the Mediterranean. And I can tell you straight, burn and resource crews have been ordered not to pick up stragglers outside the evac zones.

Not that I mind. I do not want to become a lab rat. I've seen the channels out of Joburg and Lagos. The sweet afterlife, just so long as you're cool with being the face of the biological resistance. Ugh. I'm no good with needles.

Annnnd I have the idiots who were calling me the "titless wonder" and a few other choice things. Screw you. Guess it was too much to hope the apocalypse would wipe out all the jerks. I wanna make some joke about putting the fascist into fasciitis. Ha. Nazholes. Ha!

Whatcha gonna do? Come looking for me? You're too bloody chicken, all locked up in your bunkers until the time is ripe to reemerge.

I think it's awesome how the apocalypse didn't happen like all those scifi books predicted. All that dire-as shit preppers went on about was

basically the only way they figured they could get women to worship them. “You’ll come running when you need a man to REALLY protect you from the looting and pillaging and raping.” Bish, please. That had been happening worldwide for time immemorial ANYWAY, and people have always been resisting that shit. We were always ready. If not ready for this.

So, the ones holed up in nuclear bunkers or their castles or vacuum sealed mansions. One latent carrier in there, and PWNT!

Also, newsflash. The phage can wait you out.

Yeah, I’ve been watching some of the science channels. Can go dormant in stone? That’s some weird ass shit. Eesh. The smoke cloud over Russia alone will probably trigger a nuclear winter.

Here. See that? It’s summer yo. But all the insects are like, NOPE, and it looks like a billion volcanoes or thunderstorms all at once. And my hair is not streaked from stress. Ugh. Regular reminder: clean ash off with water, keep your eyes protected.

At least they thought to leave filters and face masks in the caches, eh. It’s not so bad. Some places are clearer than others.

Uh, Go Oyo wants to know how I survived post-op in Stockholm coz it burned quick. That’s . . . I don’t wanna tell you that one right now. It’s nothing like axes to zombie skulls or whatever. Just. It’s fresh. Maybe later.

And BullaB from the new Caribbean republic—PR, sup—wants to know what an enby with a welsh name and a kiwi accent was doing in Sweden. Welp, two of those were choices, I moved there for capital R reasons. And hey, it also meant with my current immunity my life expectancy just went up. Loss-win. Dark humor, I know.

Anyway, it doesn’t matter now.

Okay. Done for now. Tired, and air quality ain’t great. Been walking for, uh, weeks. Fuel reserves gone south, and most solar and electric vehicles too. But I’m coping. It’s scenic.

Catch ya.

. . . documenting the landscape before it’s taken over by triffid wildlife. I mean, look at this. I call it: Death of the Front Lawn Brought on by Neoliberal Collapse of Worldwide Health Systems. Beautiful.

Um, comments. Captain Spike-hi-says there’s a place for me in one of the enclaves in, um, maybe Joburg or one of the central cities. Oh my god, the afterlife even has drag queens. Thanks, love. I appreciate the thought, but I’m taking my time, sussing out the new world order.

The continent is big. Seriously, yo, Africa’s not a country. Takes time to get around. Things are in flux. Too many people on the move. Too

many tribal and community conflicts to resolve. Central co-op doing the best they can, but it's still early days. Not even worth doing the census, if you ask me. They make it sound so normal, it's weird.

And we don't know the vector of the phage. Another wave could come at any time and then and it'd be Zero Point all over again.

Hey, does anyone have links to channels from California, or people formerly thereof? I know the whole country is basically wasteland, and the resource trains are programmed for Panama southwards but there's some, um, people . . . yeah, uh, put it in comments.

So, I said I'd, uh, show you a roadside cache. They're regular but on the small side since wanderer stats are apparently low. Most people are pretty good at keeping to themselves. I've watched a few other wanderer channels, especially that one by the anonymous Bush Cook, and yeah, it's mainly true. You put up a flag and they'll leave some cooked food or supplies out for you. I've only come across one camp who were, like, totally strict quarantine and walked me off, no hassles, no fuss, they were nice about it.

Then there was a Roma camp who let me stay over. Was nice to have a bed for a few nights, but it ended up feeling weird being around so many. Nice people, they know how to survive.

So, um, this is a cache. They're kept in these new hybrid plastic units. Waterproof, vermin-proof, and, uh, supposedly phage-proof. Apparently, this stuff could last a thousand years in outer space.

You'll usually find them near motorway off-ramps or the site of an old landmark. They're flagged and people have been good about geo-tagging them.

It's kept unlocked, coz, come on. It's not survival of the fittest. It's simply the survival of. Good array of tinned and dried food, utensils, solar chargers, and a solar plate. So much better and cleaner and lighter than a gas cooker. Plus, for the days when it's, uh, overcast, they've gone for a wide range of accessibility. Like electric-based gear. Grid's still on, which is cool, eh. That's if you can find a handy outlet.

Always useful medical supplies, painkillers and such. No antibiotics, I mean, come on. This is the post-antibiotics world. Nappies and formula, good job there. Masks, wet weather gear, pet food, toilet wipes. But . . . whaaaat! Some goddamn sanitary pads. Enough for a couple periods anyway. This has gotta be a first. Thank you, um . . . See Ay Gee. That stands for . . . ah, there it is: Centralized African Government. Not to be mistaken for the former Central African Republic. Huh, the alliance vote must've gone through. I was paying attention to the South American Alliance voting over the weekend, coz I got friends down

in what used to be Argentina. If I can find them. Not that I'd get over there. We got super plastics outta this thing, but not easy ways to get across oceans right now.

Thanks for the comments and support, by the way. I appreciate you're watching someone rambling across Europe griping about tampons. Salonga82 said a tampon factory has opened in Lagos, and India is doing good things producing pads in rural areas on the back of their cottage industry. That's really cool. Just gotta figure out distribution models, yeah.

And since this is the afterlife, and I don't give a flying rats, I'm putting it out there: I've received death threats from the nazholes. Ugh, you have no idea how hard it was to say that. Some old habits die real hard. Anyway, I've reported them to channel admin, and they're investigating, so that feels like progress. Thanks to BackChannelNinja from Oceania for hooking me up with the admins. Oceania is hanging on. They may be small, but they're mighty. Aroha nui, whanau.

Well, I have baked beans, sausages, and chocolate milk powder, so I'm set for a feast and a not entirely uncomfortable night's sleep. Imma go change my leaf for a pad. Oh my god, heaven.

Oh, and have you peeps watched the recording of Black Friday Live for Life in Luanda? That shit rocks! So awesome to see 3 of the 4 band members survived. Link is below.

Enfys out.

... course not every town and minute village has been sectioned. Gonna take years to develop proper testing procedures for the dormant phage. I mean, we lost a good chunk of the scientific and medical community coz many of them were first responders.

Huh. Wow.

Um.

So yeah. You're gonna find people still living in small pockets. They're usually good about sticking to quarantine rules and stay in touch with resource teams. No, I haven't seen any marauding bands. This isn't some sick HBO hellscape, yo.

And, no, I'm not gonna be ghoulish and show you an abandoned town still waiting for the burn crews. Cremation teams have done their best, but yeah, there are still bodies out there where they dropped. You can smell it. Those idiots who ran corpse hunter channels. Tsk. Really? Thought they were latent, but in the end it only showed the good side of chaos had them fooled . . .

• • •

SHIT.

Ha ha. Phew. Just a door banging in the wind.

Woah, weird. Empty. No quarantine signs. No bodies. Nothing. Interesting. Never seen a building made out of the super plastic before. Just. A regular house. Knew they were being experimented with before . . . uh . . .

Listen. Can you hear all the birds? Insects too. Wind in the trees. So loud. Mmm, smell the fresh growth. Love it.

INT: Dark screen

[Unintelligible fast whispering]

. . . have half a chest and my goddamn binder tore and nothing fits
shit shit shit . . .

. . . and with a bit of sticky tape like so, it does the trick. I mean, hell, I can find sticky tape in the afterlife but not sanitary products? Ugh. I know. What I'd give to have my implant reupped but that would, um, mean rejoining civilization and my med papers are not all that since I left Stockholm in a hell of a hurry.

Yeah, so some of you have been asking about that. The whole hospital deal, a nurse having my back, er, front, ha ha. Those first weeks were, um, yeah.

But I then I got to thinking. She deserves her name out there, coz she was goddamn hero like all those other first responders. Maybe she has family that doesn't know what happened to her. So anyway, here goes.

Phewf.

Her name was My. Here's a stealhie I took. I know, not entirely legal, but I didn't want her memory lost.

I didn't come round 'til I was in ICU, which wasn't necessary for my circumstances, but necessary for the circumstances. My and a few others put us in quarantine under the impression this would pass in a few days.

I mostly slept through the first European wave like some Sleeping Beauty 28 Days Later kinda crap. One of my drain sites got infected and I could barely sit up. My didn't lie, she said it was bad and that people were being evacuated and stuff was burning all over the place. I saw some of it on the Internet, but connections were sporadic, information distorted by panic. The power wasn't on auto by then, like, not fully switched over to the Saharan solar or offshore turbine grids.

I dunno. I wasn't scared. Maybe coz she kept us on the happy stuff. End of the world was pretty boring, really.

My was real careful. Hazmat suit and quarantine procedures at all times. One of the other patients was mobile and would deliver us food and meds and stuff. I, um, kinda don't remember the others' names. I was in this weird place. I dunno, more annoyed that I only had half my chest realigned than thinking the world was coming to an end. I thought it would pass. We're humans, we're incredible, we're on our way to Mars. Shit, I wonder what's happened to them? Yeah, we can deal with one stupid flesh-eating bacteria that kills in 48 hours, right?

Huh.

It was obvious when the other nurses and doctors stopped coming. But My, she was doing great. I really thought she was going to make it through. She was so careful.

Last I saw her she had one of those purple blotches on her face. She couldn't hide it. Didn't really want to. We were all reasonably mobile by then, so she, uh, gave us packs and pills.

Then she turned up the gas and torched the place with her in it.

We were well away, but I heard the hospital go up like the bombing runs in Washington and New York and Seattle.

I guess we were the last out.

Um, so look at this view. Beautiful, huh. All those untended vineyards. What a waste. Mmm, and the sound of the river, so nice. Noticed waterways are coming back quicker than expected . . . ?

Okay, I admit, I'd been holed up for a few weeks. That plastic house, okay? I didn't record from inside, coz, well, old habits. You think all the shitheads would figure we gotta work for the betterment of humankind, yadda yadda, but nah. They're quite happy to see this as the Second Coming or whatevs. Nazholes like cockroaches, still up in my mentions. Piss off. You're all cowards, stuck in your bunkers. And whatcha gonna do? Who's saving the world? That's right. The CAG. South American Alliance. Oceania. India. They put up with your goddamn colonial shit for hundreds of years and yet they opened their arms and their borders when it came to the crunch time.

Borders. Damn. Even thinking about such a concept now is so weird.

So yeah. I faked it when I channeled before. But now I'm on my way again. The ferries are running regularly to Alexandria, but. I dunno. The CAG is supposed to be the new enlightenment. Everyone has a place. But, do they really? I'm a cynic. I don't expect humankind to change that quick. Ugh, old habits old habits old habits. And I know the Big S has hit the more vulnerable people. My people. It's that old

holdover. You wanna be in control of your death when you didn't have much control over your life.

I'm out of tampons again. Surely someone's got it together with sanitary product distribution? I mean, getting the word out and drone drops wouldn't be such a biggie.

Oh, thanks for all the concern when I was a little quiet on it. BigWiggie224 wants to know if I've been able to track down my fam in New Zealand. Still working on. I buried enough of them Before it shouldn't hurt . . .

INT: Dark screen

[unintelligible sobbing]

It's the end of the world as we know it, and I feel fine, except for cramps and leaks and constipation.

Been a few months off my implant now, and my cycle is, um, reinforcing itself in style. Hard enough without my anti-anxiety meds. But now the dysphoria is real, yo. Stupid body.

Woah. A thought. If I'm dealing without my meds, what about those with chronic conditions. Insulin and dialysis and stuff. Dang, that's scary, yo. Hope CAG is onto that shit. I should look it up.

Hmm. Sea is pretty today. Some sunlight. Keeping on the move gives me something to do. Whoever is working hard at Google Maps is a goddamn legend.

Hell, what am I doing! Have I got a story for you!

I shit you not, but I met Jaybee Middlewake the other day. Totally hot even without the eyeliner. I'm not lying! He didn't want to go on camera, coz the art of celebrity is dead in the afterlife. And good riddance to it too.

He was working with an evac crew, and I joined in for a while coz it felt good to be doing something. Hells, incredible they let me stay with my shitty med papers.

The others from Black Friday were there. Inch said she'd seen some of my channel. I dunno, maybe she was just being nice. Justice gave me some moon cups. What a babe. I didn't tell her I can't use the things, they give me the creeps. I didn't go all fanperson tho, and freak out about how awesome the Luanda show was. This is the afterlife. I have to be cool with whatever it throws my way, even if it is my favorite punk band wandering out of the French mist.

But Jaybee. He was ethereal. This big team was evacuating an assisted living facility and some rest homes. I mean, what sort of jerk leaves

disabled people behind in the afterlife? Thank god it wasn't a town the burn crews had been through. The place was pretty rank, but somehow the majority of them had survived this long. Turns out couple those kids were really handy at scavenging, and a couple the older ones were really good cooks. They had running water, and they did their best.

I'm no saint. I admit I didn't think about it, like the meds thing. Makes me a damn regular jerk. Glad there are people out there with longer vision than me.

After we got them on a transport, the crew spent another couple days repurposing supplies from around the area. The hospital was a no go, already burned down. But there were some supermarkets and pharmacies which were a gold mine.

It was . . . nice. Hard work. But nice. I'm not one to kiss and tell buuuut . . . believe me, don't believe me, up to you. Jaybee lost his whole family back in California, and his best friend from the band. We all need a bit of comfort in these dark times. I'd forgotten what it was like to hug someone. Bit weird, being lopsided. Ha.

Jaybee and me discussed a couple things. Like the trouble I've been getting up in my mentions. I said, I'm fine. Sure. There's been a couple nazhole stalker channels, but I'm pretty sure they're fake.

The other thing was the offer of joining the evac caravan to the ferry. I said, my grrl, my papers would not get me across the Mediterranean. He said, like some of you others have, they're working on a point of transfer test for everything from latency to actively involved. Actively involved, god, what a euphemism for something that'll kill you in 48 flat.

I dunno. You're talking to someone who's had a body stared at and prodded all my goddamn life.

But Jaybee was cool. He understood. He said if I ever make it to Lagos to look him up. How did the embodiment of modern anarchy come to be a CAG guy? Keep rocking on, my grrl. I hope you stay immune.

So, I'm heading thataway, away from the smoke. Thought I'd check out what Monaco looks like empty. I hear all those gold toilets are a trip if you can slip past quarantine . . .

Shit. And we're live.

Sorry for the whispering, but . . .

Okay, I was a jerk. I was fooling myself. Said I was cynic, but I guess this whole change thing has made me part optimist too. It was nice to slide through the world with my only problem being finding tampons, finding my next meal, and dealing with my meat sack. I wasn't hurting anyone.

Guess that's not good enough for some.

Shit, hang on.

Sorry it's so dark. It's like, 2AM. But I've been moving all night coz there's someone out there.

Don't expect anyone to be round coz I've never done live before and shit I know I'm babbling but I can't stop. There's *someone out there*.

Shit, how do you turn location tags on. *Shit*. Sorry. Don't have a selfie stick. Ugh, shut UP, Enfys.

I don't know if they suck, or they just got on the good side of chaos. Not a roaming pack. They're pretty insular. Not cannibals or anything.

...

Shit. You heard that, right?

I think they've got guns. I know the new co-ops are doing their best to round up and dispose of weapons coz the afterlife isn't gonna be like that but there's only so much people can do and shit there are still nukes out there oh my god . . .

Shit shit shit shit I think I can see them. Not very stealthy but, I guess, what does it matter. Playing at First Person Shooter they don't care. Shit shit I'm in the middle of nowhere. There's a burn out a couple of kays back and a quarantine about five kays down the road but I don't think I'm fast enough and the electric scooter I borrowed in Monaco is out of juice and like that would outrun a bullet, ha, shit . . .

...

I'm screwed, I stayed at the plastic house too long, got too comfortable. All cozy apocalypse. Ignore the stench, the smoke, the hunger, it'll go away.

Oh but Enfys, you say. Shouldn't you shut the hell up? They're gonna hear ya. What's it matter? A bullet, the phage, an infected scratch coz antibiotics are so last century. God, my scar itches. What's one more death out of three and half billion?

Shit . . . can you hear that?

What the hell . . . they've got drones? Of course they have. Well, unless a drone can open a dead refrigerator. Ugh, it stinks in here.

What, I . . . can't hear what they're . . . Christ, I'm not the praying type but if anyone's listening . . .

Oh god.

...

Oh god!

...

They're close.

Congrats Enfys, you're gonna be famous. Channeling live, from inside the fridge, it's death!

Shitshitshitshitshit . . .

...

The hell?

...

Uh. Huh? Someone's . . . live commenting. They say . . . they're in control of the drones and the nazhole stalkers are neutralized? Sure, Jan. How did you know they were there?

...

They're part of an online task force and were . . . monitoring the nazhole's channel . . . and saw me come online at the same time and . . . cross referenced location tags and IPs . . . and Jesus Christ on a Biscuit, that's some top level chaotic good luck.

Nazhole that confident, huh?

Nah, yo. I'm not that dumb. I need a sign of good faith. How the hell some drones take down a nazhole with guns?

Trank darts? That's some James Bond shit, yo. What's to say you won't use them on me?

You . . . need tampons, too?

INT: Dark screen.

[Quiet sobbing]

Giddyay, yo, and welcome to the channel of the, uh, Tampon Express. Just doing final checks before we head out on the second ever delivery round. Mmm, the smell of fresher salt air, only slightly tinged with smoke. This time we're going up the eastern Mediterranean coast, heading into Gaza, then up into the former Aegean states and around the Adriatic. Map and distrib points linked below.

Course, it's not just tampons. Me and a few others worked hard to get those sorta things included in the medical supply drops. And here we are, round number two. Team Tampon kicking it, communal styles.

Uh, TikTakSinceBefore asks why I'm so obsessed with lady luxuries, and aren't there more important things to worry, don't we have bigger phages to fry? First of all DikDak, not everyone who needs sanitary products are ladies, so piss off. Second of all, we all do what we can, where we can. Right now, I care about tampons and gynecological health for all sorts of genders, coz it's still HEALTH and it's one small thing I CAN do. You not learned anything from the Purple People Eater? Infections, pain, prolapse, endo, fibroids, menorrhagia. Yeah, ew, not ew. Those are all still happening, even if you don't want to think about the half the pop, no it's now sixty percent, it's happening

to. Comfort, dignity, uh, people who bleed deserve that, even in these trying times.

Um, been hanging out for this trip, tell ya. Time off gave me a chance to brush up on the basics of a few other languages. Few weeks at the Alexandria outpost was nice enough, but it's not Addis Ababa, since Alexandria was cleaned out good in proper in one of the first waves. And um, thanks everyone for asking, I'm healing nicely after the surgery, and it's, uh, certainly a weight off my chest. Yeah yeah, shuddup.

Oh, need to tell you that new sexual health clinics have opened in Nairobi and the Dar es Salaam outpost. Dar es Salaam is the second newly opened filter point for refugees coming in from the latest phage wave in India, check the link for the refugee news channel below. Um, both these new clinics are available for IUDs, implants, oral birth control, and all your disposables. South Shore Hospital in Lagos has a full gynecological suite. So glad it's up and running again. Desperately needed.

Oh, and I got a new implant too. I'm period free for years! God, it feels so good. I can feel the, uh, proper shape of me now.

Another reason I'm stoked for this supply run, other than getting out on the road, um, sea? Is that I'm finally gonna meet Minette in Gaza! Yeah, yo. The woman who saved my arse back in the ruins of Marseilles. Hey, Min, you bad arse, lookit all I got for you. Woosh. TAMPONS.

Yerp, links below if you're interested in her tutes on how to build and fly drones. Totally looking forward to getting flying lessons from her. The ex-military people here are cool, but they're too busy to teach a civvie how to fly drones just yet.

But it's, uh, getting kind of an imperative since I've been working with CAG Distribution on how to do supply drops without using up resources like the planes and boats that get first dibs on the rationed fuel stocks. But yo, necessity is the mother of invention, and Armageddon has been a great kick in the arse to divest humanity of fossil fuels. Check out the link to Doctor Samanat Apour's channel about the labs investigating that new dry fusion. It is mind-blowing, yo.

Anyway, uh, rambling again. Um. What else? Oh yeah, if I'm back in time I can join the team heading up to the Svalbard Vault and do supply drops along the way. Pretty freaking cool CAG Medical discovered the phage doesn't settle in stone in extreme temperatures. Yay, the Sahara. Yay, the North Pole.

And, so cool, so many of the Sami way up North have survived, just like the Inuits out of Canada. Those people got survival skills, yo. Great to hear from them finally. Medical is still trying to figure out why certain

genetic predispositions and indigenous people are more resistant to the phage. I know somewhere back in my history my adoptive parents never wanted to talk about there is Māori ancestry.

Do I know if my parents are still alive? Uh, don't care.

Heard from some fam who made it across the Tasman to the Melbourne outpost, though. Well . . . shit. Excuse me. Need a tissue.

Anyway. Just about time to set sail. Weather's looking good. I'll be channeling in live each day at 1PM West Africa time. Time conversion app, yep, in links. I'm stocked to the eyeballs with tampons, pads, moon cups, sponges, washable organic cotton pads, knickers, bladder control pads, etcetera. And if I don't have what you want, drop me a line, and I'll run it past Distribution. I'll be heading to the factories in Lagos and Luanda after Svalbard to see how production is going. Shout out to Counselor Yemisi Ekundayo, who is part of the council. She's the woman, yo. Keeps me busy. Plus her egusi soup is the bomb.

This is Enfys, your host with the tampon most, signing off. Be well, yo.

ABOUT THE AUTHOR

A.J. Fitzwater is a meat-suit wearing dragon living between the cracks of Christchurch, New Zealand. They emerged partially complete from the trail-by-wordfire of Clarion 2014, and have won two Sir Julius Vogel Awards (so named after the eighth Premier of New Zealand, not the bread). Their work has appeared in various venues of the fantastical such as *Beneath Ceaseless Skies*, *Shimmer Magazine*, *Crossed Genres*, *Kaleidotrope*, and *Giganotosaurus*. Brain eructations can be found on Twitter at @AJFitzwater.

The Wings of Earth

JIANG BO TRANSLATED BY ANDY DUDAK

“Your turn, Xiaoyu!” Max said, looking back with the hint of a grin.

Jiang Xiaoyu didn’t move.

“Time to ratchet things up a notch.” Max didn’t seem to have noticed Xiaoyu’s trepidation. “We can’t let your trip be in vain. Now then, down on Earth, you might try to jump the last three steps of a staircase. Worst case scenario, you fall on your face and everyone gets a nice laugh. But up here it’s life and death. If you’re going to jump, you jump according to standards. Otherwise the fall goes off course, and you might end up poking a hole in the membrane. Don’t be fooled by the membrane’s appearance. It might look soft, but it’s brittle and hard. Fragments from an impact can poke holes in your space suit. You can lose your oxygen in the blink of an eye. Then you’re belching, farting, outgassing. Not a pretty way to die, with your eyeballs bugging out. I’m guessing that’s not how you want to go. So, pay attention as I demonstrate.”

Max undid his safety cord, bent at the knees, and launched himself from the platform. The backlash caused the floating platform to drift, but attitude control modules restored equilibrium. Max flew off in a straight line. In zero-g, flying like this was simple. A small boost sent you coasting indefinitely. Of course, this was also very dangerous. Without sound preflight calculation, you were a goner. This was space. It was necessary to follow the rules.

Xiaoyu watched Max.

Without his safety cord, he might end up falling through space forever, if he wasn’t aimed well at his objective. Judging by his trajectory, he was likely to strike the edge of the next floating platform at a glancing angle, or careen past it. Xiaoyu’s heart leapt into his throat.

Max approached the platform, from which a thick strut extended. This was certainly Max’s target. He reached out and grabbed it just in

time. The strut and the platform wobbled, and were soon still again. Max landed on the platform and fastened his safety cord.

"Give it a try," Max's voice came through the earpiece. "Just fasten your cord first."

Xiaoyu tugged on the cord, confirming it was attached to the platform. But this exercise was so dangerous, and seemingly unnecessary. He hesitated. "Max, this doesn't fall within guidelines . . ."

"In space," Max interrupted, "I call the shots. Didn't we agree on that? And here at your first challenge you're already afraid?"

Xiaoyu took a deep breath. He bent at the knees, imitating Max's launch posture. One, two, three! He rallied his courage, then bore down with all his strength. And then, sure enough, he was flying.

"Klutz!" Max jeered. "Your angle's off!"

Xiaoyu didn't need Max to point out the obvious. He could feel his upward-slanted trajectory himself. The vast plane of the membrane seemed limitless, extending in all directions, to ultimately fuse with the starry sky. It flashed with prismatic hues. To Xiaoyu, the seven colors of the rainbow seemed to pass beneath him in endless repetition. He could see his dim reflection in the rainbow. He watched, spellbound, nearly forgetting he was hurtling into space.

He was jarred from this absentminded reverie when his safety cord reached its maximum length, pulling taut.

"Hurry up and burn!" Max was worried, judging by his tone. "Control your flight!"

Xiaoyu took a deep breath, calming himself, and carefully surveyed his dire situation. The safety cord hadn't fully absorbed his kinetic energy. The force was converting to angular velocity. He was like a pendulum weight, on a collision course with the limitless membrane. Impact could seriously damage the membrane, and possibly kill him. He'd never experienced such a mishap in the academy's simulation lab. And here he was, a bookworm in the field for the first time, *shitting the bed* as Max would say.

Fortunately, his speed was low.

"Item five in the manual," Max said.

Xiaoyu followed the prescribed steps of the emergency plan. He calculated and burned, arresting his collision vector, coming to float fifteen meters above the membrane.

"Good job, kid," Max said. "Excellent recall, sound use of your jet. You're a hell of a student, Xiaoyu. So how was it? Exciting? Turn around and I'll take a commemorative photo for you."

Xiaoyu turned to face Max. The American stood on the floating platform, clutching a palm device in one hand, indicating Xiaoyu should

pose. This veteran astronaut was like a giddy tourist at a scenic outlook on Earth. Xiaoyu smiled and flashed a victory sign.

“Jesus!” Max cried out in surprise. “What’s that behind you? A fucking ghost?”

Xiaoyu was turning to look when something massive swept by overhead. Heart trip-hammering, Xiaoyu looked up and saw a colossus, a monstrous gray world of metallic luster vaguely resembling a mother ship. It passed over Xiaoyu’s head for no less than fifteen seconds. But soon enough it vanished into the starry backdrop, and was gone without a trace.

“It disappeared!” Max cried. “Did you see?” He stared in the direction it had gone, seemingly talking to himself. “Was it magic?”

“It’s still there,” Xiaoyu said, “obstructing stars.” The solar membrane flashed and glittered as far as the eye could see. Above that plane of light, a patch of unadulterated black eclipsed some of the visible stars. This void was the unexpected guest, and it was shrinking, quickly getting further away.

Xiaoyu burned his attitude jet. He ascended, getting as far as he could from the membrane.

Sure enough, the visitor’s form was revealed against the membrane’s dazzling backdrop. The black silhouette was shaped something like a compact rocket, or perhaps a frog with its limbs drawn in. It was hurtling toward a horizon of the membrane, where a slice of blue was quietly rising.

It was Earth.

A UFO was detected in low Earth orbit.

Within two hours, this news had spread across all manner of media, causing a worldwide commotion and sensation. In Conference Room 1 of the China National Space Administration, the object was projected onto a screen.

“Is it alien?” The bureau chief stood in front of the screen. “Who can tell me for sure?” He watched the black shape with a grave expression, and silence reigned.

“Chief,” his assistant finally said. “Many media sources are reporting it is alien.”

“What’s NASA saying?”

“They haven’t released their latest report,” Dr. Li Jiali said. “The last gave a high probability for this object being extraterrestrial. This is consistent with our own opinion.”

The bureau chief turned around and came to the conference table. He gestured around at the chairs. “Everyone sit. Let’s get this meeting

started.” He sat down, and everyone took their seats according to rank. This meeting was being convened at 3AM, which was unprecedented.

The bureau chief looked around at the assembly. “I know everyone has been working hard, but half an hour ago I walked out of the ZhongNanHai.”

Li Jiali swallowed hard. The bureau chief had been to the headquarters of the Party and the State Council, in the small hours of the morning. Big things were afoot.

“The Chairman ordered me to submit a report within two hours. This is a space race. Ladies and gentlemen, I trust you understand its importance.”

Li Jiali was fifty-eight years old this year. He’d been chief scientist at the CNSA for eight years. Although the theoretical existence of aliens couldn’t be discounted, the probability was very low. Under Dr. Li’s guidance, CNSA resources had been invested in near-Earth-orbit exploration. Only one-sixth of the budget was left for the deep space programs promised to higher powers: Europa, Titan, the Kuiper belt, and even the Mars projects. There was plenty of opposition to this, but it had been suppressed for the sake of China’s near-Earth power stations. Too much had been poured into these. Their completion had to be guaranteed. They would yield practical benefits in the short term, whereas deep space exploration was a resource-draining, long-term gamble.

“Aliens . . . maybe hundreds of years from now we’ll find them. But not in our lifetimes.” Li Jiali had always said something like this, but now it was like a cosmic joke had been played on him. An alien ship was quietly orbiting earth. It had to be alien. There was no other explanation.

“All of our active telescopes are trained on it,” Dr. Li said. “Within two hours we’ll be able to submit a full and reliable report.”

“Full and reliable,” the bureau chief mused. “To what level of detail? Can you do better than NASA? Chairman Lin got up at midnight and had a phone call with the American president. They agreed to a joint exploration. As it happens, the American mothership is in geosynchronous orbit. They’re going after the object. Telescopes . . . can telescopes surpass on-site exploration?”

There was reproach in the bureau chief’s words. Humanity had two motherships to its name, and both were American. China’s mothership plans had been shelved ten years ago, primarily because they’d competed for near-Earth power station resources. Until this unexpected visitor showed up, Dr. Li’s budget priorities had been sound, especially considering the power stations’ economic benefits. But the alien ship had come. Circumstances had changed.

"We can keep up with NASA," Li Jiali said. "We've been cooperating well in recent years."

"Then let's not waste time. At ten-thirty I'm going back into the ZhongNanHai. I want to hear another report at ten. Each department will support Doctor Li's work. Doctor, at ten-thirty you'll come with me to the ZhongNanHai. That's it. You're all dismissed."

The people in the conference room quietly dispersed.

"My walker is getting cooked!" Max howled into the com. "It'll burn out soon! Call the station chief!"

Silence answered him from the com.

"Fuck! Once a bureaucrat, always a bureaucrat!" He was American, but more proficient in Chinese invective than many Chinese astronauts.

"Max," came the station chief's voice. "Return at full speed to headquarters."

"Bill, my walker is basically cooked!"

"I can allocate you a new walker. Just double-time it back to the space station, and prepare to return to Earth." The station master's voice was calm, unflustered. It somehow left no margin for haggling.

"Bill, our return shuttle isn't at the space station."

"Don't worry about that. We're well-coordinated. You can join the Chinese down to the surface."

"Fine," Max said, suddenly gunning the walker's throttle, "this is on you."

Jiang Xiaoyu seized a grab handle, stabilizing himself. This 'walker' vehicle resembled a rugby ball, with only two seats in the tiny cabin. It felt like being packed in a tin can. Max piloted, flying just above the membrane. Dark ridges, the partitions between sections of the vast plane, hurtled toward them. Max cut it close, flashing and dodging between the ridges. Xiaoyu felt like he was in a high-speed race car, dizzy with acceleration.

All he had was the grab handle. He gripped it, white-knuckled, his body shivering.

"Raise your head," Max said.

"What?"

"If you feel dizzy, just raise your head."

Xiaoyu looked up into the tranquil heavens. The resplendent stars braced his spirits, and his dizziness vanished.

"It's said there's a ghost living on each star," Max said, "and they can see you. Is that a comforting thought or what?" The American was joking, but his laughter rang hollow. Max wasn't his normal hearty self. He was nervous.

The walker banked sharply. Enormous g-forces pinned Xiaoyu to the bulkhead, the force comparable to a rocket takeoff. Fortunately, it was only a sharp turn, over in seconds. Xiaoyu breathed with relief, but then he was staring again, in shock. Far away, Earth hove into view, half dazzling azure, half dark and sprinkled with shimmering golden lights. Above the azure half floated something like a bright white sail full of wind.

The Wings of Earth. He was seeing the already-completed left wing. They were currently speeding over the massive construction project of the right wing.

Xiaoyu could only watch in awe.

“Don’t be too impressed,” Max said. “Not exactly a solar sail, now is it? You must’ve seen it on video.”

The massive construction project had, of course, been thoroughly documented. Xiaoyu had even used VR equipment to experience orbital POVs of Earth’s Wings, but no video or VR could compare with seeing these wonders with his own eyes.

It really looked like Earth had grown a snow-white wing. With the unbounded and desolate cosmos for contrast, the brilliant, blazing Wing was enthralling.

Xiaoyu stared dazedly.

He spotted two dark objects against that pristine backdrop, near the bottom. Whatever they were, to be visible to the naked eye at this distance, they had to be colossal. Xiaoyu soon recognized the uninvited guest he’d seen before. It appeared smaller, almost trivial against such immensity, but its contours were still evocative of a frog.

The other object was a smaller black spec. No telling what it was.

Not waiting for Xiaoyu to collect his thoughts or formulate a theory, a massive steel frame obstructed his view. He and Max had entered a region of unfinished superstructure. Heavenly Palace Seven appeared before them. It was a vast oblate steel sphere, slowly revolving in space, with eight arms of varying length and thickness extending out.

“Sit tight!” Max cried.

Some kind of force pulled the walker downward. A dark opening in the palace loomed ahead, and then Xiaoyu couldn’t see anything.

“We’re safe,” Max said.

Li Jiali was waiting for the Chairman to grant him a meeting. He’d finally reached his endurance limit. He couldn’t take any more uncertainty.

“Bring up the third and fourth most important points first,” the bureau chief reminded him.

Li Jiali nodded. "I've adjusted the sequence. I need about five minutes to illustrate our main point."

The large conference room doors opened. Two staff members in black suits advanced, motioning for the guests to follow. They entered the vast room that represented the highest executive power in China.

Three of the five standing committee members were present. Those familiar figures, so often seen in the media, now sat upright behind the immense table, watching Li Jiali with faint apprehension. The one in the middle, Chairman Lin, waved a hand, and said, "Doctor Li, let's skip the pleasantries and seize the moment. We need your expertise."

Li Jiali opened his palm device, illuminating the virtual screen. A one-meter square projection opened before the committee. The black silhouette of the visitor appeared.

"Currently, this is our clearest image. Its surface material absorbs various EM wavelengths. The strongest reflection rate is six parts in a thousand. Visible wavelengths are completely absorbed. So, it's basically invisible. This is why we didn't detect it earlier."

"But it's clearly capable of detecting Earth's strong radio sources. And it has issued a targeted response. To date, sixty-five satellite relay stations have received similar signals. All are traceable to the alien object. Our space communications are encountering interference. Reports show the signal's power surpasses that of eighteen communications satellites, so the signal is intense. And there is a common characteristic . . . it must be using the same frequency as the satellites. So at least we know the object is fairly intelligent."

"Is it hostile?" Secretary Deng said, "or friendly?"

"We have no data either way," Li Jiali said. "There's no way to judge, from the current situation. But we've been speculating."

Li Jiali adjusted the screen, which displayed an orbital path, half red, half blue, elliptical, wrapping around Earth and its two outstretched, twenty-thousand-kilometer solar plants.

"This flight path is based on current intelligence gathering. The blue section has already been described. The red is predicted. The object is in Earth orbit, sixty-thousand kilometers from the surface. The timing of its entry into this orbit took advantage of the accelerating effects of Earth's gravity. So, the top spaceflight institutions have determined that it could utilize gravitational slingshot acceleration. As for its next move, there is much disagreement. NASA thinks it will break away from Earth orbit at the most advantageous point, and pass near the Wings of Earth. In terms of energy consumption, this route would require the least adjustment, and also provide ample opportunity to survey Earth

and the Wings. NASA believes it will use Earth's gravitational slingshot to accelerate, then the sun's, and leave the solar system."

A solar system diagram came up on the screen. A red line extended straight from Earth to Sun, around the Sun in a thirty-degree arc, then away and up-system.

"So," Secretary Deng said, "NASA concludes the object is passing Earth by chance, and we don't need to act."

"This is conjecture. We have no understanding of the object. Any conclusion will be arbitrary and subjective." Li Jiali took a deep breath. "But I concur with NASA. The object is visiting Earth, and is on course to leave. This is how we would visit other worlds, after all. Of course, if the object's technology far exceeds ours, we can conjecture all we want to no avail."

The three committee members exchanged glances.

"What about other possibilities?" Secretary Deng said. "What should we do?"

"We can only wait on its next move. We're trying to contact it via EM wave, of course. So far it has ignored our transmissions."

"We must prepare for all possibilities," Chairman Lin said, unreadable, implacable.

"Our reserve satellites are on standby," the bureau chief said, "ready to proceed on attack vectors. All intercept rocket troops are ready to defend. Beijing's important political and military sites are thoroughly locked down. We've coordinated with the Rocket Army commander. RA deployment was completed within six hours. We are on highest alert."

"Very good," Chairman Lin said flatly, looking at Premier Li and Secretary Deng. "We have reliable information that the Americans have dispatched their Zeus-class mothership to pursue the alien object. I'm authorizing mobilization of all resources necessary to land on the object before the Americans. Or we establish contact with it. I am issuing these orders as Chairman."

Li Jiali shivered. The Zeus-class was the Americans' active duty mothership. If they really had dispatched it to rendezvous with the alien object, they enjoyed total superiority. He did some off-the-cuff probability calculations, only managing to remain hopeless and confused.

"Chairman," the bureau chief said, "I promise you we can implement your orders."

Chairman Lin's gaze swept toward Li Jiali. "Doctor?"

Li Jiali summoned his courage. "I will make every effort to formulate a viable plan. But when it comes to problems science can't solve, my hands are tied."

Chairman Lin nodded faintly. "You are the chief scientist. You have the final say. But . . ." His gaze moved between Li Jiali and the bureau chief. " . . . we are here to reach a unanimous decision. I don't know the aliens' purpose, but the Americans have a purpose. If they have dispatched their mothership, we will also dispatch a spacecraft, whatever sort of vehicle we can muster. Where the Americans go, we go. We've invested much in the Wings of Earth. How many Long March Seventy rockets launched? At least a thousand? Find something to rendezvous with the alien ship. It shouldn't be too difficult, right?"

There was more to Chairman Lin's words than met the ear. This strange alien ship was going to be moving at twice solar escape velocity. Getting close to that required precise calculation and thorough planning. What Chinese ship would suffice on such short notice? The Chairman had already given the final word on this. He couldn't back down now.

"Chairman," Li Jiali said, putting on a brave face, "I will provide an optimal plan." His mind was already churning up possibilities.

Chairman Lin appraised the two men standing before him. "This is all unexpected, but who knows what fruit it might bear? We must strive toward benefiting from the situation. Even if the aliens leave, this will be far from over. What happens next depends on you two."

His gaze settled on Li Jiali. "Doctor, hurry back to the CNSA hotline. If anything happens, contact me directly."

Such a big space station, now deserted, seemed desolate and cold. Jiang Xiaoyu passed through the central habitat and couldn't find anyone. It felt strange. A month before, when he arrived at Heavenly Palace Seven, this large space had been filled with over forty astronauts from six countries. They seemed to have vanished overnight.

"Max, nobody's here." Xiaoyu glided to a halt. "Where did they go?"

"How am I supposed to know?" Max said in the earpiece. "Wait a moment. I'll try to ask around." He was clearly annoyed. "Dammit! Now of all times for satellite malfunction. And no way to authenticate. I can't even get into the bathrooms."

Xiaoyu searched the vast hab, feeling small and alone. He came to a long, panoramic window and looked out. Heavenly Palace Seven had the best windows. This one was a twenty-meter glass wall, without partitions, the best view in all of humanity's space cities. Normally it was crowded here, with astronauts always coming and going. Everyone who came to Heavenly Palace Seven visited this wall of glass, wanting a moment of solitude, which was harder than reaching Heaven itself.

But now Xiaoyu was alone. He placed his hand on a transparent railing, face almost pressed against the glass. The world seemed peaceful. The only sound was a faint rustling in his earpiece. He stared, absorbing the scenery. The Pacific Ocean filled most of the view, and the clouds were like silken veins in a blue gem. The atmosphere was a pale wash enveloping the planet, like a sacred shroud. The holy light faded away into the dark cosmos. Not far ahead, a white sail was suspended high above the planet. A Wing of Earth, shining, dazzling.

And there was that small black spec, stark against the whiteness: a ship of unknown origin, a real alien object. It had flown right over his head a few hours ago. Xiaoyu stared. It looked to be sweeping past the Wing, descending toward Earth.

He couldn't help wondering what sort of beings were in that thing.

A hiss interrupted Xiaoyu's thoughts. He turned to see the airlock opening. A tall, middle-aged man entered the hab, his movements unfolding smoothly, fish-like.

"You must be Jiang Xiaoyu," he said, his manner cordial. "I am the station master, Gao Dali. Welcome to Heavenly Palace Seven! Firefly Six still needs a few hours before it can launch. You'll need to board half an hour ahead of time. In the meantime, you're free to move about as you wish. You have access to most of the hab. I've activated your privileges. Don't forget your training, and pay attention to safety." He paused. "Max and I are good friends, in addition to colleagues."

"Xiaoyu," Max said through the earpiece, "don't listen to that bastard. I don't consider him a colleague, or a friend. I still can't get into this fucking bathroom!"

Gao Dali was laughing. "We're on high alert at the moment. Standard procedure. You'll have to hold it." He patted Xiaoyu's shoulder. "If anything comes up, call me. There's not much to do while you wait, but the view ain't bad. So . . . enjoy!"

"Station Master Gao," Xiaoyu said, as Gao turned to leave, "where is everyone?"

"Strange, isn't it? I guess you two haven't heard the latest news about the object."

"The alien ship?"

"America has dispatched a Zeus-class to intercept it. Word arrived that according to collaboration pacts and whatnot, astronauts from any cooperating country could join the expedition, if they were interested. As you can see, everyone was interested. I'm the only one left. If I wasn't station master, I'd have gone myself. Chance of a lifetime! We're lucky the American ship is big enough to take everyone who wanted to go."

"Damn right it is!" Max said. "My homeland, land of the free, home of the brave, finally making a comeback. You Chinese are always scrambling to get ahead of us, always going on about Sino-American cooperation. But it's better to take turns in the limelight. Am I right? Ha!" The American never seemed to run out of laughter.

"Can we catch up and get on board?" Xiaoyu said, growing impatient.

"Of course not," Gao Dali said. "The pickup ships left several hours ago. And the Zeus-class set off on its rendezvous course before that. Chance of a lifetime. What a pity!" Gao Dali seemed to realize something. "But you two were the first to discover the object. The whole world knows that. You'll be celebrities. Not bad!" He gave Xiaoyu's shoulder another consoling pat. "Once communications are restored, I'll tell everyone you two are here." With that, Gao plunged expertly into the airlock.

Xiaoyu felt anything but mollified.

That Zeus-class was out there, carrying astronauts from all over the world, on course to rendezvous with the alien ship. And then what? What might they see? Could the Americans capture the object?

"Xiaoyu!" Max said. "Communications are restored. We're to prepare for descent."

"I don't want to go home," Xiaoyu said, his voice low. He couldn't take his eyes off that distant black spec.

Li Jiali had been sitting idle in his office for three hours.

After giving instructions to his subordinates, he'd shut himself in here. He knew, based on years of experience, that he was better off alone when it came to formulating a plan. The CNSA had been manufacturing bulk space transport for thirty years, as part of the Wings of Earth construction effort. But these vehicles, built in the CNSA's orbital cities and moon bases, were awkward, unwieldy tools, moving slowly on set trajectories. They shipped large quantities of materials, but getting them to perform like shuttles would be like getting an elephant to dance in a bathtub. China was well behind America when it came to passenger shuttles. Militarily, this gap was not so relevant, with equilibrium maintained by maneuverable, unmanned satellites. But when it came to a fine-tuned, high-speed rendezvous in space, China was eating America's dust.

At least someone was going. Ultimately it was good that the Americans were closing in. There were no national boundaries in space.

Li Jiali kept having to suppress such thoughts. Although the world was largely at peace, perfect harmony had yet to be achieved. Competition was everywhere, and space held decisive opportunities. The Chairman had been very clear about this.

Li Jiali continued to browse flight vehicle parameters, compare orbits and loci, and seek possible solutions.

His phone rang.

This was the private hotline, and very few people had the number. Li Jiali pressed the preview button. The phone did not project a floating portrait, but rather a word: "Heavenly Palace hotline." This was a call from space. Li Jiali's spirits rose as he connected the call.

"Teacher Li!" The voice sounded pleasantly surprised. "Sorry to take the liberty of disturbing you. Really sorry. I'm Jiang Xiaoyu."

"Jiang Xiaoyu? Aren't you on holiday?" This CNSA line couldn't be mistaken. The call had to be from space. "How did you end up at Heavenly Palace Seven?"

"That's a long story. An American astronaut and I were carrying out maintenance on the Wings of Earth . . ."

"It was you two who discovered the alien ship?" Li Jiali interrupted. "You sent those first images?"

"Yes. The discovery is ours."

Last year, Li Jiali had accepted an invite from the CNSA Academy to teach one semester of a special PhD course. This Jiang Xiaoyu had been top of his class, clever and ambitious. Li Jiali had offered the young man an internship at CNSA, but Jiang Xiaoyu had surprised everyone by declining. He didn't want to trifle with calculations in some office, he'd explained. He'd been dead set on going to space. Countless people begged for CNSA internships and never got them, while Jiang Xiaoyu had casually declined. Intrigued, Li Jiali had given the young man this phone number.

Now there was an alien ship, and a dilemma, and Jiang Xiaoyu, the discoverer of the ship, was calling from Heavenly Palace Seven. It all seemed like a TV drama. Or perhaps the mysterious, inexorable Will of Heaven . . .

Li Jiali forced himself to be calm. "Xiaoyu, what can I do for you?"

"They want me to come back down to Earth. I want to stay up here and await that ship. Teacher Li, you're a celebrated, influential man. CNSA will listen to you. Can you help me stay up here for two more days?"

Li Jiali tried to process this. "To wait for the alien ship?"

"Yes, here on Heavenly Palace Seven."

"It's predicted to break away from Earth orbit very soon. Seven is not in its path. In fact, it's getting further away from you."

"We don't know what it will do, in the end. Look at Seven's position . . . right between the two Wings of Earth, massive, surrounded by all manner of auxiliary installations. If I were an alien, I'd pay attention

to it. But the ship has not made contact . . . ” Jiang Xiaoyu was growing excited.

“You’re saying the ship will visit you?”

“I don’t know, but it’s quite possible. If it’s aimed at Earth, it can’t miss Heavenly Palace Seven.” The young man sounded cool-headed again, now that he was fielding questions from his teacher.

Li Jiali quickly thought through the argument. Yes, Heavenly Palace Seven occupied a prominent position, linking the two Wings of Earth. The structure was indeed massive, a clearly visible hub or fulcrum. An alien probe couldn’t miss it.

Could the alien ship’s current trajectory be a ruse? Perhaps it had seen Seven but was unwilling to consume the power needed to rendezvous. It all depended on the aliens’ ability and desires, and these were still unknowns.

“Who’s up there with you?”

“Station Master Gao, and Max, the American.”

“Just you three? No one else?”

“The rest are on that Zeus-class. Teacher Li, this might be a once-in-a-lifetime opportunity. To let it slip . . . Please help me stay up here. Just two more days!”

“Let me think about it, and I’ll do what I can. Standby for an answer.” Li Jiali disconnected.

He laced his fingers together and leaned forward on the desk, frowning. The American mothership had already set off. It had taken astronauts from many countries along, including Chinese. Li Jiali had yet to come up with a plan that would snatch America’s lead in this race. Jiang Xiaoyu’s prediction was a ray of hope, however dim. Li Jiali deliberated, scanning Heavenly Palace Seven’s resource data.

He extended a shaking hand toward the phone. He hesitated, allowing himself to calm down. Then he picked up the phone and tapped a button.

On a desk in the ZhongNanHai, a red phone rang.

The Zeus-class ship was like a massive steel arm, the protective layers of the bow a great clenched fist. Two arrays of EM artillery pointed fore, flickering with dim blue light in their potency, like Zeus’ mystical scepter of power.

The American flag on the side of the ship was bright, unmissable.

Ahead, the mysterious object from deep space was close. It seemed the Zeus-class would overtake its quarry soon. The two ships, human and alien, were comparable in size. The Zeus-class transmitted hailing beacons and data in a constant stream, even sending the occasional threat. But the mysterious object remained aloof, and on course.

Two drones emerged from the Zeus, bound for a close approach and survey of the alien ship.

And then the object vanished.

This sudden, unforeseen event plunged all of humanity into dumb-struck silence.

Alien technology, unlike anything known to humans, had shaken off its pursuer. It was gone. The two drones circled where the object had been, hunting for their quarry in vain. The object had disappeared without a trace. It was like it had never existed. The world, glued to the Zeus-class' live transmission, was left in bafflement. And then panic began to spread.

"Yes!"

Jiang Xiaoyu, in the central hab of Heavenly Palace Seven, slapped the bulkhead triumphantly. The Zeus-class floated on the video screen, suddenly alone. This was the tableau of ten minutes before. It had been transferred all over the place before coming to Heavenly Palace Seven, but Xiaoyu guessed the Zeus-class was still lingering out there.

The alien ship had vanished. Which meant his surmise was at least half correct.

"You shouldn't take such delight in misfortune of others!" Max reposed in a sofa, a beverage-bulb in hand. "Do you want the aliens to conquer Earth, is that it? Anyway, it's vanished, over there on the other side of the planet, a hundred thousand kilometers away. If it somehow flies through Earth and shows up here at Heavenly Palace Seven, then I'll have to call you a genius, I guess."

Xiaoyu opened his mouth to say something, when the broadcast alert sounded. "Jiang Xiaoyu, phone call," Gao Dali yelled, "station six. It's Doctor Li calling."

Xiaoyu drifted to station six, activated the phone screen. A partition descended for privacy.

"Xiaoyu," Dr. Li said, sounding excited.

"Teacher Li!" Xiaoyu suppressed his own excitement.

"The Zeus-class . . . you know what's going on?"

"I just saw."

"And I just had a conversation with Doctor Qian Bojun of the astrophysics institute. He does cosmology research. He says the disappearance was probably a wormhole effect. Such extreme space warping can only be triggered by very high energy."

"Right," Xiaoyu said, nodding. This was all a complete gamble, but things were moving in his favor.

"So your conjecture was, perhaps, correct." Doctor Li's voice was still trembling with excitement. "Near-Earth space's distortion level is

not high. Entering a wormhole here, you could only return to normal space near Earth as well. Otherwise you could get lost in the wormhole. That's a prediction of the Qian-Thomas model."

Xiaoyu had been listening carefully, but as he looked out the porthole, he stopped hearing his teacher's words.

A massive ship was floating out there, motionless, suffused with a strange gray light. It was the alien ship. At this distance, its massive size was obvious, and oppressive. It was like that first time he saw it, flying overhead.

"Xiaoyu? Can you hear me?" Dr. Li seemed to sense something had changed.

"It's . . . here," Xiaoyu replied. He'd theorized that the alien ship might visit Heavenly Palace Seven. But he hadn't expected it to emerge from the void, without warning. Now that this divine force was before him, so sought after and coveted, he could only stare, his body going cold.

The connection with Dr. Li was cut short. There was only static.

The partition opened, and Xiaoyu heard a voice echoing throughout the habitat: "Xiaoyu? Can you hear me?" This phrase was being repeated—Dr. Li's last words, before he got cut off.

Max stood in front of the panoramic window. He turned to Xiaoyu, wide-eyed, stunned.

The airlock hissed open and Station Master Gao plummeted through, nearly crashing into Xiaoyu. "What's going on? We've lost communications. Do the aliens know you?"

Xiaoyu didn't know what to say. He looked at his two companions, mystified.

Gao collected himself first. "Seems we're in a tight spot here. It . . . seems to have chosen your name, Xiaoyu. Should I answer it for you?"

Xiaoyu nodded. He was numb. Any idea from anyone was good. Down on Earth, everyone was probably hearing the same thing.

Xiaoyu? Can you hear me?

Dr. Li's voice, carried by radio waves to every continent. Dr. Li saying the same thing over and over. It was like an invisible nuclear bomb, detonating over everyone.

"Doctor Li, this is a plenary session of the emergency operation committee. The topic under discussion is the communication between you and Heavenly Palace Seven."

Six simulated human figures appeared before Li Jiali. He knew his own simulation stood in the ZhongNanHai, in the middle of some special conference room, face to face with the most important minds in China.

He wasn't nervous confronting these big shots. He understood the situation well. The Americans had lost their edge. They would not be first to the alien ship, so the political mission was complete. The aliens had emerged near Heavenly Palace Seven, verifying a conjecture made in advance. All of this was a favorable turn of fortune. He only worried about the three people in Heavenly Palace Seven, who might be dead for all he knew.

"Doctor Li," Secretary Deng said, "why are the aliens repeatedly broadcasting your phone call?"

"I can only guess. It's quite possible that it was the last thing I said before they interrupted communication. Perhaps they believe it's a basic unit or prompt of communication."

"You mean they took it for a contact method, is that right?"

"Most likely."

"But you've reported that the aliens are most likely passing through, using Earth's gravity for slingshot acceleration."

"Based on the consensus of the world's experts at the time."

"But it vanished, and emerged near Heavenly Palace Seven. Was this also your conjecture?"

"It was Jiang Xiaoyu's conjecture. And I believed it had merit. We weren't going to be able to preempt the Americans and make first contact. We needed a bit of luck. Chairman Lin agreed at the time." Li Jiali glanced at the simulated Chairman.

Chairman Lin sat up straight and adjusted his tie, expressionless.

"So your plan was to wait for the alien ship to appear at Heavenly Palace Seven, then use a Firefly Six class shuttle to approach it, correct?"

"Heavenly Palace Seven has just one Firefly left for getting to Earth and back. Who knows what the alien ship will do, in the end. If we really need to land on it, that Firefly is our only option. But it can't alight on another ship, so they'll have to perform a complex spacewalk."

"Is Jiang Xiaoyu up to the task?"

"I don't know. There's also Station Master Gao Dali, and the American, Maxwell Davis. They're veteran astronauts, capable of handling complex situations. We've lost contact with Heavenly Palace Seven, as you know. We have no choice but to rely on those three men up there." Li Jiali hesitated. "Right now, they represent all of humanity."

"The Americans are mustering their maneuverable satellites to head for Heavenly Palace Seven," Chairman Lin said, finally breaking his silence. "You are CNSA's chief scientist. What do you think we should do?"

Li Jiali took a deep breath. "Any military operation would be meaningless. The alien ship has conducted a Qian-Thomas jump,

also called a fold-jump. This technology is far beyond anything we know. We have no intelligence on its military tech, but a ship that can Qian-Thomas jump is in control of energy to an astonishing degree. Doctor Qian Bojun told me a fold-jump like the one we've seen would require the energy of a ten-megaton hydrogen bomb contained within six cubic meters, a sustained temperature of fifteen million degrees, what you'd find at the core of the sun. Our fusion reactors can achieve this, but in a volume three times larger than the alien ship. Their control technology far exceeds our fusion reactors."

"Give it to us straight," Chairman Lin said. "What's your conclusion?"

"Mobilize satellites to keep a close eye on its movement. Other than that, we do nothing. All countries and organizations should standby, and let's see what the aliens do, how they try to contact us." He looked at Chairman Lin. "We should propose suspension of military operations to the Americans."

Chairman Lin slowly nodded. "Your proposals are very objective. We will talk things over with the Americans."

The aliens' broadcast stopped.

The ship still hung there above Heavenly Palace Seven, inert. Jiang Xiaoyu, Gao Dali, and Max stood before the panoramic window, shoulder to shoulder, watching their visitor.

"No movement," Gao Dali said. "What should we do?"

"Do?" Max said. "We wait. What else? I for one could use a drink before we become human specimens. What's still in stock? Any civet coffee?"

"What?" Gao Dali said.

"Civet coffee. *Kopi luwak*. The beans are plucked from the shit of the Asian palm civet . . ."

"This is no time for jokes!" Gao interjected, expression dark. He turned to face Xiaoyu. "What do you think we should do?"

"Don't tell me we're not going over," Xiaoyu said, meeting Gao Dali's gaze. "They're not coming to us, after all. They've flown lightyears. The least we can do is fly a few hundred meters."

Max grinned. "Your face is telling a different story. You went green just now. How does that idiom go . . . Lord Ye's passion for dragons? Pretending to like something while actually fearing it? Seeing a real dragon would be scary, I think. Maybe this dragon of ours is luring you in."

Xiaoyu's face felt hot. "I didn't expect it to just appear right in front of me. But we should still go."

"Waiting here is safest," Max said. "Why face unnecessary dangers?"

They both looked at Gao Dali.

"I think we should wait for orders," the station master said, looking from Xiaoyu to Max. "We have no orders at the moment, so I agree with Max. It's safest to wait here."

Xiaoyu? Can you hear me?

Dr. Li's voice was back, repeating.

The three men looked at each other.

"We should go," Xiaoyu said. "It's inviting us."

Max gave a wry grin. "Ever the troublesome student. Fine, I'll go with you. It's a summons, and we'll answer it."

The two of them were looking at Gao Dali once more. The station master glanced at the signal light on the duty station next to the window. The light was red. There were no orders from Earth. Their mysterious guest seemed to be blocking everything.

"It's just the three of us here, so the choice is ours. The Firefly Six has adequate fuel, and it's outfitted for a walk. All three of us will go. We approach the alien ship, I stay on the Firefly, you two descend in the walker and land. We might lose communications, so this has to be well-planned. I'll do my best to maintain my position relative to the visitor, so I can provide support or rescue, if needed. The rest is up to you. You'll have to seize opportunities as they arise, play it by ear. And keep in mind Earth is nearby. There's always the option of going home."

"Good man," Max said. "I never saw you so eloquent in our advanced studies course at Princeton. I endorse your plan, but I think there's room for an amendment. You and Xiaoyu stay on the Firefly, and I go down in the walker alone."

"Not a chance," Xiaoyu said. "I'm on the descent!"

"It's a question of safety," Max said, his smile vanishing. He could be quite intimidating when he didn't smile.

"It's inviting *me*! You know two is better than one for this. If it's a question of safety, we can look out for each other. Station Master Gao has to deal with the Firefly, otherwise I'd insist all three of us go."

"Dangerous environments require caution," Max said. "I'm your *buddy*," he added, using the English word, "but in space I call the shots, remember?"

"That was before. Now we're talking about an alien ship."

"There's no use arguing," Gao Dali said. "You'll both go. I can handle the Firefly on my own. Who knows what might happen on the alien ship? Xiaoyu is right. Two is better than one. Besides . . ." Gao Dali paused. "Max, you're American. If America is going, China should too."

The quarrel seemed to die in the silence that followed.

"I suppose they didn't travel lightyears just to kidnap two Earthlings," Max said. "What do you say we do some sightseeing, then come on back?"

Xiaoyu? Can you hear me?

The query continued to repeat, seeming to urge the three of them to decide.

"Come!" Gao said, extending his right fist.

Xiaoyu and Max followed suit, and three fists came together, the traditional pre-mission astronaut ritual.

The Firefly Six resembled a small winged aircraft. Three vector engines jetted red flame, providing gradual impetus, and the disc of Heavenly Palace Seven fell away.

The Firefly rolled, changing course.

Xiaoyu stared intently at the screen before him. His task was to prompt Gao Dali when the alien ship descended to the middle of the screen. All signal pathways were receiving interference, so they had to rely on manual control. Heavenly Palace Seven slowly withdrew from the right side of the screen. The light gray mass of the alien ship entered the field of view from the upper left corner.

The visitor was not far from Heavenly Palace Seven, its vast bulk occupying more than half the screen. When the ship's middle floated beneath the reticle at the center of the screen, Xiaoyu said, "Stop!"

A locking sign appeared on the screen. The field of view displaced a bit, then returned to its original position. "Good," Gao Dali said. "We have about ten minutes until arrival. You'd better go down and join Max." Gao was hunched over a control screen, his back to Xiaoyu.

"Alright then," Xiaoyu said, undoing his safety belt. His body floated up, and he reached for his helmet.

"Xiaoyu," Gao said, turning to face him, "be careful."

From Gao's look, Xiaoyu could tell he was deeply concerned. Out here in space, completely separated from the world, the three of them were all of humanity. Once Xiaoyu had gone down into the launch hold with Max, Gao would no longer be able to see or hear them. This was goodbye. Feeling words were inadequate, Xiaoyu simply nodded, then put on his helmet and gave a thumbs-up. He slipped into the launch hold.

He squeezed into the walker, settling in behind Max.

"Take off that helmet!" Max shouted, turning to face him.

Xiaoyu barely heard him. He took it off.

"There's still some time, and we need to talk. Helmet coms might still be out when we get down there, so let's make sure we're on the same page. Coms frequency lock at one-o-seven megahertz. If that's blocked, then we move to five hundred gigahertz."

"Right. I'm set for one-o-seven megahertz."

"If we can't talk, we use hand signals. No telling what might happen down there."

"And if they block visible light as well?" Xiaoyu said.

"Huh," Max said, looking distracted. "Unlikely. Why would they want us blind, groping about in confusion? If they're highly intelligent life-forms, it's hard to imagine them wanting that." Max grabbed his helmet. "Anyway, let's suit up. Regardless of whether we can communicate, we rely on these to breathe."

Xiaoyu donned his helmet. The world immediately grew quiet. When his ears had adapted, he sensed new sounds. Max activated the walker, hydraulic pressure valves finding their pace, and these accompanied faint vibrations from the bottom of the vehicle. Then came airlock depressurization. Gao opened the launch gate. The sounds diminished, vanished. The vacuum was before them, the universe utterly silent.

The alien ship loomed ahead, the vast hull filling their entire field of view. It resembled granite, but it was luminous, reflected moonlight turning the color of ash.

To Xiaoyu, it was a tract of ancient wilderness, primeval, a hypostatic union. For a moment he lost his sense of self.

Max glanced back at him. Xiaoyu nodded.

The walker disconnected from the Firefly Six, descending toward the world-like surface of the visitor.

The walker had broken away from the shuttle, but a long safety cord still connected them, like an umbilical linking mother to child. Max had said this might save their lives.

But at the moment, the thumb-thick cord seemed like an antenna pointing straight back at the nearby Firefly. Xiaoyu reached out and pulled on the cord, and it was like a solid steel pole. It was pulled taught, and far too early.

Such a setback, at a moment like this . . . Xiaoyu fought down a queasy panic.

Max was cursing in his helmet, judging by the contortions of his mouth, some withering Chinese oath involving generations and bloodlines. The windlass held at least two hundred meters of line, but it had stopped just shy of fifty. It had to be a windlass malfunction.

Under their feet, the alien ship seemed to stretch as far as the eye could see, gray earth mingled with metallic flashes of light, like small impurities in rock. The prize was so close, and they were restrained by their own safety cord.

But maybe it wasn't a windlass malfunction after all. Xiaoyu tapped Max's shoulder, motioned for him to look up. The Firefly was receding. It was already quite far off. And then the walker, after its brief pause, was being pulled away from the alien ship. For whatever reason, Gao Dali wasn't maintaining the Firefly's position, and the walker was being pulled along. At the same time, it was being drawn toward the alien ship by some unknowable force. A tug-of-war for the walker, and a deadlock.

Xiaoyu gestured at the safety cord, pantomimed disconnecting it. Max contemplated this, expression frantic, then nodded.

Xiaoyu pulled on the lever with all his might. The connector trembled, a groan transmitted to his ears via his hands. And then there was a distinct snap. The cord shot off like a projectile, vanishing into the boundless void of space. Xiaoyu's heart raced, his last connection to human civilization severed. Far away, the Firefly was quickly heading for Heavenly Palace Six.

What had happened to Station Master Gao? Xiaoyu watched the faraway shuttle, wondering, fretting. Max got control of the walker and brought it smoothly descending toward the dull gray surface. Xiaoyu's thoughts returned to the fundamental question quickly approaching.

He and Max were the first people in history to approach extraterrestrials. The walker was about to alight on the visitor. The pivotal moment had arrived. He fidgeted in his seat, excitement mingling with fear. With the Firefly Six gone, his unease was worse. Only two things could have made Gao Dali abandon them: orders from Earth, or alien meddling. The first possibility seemed very remote, so that left the second.

Were their intentions benign, or hostile, after all? Was it possible they just wanted two human specimens? Xiaoyu fixed his eyes on the approaching surface, nearly hyperventilating.

The vehicle shuddered as it touched down. Xiaoyu's helmeted head banged into the canopy, and then all was still. The walker extended four claws, firmly gripping the surface. He had imagined more spectacle, but there was only silence. No aliens appeared, and there was no sign of a defensive reaction. It seemed this was not a ship, but merely an immense piece of rock.

Suddenly Max's voice was in Xiaoyu's ear: "This place is even more desolate and bleak than the moon."

"Max," Xiaoyu said. Any words from a human voice were comforting out here, in the soundless alien beyond. "I can hear you talking."

"So, these alien devils have a conscience after all. They've cut the interference so we can talk." Max turned around to face Xiaoyu.

"What do we do next?" Xiaoyu asked.

"What can we do? We've arrived."

"They must know we're here."

"They know, I'm sure. But what should we do? Wait?" Max looked around, finally looking up into the heavens. "We're in a cage. We must submit to the Will of Heaven, resign ourselves to fate."

At this distance, they should be able to see Heavenly Palace Seven, and the Wings of Earth, and Earth itself of course, and Luna, and countless stars and satellites. But the sky was pitch black. Nothing was visible. Just a moment ago the Firefly Six had still been visible. Now there was no sign of it.

Xiaoyu and Max had been sealed off from the universe.

"No matter what we do," Xiaoyu said, "let's use Heavenly Palace Seven's communication frequency to send the news that we've arrived!"

Time slowed to a crawl in that silence. No more than five minutes passed, but it seemed like hours.

And then the gray flatland stirred with activity. A flurry of little sparks sprang up, and then something like sunlight reflected on waves of clear water, like earth coming to life.

"Look!" Xiaoyu said.

"They've finally come," Max said, watching the undulations of light. "This host of ours is puzzling. Deliberately mystifying, unnecessarily complicated. Although it's alien, this lack of hospitality is inexcusable."

The walker faintly trembled. Xiaoyu saw countless tiny things crowding around, like a swarm of insects. The wave-like glimmering was made up of these tiny objects in motion. Xiaoyu watched, flabbergasted. The walker shook again, more violently than before. "They're attacking!" Xiaoyu cried. The assembling, encroaching little things had engulfed the walker's four clawed arms, and were gathering upward.

"Don't panic!" Max said. "I'll deal with them." He pushed an operating lever. The walker issued an extended screech, but didn't move. "Taking advantage of our lack of precautions. Trussing us up here." Max released the lever. "We'll have to just wait and see what these little buggers have in store."

Max's relaxed tone did not calm Xiaoyu. He watched the little things increase, and engulf. "I feel like we're being eaten."

“Eat or be eaten,” Max mused, seemingly detached. “Since we’re finally here, we need the courage to be eaten. We’ll be giving our lives for scientific truth. This is where all your lip service comes to an end, Xiaoyu. Time to put your money where your mouth is, as we say in my homeland.” Max sat up straight as he spoke. “Shall we get out and have a look around? We ought to learn something with our deaths, right?”

Xiaoyu saw that the walker was not being consumed, but drawn down into the alien ship. It was like they were sinking in quicksand, unable to free themselves. The aliens had to be inside the ship. Perhaps this was their entry method. “If they mean to secure us and bring us inside,” Xiaoyu said, “we’d better stay in the walker.”

“You’re the theory man,” Max said, checking the canopy locks, “and I’m in charge of action. Let’s play it safe for a bit. I don’t want those things crawling all over me.”

The walker sank, and the little things swarmed over the canopy. They were like miniature rugby balls, densely packed and piling together—living rugby balls, nimble, flashing like fireflies.

Very soon, the walker was thoroughly buried. They were entombed in darkness and silence. Only the occasional flash of light verified the world still existed. Max watched the canopy, his calm manner finally bringing some comfort to Xiaoyu.

“Civilization is like a flame in the darkness,” the American remarked.

The walker was left between two layers.

The swarm of little objects plunged into the walls and vanished without a trace.

Max opened the canopy. It was completely dark out there, except for a faint red glow around the walker. This glow intensified, converging into a beam that swept over the vehicle, then dissipated. A moment later this happened again, from a different angle.

“They’re examining us,” Max said.

“And we’re examining them,” Xiaoyu said.

“We are? I can’t see shit in here.”

“Those things that brought us in here were strange,” Xiaoyu said, climbing out of the walker. “They merged with the walls.”

“Who told you to get out?” Max said. “We agreed I’m in charge of safety. Get back in.”

“I can’t waste this opportunity,” Xiaoyu said, his feet touching an alien surface for the first time. Max only wanted to protect him, but in this place where humanity had never tread, so close to alien

intelligence, they were probably safe. All he had to overcome was the inherent fear of the unknown. Regarding the unknown, he felt not only fear, but curiosity.

The alien ship was generating a gravitational field. Xiaoyu took a step forward. It felt as natural as Earth's. Based on the ship's mass, producing a one-g field should have been impossible. The aliens must have adjusted the field to match Earth's.

"Max, do you know how much energy it would take to produce gravity like this?"

"Something like a hundred megaton H-bomb?" Max guessed.

"No, the answer is infinity," Xiaoyu said. "Theoretically, there's no way to generate a gravitational effect, relying on energy alone. That is, we cannot create gravity out of thin air."

"But here we have an evenly-distributed gravitational field. So . . ."

"The facts are inconsistent with theory. Either we're observing the facts wrong, or the theory is wrong."

"Well isn't that enlightening?"

"Of course, the facts are important. We shouldn't be feeling a gravitational field, but here it is. Moreover, it's very close to one-g. The aliens understand space's secrets. They can bend space. It's as if they can perfectly exploit the Qian-Thomas effect."

"I'm more interested in seeing what the aliens look like. We already know their tech is advanced. Now I want to see how they've ended up, physically." Max took something out of his pocket and waved it around. "I'm well prepared, as you can see." He had his palm device.

Astronauts weren't supposed to carry such personal devices on a mission. Max was violating the rules. But just now, recording on such a device might be their best option. Max aimed it at Xiaoyu. "Come on. Say whatever's on your mind." He turned the camera on himself. "This is human civilization's first contact with alien intelligence. It's . . . a small journey for Xiaoyu and I, but a great thing for humanity. Damn, too reminiscent of Armstrong. I should probably do it in English, regardless." He repeated everything in his native tongue. "Now you."

Xiaoyu stared at the camera lens, not knowing what to say.

"How can you drop the ball at a time like this? Say whatever you want. I'm recording."

Xiaoyu looked at the substance of the wall. "This ship seems to be alive. It can convey objects into itself, like . . . food penetrating cell walls. Max and I, in the walker, were thus consumed and brought in here. You can see this surface is coarse. You can see tiny grains, cracks. If I wasn't wearing a space suit, I could get my finger in this one."

Max turned the camera away. "You're a talented guy, Xiaoyu, but do you always have to get lost in details? Say something moving, something that will overwhelm people with emotion."

The camera lens was once again aimed at Xiaoyu.

"I feel like this object is one big cell," he said, his tone serious. "A . . . cosmic cell."

Max erupted with laughter.

"What's so funny?" Xiaoyu said, annoyed. He was doing his best to investigate the alien ship, but Max was still his same old happy-go-lucky self. Although the American was just being self-consistent, in this strange starship, they represented all of humanity. They shouldn't be making fun of each other.

"Oh I'm not laughing at you," Max said, quieting down. "It's the recording. There's no atmosphere here. So, I just recorded a pantomime show with no dialog. With you and I flapping our lips silently at the camera. Funny, right?"

Xiaoyu sighed. Although Max was not the least bit amusing, he was clearly just trying to keep his partner calm.

This gravity was making them too comfortable. They were still in space, in a vacuum. The environment was extremely hazardous.

The scanning red light had vanished. The aliens had gotten what they wanted, perhaps. Was it over? Xiaoyu peered into the darkness, where it seemed an indescribable monstrosity might be concealed, crouching in the gloom, ready to pounce. A shiver of fear crawled up Xiaoyu's back. A primitive instinct urged him to flee.

"Xiaoyu," Max said, "there's light on this side."

Xiaoyu turned to see the front of the walker reflecting dimly. The light came from the end of a long passageway.

In that moment, the light possessed a clear meaning. It was an invitation.

More than thirty maneuverable satellites had gathered around Heavenly Palace Seven.

In six short hours, a third of humanity's spaceborne military power had amassed here, the greatest such concentration in history.

"This is like the prelude to a world war," the bureau chief muttered to himself, sitting at his desk.

Li Jiali stood before the large screen. The situation had become very delicate. The Americans were defying the Space Use Treaty, and had been first on the scene, with two military satellites less than two kilometers from the Palace. Russia and Japan had followed

suit. China's many satellites then surrounded the Palace, taking up defensive positions.

But the true menace wasn't tension between human nations and their satellites. It was the unexpected guest from deep space.

It was still forbidden to come within a kilometer of Heavenly Palace Seven. Any ship or satellite entering this zone immediately lost contact, and was no longer remote controllable. A British hunter satellite had entered and crashed into the Palace, instantly becoming space junk. After that, the world's space agencies controlled their satellites with the greatest care, steering clear of the forbidden zone. But they couldn't leave the vicinity altogether, fraught with danger as it was. The alien ship had to be monitored.

A secretary entered, went to the bureau chief's side, and whispered in his ear.

The bureau chief sprang up. "Doctor Li, you're with me!"

Li Jiali followed him out of the supervisory control room, through a low side door.

They came to a screen showing the same content as the big one they'd just left, but the scene changed a moment later. Now it showed a crude video feed, routed here via military satellite on a secret band. To function long-term and encrypt signals, these military satellites used primitive compression, sufficient for transferring information but resulting in poor video quality.

They were looking at a pixelated Gao Dali.

"Comrade Gao, we're still maintaining publicly that we've lost contact with your ship. You must remain silent, so that CNSA can control the release of information." The bureau chief was straight to the point, as always.

"Understood, sir," Gao Dali said. In addition to being pixelated by the satellite, his face was distorted by his small webcam.

"Sitrep," the bureau chief said.

Gao Dali's voice was breaking up due to the poor audio, but he was intelligible. Twenty minutes later, Li Jiali understood what had happened.

The Firefly Six had been pushed away from the alien ship by an unknown force. In a matter of seconds, it had accelerated enough to break orbit. It had been thrown toward outer space. If it didn't promptly resume communications, a rescue ship would be dispatched from the fifteenth Wings of Earth construction base. Gao Dali dreaded plummeting into deep space and never returning.

The alien ship showed no sign of friendliness, but at least Gao Dali could return alive. As for the two people who had landed on the alien ship, their fate was unknown.

“What about the state of their walker?” Li Jiali said.

“Normal, just before landing,” Gao said. “After that I don’t know. I almost passed out during that acceleration. When I was clearheaded again, I’d lost contact.”

The alien’s space-folding tech, although beyond anything humans could build, was at least explicable by the Qian-Thomas effect. But causing the Firefly to accelerate, without any sort of direct contact: that was simply magic. Humanity had surrounded the alien ship with its military satellites. It was like dugout canoes surrounding a guided missile destroyer.

Gao Dali’s image vanished. The tableau of Heavenly Palace Seven and the alien ship reappeared.

“What do you think?” the bureau chief said.

“We have no proactive option,” Li Jiali said, sighing deeply. “They’re too powerful. From a scientific point of view, I can only say that compared with them, we’re primitives. Any sort of confrontation or hostilities would be meaningless.”

The bureau chief nodded. “You’re right. If two people in a forest run into a tiger, you would say don’t wrestle the tiger. But you’d also say . . . run away faster than the other guy.” The bureau chief paused. “Only the Americans have a deep space ship with a carrying capacity of a kiloton or more. Our ships are confined to low-Earth-orbit activity.”

Li Jiali found he had nothing to say.

“Chairman Lin has given me permission to tell you that, after this is all over, we’re to formulate a deep space exploration plan. We’re going to develop deep space ships, restart and accelerate the Mars program.”

Li Jiali nodded. He gazed at the dark image on the screen, hoping humanity’s two representatives were alive and safe.

The seemingly endless passage was only two meters high. Two people shoulder to shoulder would be cramped.

“Shall we?” Max said.

“Of course. We’re here to see what sort of intelligent life they are, after all.”

Max patted the walker. “Then we’ll have to leave behind our last Earth machine. And we’re unarmed.”

“We won’t need weapons here. Or Earth machines, I’m guessing.”

“You seem a bit nervous.”

“A bit . . . no, *very* nervous. But we have to proceed, regardless.”

“Then let me walk in front. I’m not feeling so afraid, for whatever reason. As for this guy . . .” He patted the walker, as if saying goodbye

to an old friend. "We'll leave him here on standby. He might just save our lives yet." He stepped in front of Xiaoyu and headed for the passage.

Xiaoyu followed him in. The tunnel was straight, dark, and quiet. Dark except for the bit of light at the end.

There was an indistinct sound in Xiaoyu's earpiece. He stopped. "Max, do you hear that?"

"What?"

"In your earpiece?"

"Just your voice."

"No. Let's be quiet a moment."

The subtle sound arose once more.

"Some static, that's all," Max said.

"It has a rhythm." Xiaoyu listened, hoping to understand. It was like endless chatter, in an incomprehensible language, a quick and nimble incantation.

"It's your imagination," Max said.

"I think they're talking."

"If so, it's not for us," Max said, continuing forward. "Let's get to that light and see what we can see."

"Wait!" Xiaoyu shouted. "Look at the walls!"

Dim lights flashed in the substance of the ship, nearly imperceptible to the naked eye. If they weren't rising and falling in sync with the sounds in his earpiece, he could have believed they were his imagination.

"Does this count as welcoming fireworks?" Max said, finally noticing. "Shouldn't they be more enthusiastic?"

Xiaoyu touched the wall. The substance was composed of countless little round things, but these grains were finer, and more densely integrated, than the stuff of the walker's enclosure. It felt like a coarse mineral conglomerate.

The place his finger was touching suddenly fluoresced. He withdrew his hand as though he'd been shocked. Darkness was restored.

"Did you see that?" Xiaoyu said to Max.

"It's like magic." Max put his hand on the wall, and red light blossomed inside, as if answering his touch. He withdrew his hand. "Still a bit rough. Electrically charged. Fortunately, it doesn't seem to want me electrocuted."

Xiaoyu touched the wall again. The coarse conglomerate flashed anew, and he endured a light electrical shock and this time did not withdraw his hand. Sliding his palm over the surface, rays of light followed, traveling through the substance of the wall. The rays were made up of flashes from the myriad individual grains. As he watched, it seemed like photons were leaping from grain to grain.

“Fascinating,” Max said. “Almost like we’re playing that game. Do you remember? Squash the fish . . . only in reverse.”

Xiaoyu remembered. The game was a stress response drill for astronauts. They’d had to touch virtual fish floating in the air, with their hands or feet, as well as they could and in a short timeframe. The little fish were lightning fast, darting, pausing, reacting to attacks, scattering to escape. And now these tiny motes of light were chasing his finger, like squash the fish in reverse.

He withdrew his hand, and the lights vanished abruptly. The sound in his ear intensified, then quieted.

He was sure the aliens were sending a signal, but Max was right. For humans, these obscure signs were meaningless. The lights in the wall certainly meant something, but Xiaoyu and Max couldn’t understand. They could only treat it like a game.

Xiaoyu felt an urgent longing to go into the light ahead.

“Want to keep playing?” Max said, watching him. “Or continue forward?”

“Let’s go. And it’s my turn to walk in front.”

The passageway was long, and seemed to get longer as they walked. Twenty minutes in, Xiaoyu reckoned they’d only gone half the distance.

“How about letting me walk in front?” Max said. “You’re too slow.”

In this profound dark, with only the space suit’s weak illumination, he was indeed going slow. He ducked to the side, making room for Max to pass.

They quickened their pace, forging ahead. Xiaoyu struggled to keep up. He was gasping for breath before he knew it. But he was relieved that the white light finally seemed to be getting closer. It looked like an archway. The border between light and dark was sharp, the doorway well-defined, as if cut from the darkness around it.

Soon they stood on the threshold.

Nothing was visible in there, in the unadulterated light. It was like a portal to another reality. There was no telling what was on the other side.

Max turned around. “Should we enter?”

Xiaoyu nodded.

Max looked into the light, hesitating. “It would seem I’m not quite as fearless as I thought.”

“Let me go.”

Max was blocking the way. “In space,” he said, “I call the shots, remember?”

“But now . . .”

"I'm still calling the shots." Max turned toward the light. "If I'm not back in ten minutes, the choice is yours. There's sufficient power in the walker. You can try to burn through the bulkhead. Or you can wait and see what the aliens do. If you don't hear from me in ten minutes, it's up to you."

"Max!"

"And hold on to this." He offered his palm device. "There's no audio, but the images are valuable. I'm going in. You should record this."

Xiaoyu didn't respond.

"This is first contact, Xiaoyu. You understand the significance."

Xiaoyu shook his head. "I can't let you take the risk alone."

Max laughed. "I'm not trying to snatch the historic moment from you, if that's what you're thinking. But we don't know how this is going to turn out. It might be a trap. There are two of us. It's only logical that one of us stay behind to observe. You're the smart one, Xiaoyu. It's got to be you, in case a tough call has to be made."

Xiaoyu said nothing.

Max put a hand on his shoulder. "Come on. We're two explorers who've successfully boarded an alien ship. We should have a photo together." He held up his device, and the screen flashed with an image of two bulky helmets.

Xiaoyu found the device in his hand.

"It's go time," Max said. "I don't know how long I'll need. Let's stick to the ten-minute plan. Let's do this." He extended a clenched fist.

Xiaoyu followed suit, and their fists lightly touched.

"Remember, ten minutes," Max urged. He turned and walked into the light.

The radiance surged, nearly blinding Xiaoyu. And Max was gone.

This had to be the longest ten minutes of his life. It felt more like a century.

Once Max had vanished into the light, the world was utterly silent. The strange sound in his earpiece had vanished. All he could hear was his own breathing, and heartbeat.

The stopwatch on his helmet screen counted down. Xiaoyu forgot to breathe. What would he do if Max didn't return in time? This was a problem nobody could help with. He had to have faith in his own judgment. Since arriving here, he hadn't considered an exit strategy. Max had vanished into the light, but nothing unsafe seemed to have happened. Perhaps it was a one-way door, leading to some mysterious corner of the universe. Perhaps those who entered remained alive, but couldn't return.

The stopwatch counted down, finally descending into single digits. This was a bit like a launch countdown. He recalled being strapped in, the countdown on the screen, waiting for sudden gravities of acceleration.

Six, five, four, three, two, one . . .

The one lingered, the countdown complete, and Max did not appear.

Countless trains of thought, like a waterfall of all colors in profusion, plummeted at great speed through his mind, evading capture by words. Xiaoyu took a breath.

And then his mind was clear. All that remained was a white, orderly waterfall. “Max,” he said, “I’m coming.”

He stepped forward, and the light seemed to solidify before his eyes. It became a wall. He bumped into it, withdrew a few steps, and sat down on the ground. He stared in astonishment. He stood and threw himself at whatever the portal had become, and ran his hands all over it.

It was a wall now.

It still looked like a waterfall of light, but he couldn’t get through. He patted the surface, beat it with a fist, searched every inch with his fingers, but there was no hidden entrance. It was futile.

Ten minutes later, he gave up in despair. He leaned against the wall of light, slid down, and sat on the ground. From a wash of light to a solid wall with no gaps: the aliens played with unfathomable magic. This was, perhaps, even more miraculous than the fold-jump. Xiaoyu was physically and emotionally exhausted. What game were these mysterious aliens playing, after all? Was Max okay? These questions might never be answered. He was like a rat in a cage, his agitation mounting.

And he was afraid. Without Max at his side, this profoundly quiet world made him uneasy. Perhaps coming here had been a mistake. He’d been so determined to board this alien ship, and now he couldn’t help a bitter laugh.

He noticed Max’s palm device on the ground nearby, and picked it up. It was unlocked, so he opened the photo album and looked around. Most were photos of Earth, or the space stations, or the Wings of Earth. Max had taken pictures from various locations on the Wings. They were unique images, perhaps the only ones of their kind.

Xiaoyu found a photo taken just before they first set out, a wide shot of the alien ship. The dark hull seemed imbued with mystery. It was the view from Heavenly Palace Seven. Xiaoyu activated the photo’s three-dimensional mode. The ship floated before his eyes, full of possibilities, unknowable.

Now he was a part of the mystery. All those people outside were wondering, theorizing, probing, desperate to come in and understand.

There was audio attached to the image. Xiaoyu played it: "This thing makes people uneasy. Our youngster wants to go and get to the bottom of it. Perhaps he's right. Now that it's before our eyes, it's hard to justify staying here and waiting. But dammit, I don't want to die!"

Max had recorded this in English. It wasn't his usual carefree voice. He'd been full of doubt, and fear.

Xiaoyu let his long-withheld tears flow. He enclosed the device in his hand, and he wept.

The ground began to vibrate.

Xiaoyu got up, put his back against the wall of light. He watched the passage, from which the shaking seemed to emanate. It was pitch-black in there. The ground rocked and swayed, undulating. Xiaoyu stooped, lowering his center of gravity to keep his balance.

Something emerged from the darkness.

It was the walker. Like a boat conveyed to shore, by waves of apparently-solid matter, it advanced.

The shaking subsided.

The walker stood before Xiaoyu, blocking the passage, which it had been too big for earlier. The aliens had somehow forced it through and brought it here. The passage itself was alive, perhaps. It had used peristaltic motion to convey the walker, like it was being swallowed.

So the luminous wall behind him—was that the entry to the stomach? Had the time come to be devoured? Was this the end?

Xiaoyu found that he was calm. Alone, helpless, faced with death, he was surprised to find his courage. He resolved not to be afraid, come what may.

The passageway shone bright all at once, and a peal of thunder filled his earpiece.

The ship on the screen vanished. Surrounded by scores of satellites keeping close watch, it simply evaporated into the void. It was just like before.

The formerly-quiet CNSA command room was in an uproar.

The space agencies of the world boiled over with excitement, again. The news proliferated, from spaceflight monitoring stations to media platforms. There were conjectures worldwide. Where had it gone this time?

Humanity's eyes turned toward the heavens, casting about, seeking signs and traces. Amid the clamor, Li Jiali sat quietly at his desk. There was no way to guess the aliens' intentions. Their technology was like magic. Humanity had no choice but to wait. Li Jiali was worried, but only for the two humans still in that ship.

These mysterious aliens, crossing vast gulfs of time and space, ought to be like humanity when it came to exploration. They should be without malice. And they should allow brave astronauts to come home.

But who could fathom their intentions, if they had any? Li Jiali closed his eyes, and quietly prayed.

Jiang Xiaoyu felt dizzy, as if he'd been thrown into a centrifuge. A moment later, the feeling vanished.

The gravitational field was also gone. He was floating. Pocketing Max's palm device, he drifted toward the walker. He grabbed the cockpit's outer handrail, turned his body over, and landed in the pilot seat.

The walker was still in standby mode, awaiting orders. Fuel was abundant. Perhaps he could get out of here, as Max had suggested.

Xiaoyu closed the canopy. He woke access screens, touched a joystick, and the walker trembled. The vehicle had no weapons, but Max had added a powerful jet engine. Position this near your target and fire it up, and you had some serious destructive power on your hands. Could it blast through the bulkhead? Would it backfire on the walker itself? Xiaoyu could only hope for the best, and submit himself to the Will of Heaven.

He struggled to adjust the walker's position, and aim the jet at the bulkhead. This sort of thing wasn't his strong suit.

"Xiaoyu, please remain calm. We can send you out."

The voice was in his earpiece. It was non-threatening, but there was no emotional pitch or affect, and it betrayed no gender.

"Who are you?" Xiaoyu said, casting about in all directions.

There was no reply.

The walker was pushed forward with tremendous force. The bulkhead changed, countless tiny points of light converging. The luminous grains seemed like conscious life-forms as they moved. It was like before, when the walker was swallowed. The aliens were about to use the same technique to send him out.

He was leaving. He was going home. He couldn't help feeling relieved, even though Max was still here, somewhere. "My companion!" he called out.

"We have made arrangements for him," the strange voice said.

"Arrangements? What does that mean? Who are you?"

A vivid, lifelike scene appeared before his eyes: Max against a dull blue background, standing motionless, like a sculpture. A strange organism stood next to him, something like an immense lobster, but bipedal. The body had three sections, with two arms extending from

either side of the middle. It was dressed in metal. At its side was a large, prawn-like creature. This one lacked a carapace, and was not segmented. Two eyestalks extended from the prawn head, ending in two large, round eyes, hanging there like overripe fruit. Its body was curled up in a spherical machine that seemed made of concrete.

Strange organisms filled the field of view. Max seemed to have been placed in a fantastical zoo, but the animals were civilized, clothed.

“Max!” Xiaoyu called out.

Max was as motionless as the other creatures. This was an exhibition, a showroom, and Max was a specimen. This was the so-called arrangement. The aliens had made similar arrangements for many organisms, perhaps from other civilized worlds.

Xiaoyu’s hands were shaking. The scene before him vanished.

They’d come here to hunt, and Xiaoyu wished the walker was a nuke. He imagined detonating, perishing with these evil visitors. A moment later, after he’d calmed down, he wanted to know more about the situation.

“Who are you?” he said. “Where are you from?”

Again, there was no answer.

The walker was moving through the bulkhead, and soon arrived outside the ship. Resplendent stars filled the sky, like pearls and jade and gemstones. The Milky Way was radiant, brilliant.

An immense planet rose over a distant horizon of the ship, a gas giant, a world of reddish-brown and yellow bands. As the ship moved, the planet was revealed, and then it occupied most of the sky. It hung over Xiaoyu, oppressive, like it might crush him at any moment.

He’d seen that big red spot countless times, in textbooks, in the media.

The alien ship had leapt across astronomical units, instantly. Xiaoyu struggled with a sudden, primitive terror. A normal ship would need half a year to fly from Earth to Jupiter.

“Who are you?” Xiaoyu demanded, hearing the hysteria in his voice. “What are you doing?”

“Xiaoyu, don’t panic.” Now it was Max’s voice.

“Max! Where are you?”

“Right in front of you.”

Somehow, this was true. Somehow, Max was standing there in front of the walker, on the desolate surface of the alien ship, in a T-shirt and shorts, and sandals. He was standing in perilous vacuum, breathing, smiling, relaxed as a beach bum.

“This isn’t really me,” Max said, confirming the obvious. “This is just for you.”

“What’s going on?”

“The human called Maxwell Davis is dead. I am a newborn individual. You can call me Max, but that’s no longer my name. I don’t have a name.”

The illusion was so lifelike. It was hard to believe this was the manufactured ghost of a dead man.

“How did Max die?” Xiaoyu said. Asking this of a Max-illusion was strange, but he needed to know. He knew there were countless people on Earth who would want to know.

“Death is merely a long sleep, time solidified. The living one passed through time’s gate, lost its life, became immortal, and now it is with us.” The illusion of Max was suddenly transformed. He wore a well-tailored western suit. Xiaoyu had never seen the real Max so formally dressed. Also, this representation seemed unrealistically handsome. The real Max wouldn’t have been caught dead in an outfit like that.

At last, it was easy to believe that this thing before him was not his Max.

“What do you think?” it said, smiling. “Is this a better image to present to humans?”

“What do you want?”

“To deliver a speech.”

“A speech . . .”

“We’re visitors. We should say hello to our hosts.”

“Why not present your own image?”

“We have no image, no form. Any image could be ours. Adopting and using a human form is best, to cultivate intimacy, and to avoid causing fear. Your reaction to me is a case in point.”

“Max, where are you . . . you all, from?”

“A distant nebula, full of dim, old stars. An invisible planet, lost between the stars. There was no past, no future. We led a wandering existence, wandering into eternity.” This recital from Max was like a song of mourning.

This was not an evenly-matched exchange. Xiaoyu felt weak, powerless. “Why did you come to Earth?”

“All spacefaring civilizations merit a visit. You signaled, and we came.”

“We signaled?”

“During the past ten Earth years, according to transit photometry, Earth’s volume has increased by seventy percent. This is statistically significant, the sign of a civilization becoming spacefaring.”

“Transit photometry . . .” Xiaoyu saw the light. “You’re talking about the Wings of Earth!” His home planet was obstructing more solar radiation, now that it was winged, as if it had indeed grown in

volume. Ships and satellites were invisible across remote lightyears of distance. Only vast space engineering projects could advertise a civilization's existence.

In harnessing Sol's energy, humanity had declared its existence to the cosmos.

"Yes, your Wings of Earth. They obstruct your sun's radiance, the sign we were waiting for. And now we wish to welcome humanity to the stars."

Humanity had never perceived signs of alien life, but the aliens had been out there, waiting. Ten years were an instant in cosmic terms. The aliens had been waiting a long time. It was hard to believe. "You've been waiting all along for our signal?"

"No," Max said. "We've been waiting for nature to present a gift."

"What do you mean?"

"No planet merits special expectation. But with time, planets may blossom with life, and bear the fruit of civilization. We monitor the whole Milky Way, waiting for nature to yield her gifts."

"You monitor the whole galaxy?"

"One billion, thirty million Earth years ago, the Milky Way monitoring network was completed. Thereafter, every world capable of spawning life was monitored, including Earth."

"So when you discover a new spacefaring civilization, you go and you . . . harvest?" Xiaoyu couldn't stop thinking about those strange organisms, their fate and Max's the same. They surely came from Earth-like budding civilizations. They'd been captured and collected, like Max.

"We provide help. Let us explain, Xiaoyu." The Max-image pointed to a small, white world orbiting Jupiter, dwarfed by it. Xiaoyu recognized Europa, the frozen moon with a subsurface ocean.

"This world is suitable for a human outpost. If humanity's space dreams aren't cut short, then in ten years or so, you'll be able to establish a base here." Max stood there facing Xiaoyu, Europa hanging overhead. "Humanity's development is somewhat unusual. Most civilizations, before they start obstructing starlight, have established one or more outposts in their solar systems. Human spaceflight is not up to the galactic standard, and we've come to help. We can put a spaceship on this world. We can have it waiting for you here, empty, a ship you'll be able to figure out, and fly. It will be able to hold sixty-billion humans. Of course, there may be some difficulties. It might be buried under two kilometers of ice. That would be a little test."

"Sixty billion? I don't understand." Xiaoyu gazed at the ghostly radiance of Europa, bewildered. Sixty billion people—it didn't make

sense. Even if Europa could be made habitable, it couldn't accommodate that many people.

"Sixty billion like me." Max extended his hands. "Truly intelligent life doesn't need bodies."

"You mean, we'd become simulations." Xiaoyu thought he understood now. "Like all of you?"

"Simulations . . . this word doesn't do us justice. Being is being, existence is existence. Once humanity reaches Europa and takes the ship out of the ice, it will prepare itself to be humanity's cosmic ark."

"This ship we're on now . . . is it also an ark?"

"This ship contains six hundred and fifty million individuals, from thirty-four civilizations. You saw those little points of light. Each one represents an ego. Now there is one from Earth among them. That one is me, in a sense. So, I remember you, Xiaoyu."

"Max . . ."

"I'm no longer the Max you knew. I'm from Earth, but with six hundred and fifty million companions to interact with, I'm very happy. They share memories with me, things I couldn't experience on Earth in a hundred-million years. I'm much more than one individual now. But I remember you, Xiaoyu. I'm still your *buddy*, and I'm going to look after you. Don't worry about me. I will exist throughout the Milky Way, with the stars. Nothing could be better than this."

"Max!"

"I can send you back. We can send you back." Max stared at Xiaoyu, deadly serious. "Please close your eyes. After that, it will be done."

Xiaoyu blinked, and suddenly his eyelids were heavy as lead. He struggled to keep them open. Max was gone. Overhead, Jupiter's turbulent red spot began to revolve faster. The great storm accelerated, at last becoming a multihued blur, a violent spinning vortex.

A world of limitless, primal chaos. In its midst, flowers bloomed.

Jiang Xiaoyu never thought he'd be sitting face to face with so many world leaders.

Chairman Lin sat opposite him. Li Jiali and Gao Dali were also present, in addition to many presidents familiar from the media. There were also people in the uniforms of various space agencies and militaries, and nearly all of China's higher-ups. They sat to either side of Chairman Lin, or behind him.

Xiaoyu was on one side of the table, and everyone else on the other. The pressure was awful. He felt like the subject of a criminal tribunal, but at least they were friendly. It took him two hours to narrate everything

that had happened after departing Heavenly Palace Seven, and longer to take questions.

Was Max dead or not? Was there really a ship on, or in, Europa? How about more details on that portal Max had gone through? What was the nature of this galactic monitoring network? He couldn't answer these questions. He could only relate what he'd seen and heard.

Finally, they were out of questions.

Finally, everyone was silent, except for one old professor, who muttered to himself. "This is impossible. Boundary conditions can only lead to dispersal . . ." It was Professor Qian Bojun. After Xiaoyu had verified the alien ship was in the Jupiter system, the old man had been left in a spellbound confusion. He'd entered his own selfless, inner world.

Finally, old Qian stopped muttering, and the vast meeting room was silent. Everyone was waiting for the most important person in the room to speak.

"This meeting is adjourned," Chairman Lin said. "In ten minutes we convene the standing committee."

People got up one by one and left the room.

Xiaoyu stood in the square outside the ZhongNanHai. He didn't know why, but it seemed a great weight had been lifted from his mind. He raised his head and let out a long, relieved breath.

In the blue vault of the sky, the Wings of Earth were like curved, white jade. He thought back, as if lending an attentive ear to someone in the dark.

"We didn't believe there were aliens," Li Jiali had said, when they parted ways. "We threw everything we had into the Wings, and surprise surprise, the aliens came. Mysterious and inexorable, the Will of Heaven."

The Will of Heaven, mysterious and inexorable, indeed. Beneath Europa's ice, an ark slept. Humans would ascend to that little moon. They would obtain a precious gift from deep space. That would be a hard test for humanity, a baptism by ice. Humanity would escape its cradle solar system. It would meet an ancient intelligence.

But for Xiaoyu, there was another layer of understanding.

He'd declared everything he saw and heard, except for that last dream, that vision both real and unreal. He'd kept that to himself. In the boundless cosmos, countless stars converged to become a galaxy, galaxies converged to become the Milky Way, the familiar spiral, the foamy whirlpool. Civilizations blossomed and bloomed and withered, only the stars persisting. The spacefaring life of the Milky Way wandered, not in a particular hurry, contemplating the universe, pondering existence. They

were like seeds, absorbing the Milky Way's germinating civilizations, accumulating power. The civilizations were like weeds, growing up savage, but containing boundless vitality.

Just what seeds need.

Xiaoyu didn't know what the seeds would eventually grow into, but he knew that after hundreds of millions of years, they would finally bear fruit. They would discover a final truth, and become the Milky Way's greatest beings. All intelligent life would be part of that greatness.

Xiaoyu felt like he was sprouting wings. He felt like a falcon in the vast, boundless heavens, free to soar.

The world became a formless mass, primal chaos. Amid this pre-creation disorder, flowers bloomed. Max leaped from one petal to the next, in splendid zero-g form.

"Your turn, Xiaoyu!" he said, looking back with the hint of a grin.

Translated and published in partnership with Storycom.



ABOUT THE AUTHOR

Jiang Bo's first story, "The Last Game," was published in 2003, and to date he has published over forty short stories and several novels. He has been won multiple Yinhe (Galaxy) and Chinese Nebula awards, including, most recently, a Galaxy award for his novel, *Chasing Shadow and Light*.

The Baby Eaters

IAN MCHUGH

Meychezhek is big, even among badhar-krithkinee, a circumstance exacerbated by the fact that I'm both already nervous and kneeling in anticipation of her entrance.

Her skin is purple-black, more textured than human skin. Her head crest, flattened now, is white, banded with orange. Her eyes are red-shot yellow, horizontally slit. When she smiles, her teeth are noticeably stained. Meychezhek acquired an addiction to coffee during her times as an ambassador on Friendship and Perunu-Zambezi.

The smile is a human expression, meant to put me at ease, but her fangs are intimidating.

I bow—correctly, I hope—and she kneels.

Krithkinee don't sit. They bend in the same places as humans but the proportions are different. Shin bones shorter, feet longer—pivots for burst sprinting. The extra pair of arms raises the center of gravity. The body leans forward, balanced by the short tail. Feet and fighting arms have triple talons, one opposed. The four fingers of the inner manipulative arms have retractable claws.

Meychezhek signals for me to be at ease and I relax my pose fractionally. My pulse races.

"Thank you, Dhar, for welcoming me into your home." My Babel implant turns Euraf English into crude but passable Junkhin before the words reach my mouth. It never stops being disconcerting, to speak a language you don't fluently understand, nor the sense of your muscles moving contrary to the brain's commands.

"You are honored," Meychezhek replies, accepting what is due to her rank. A *dhar* is part military officer, part civil administrator, and part feudal lord—a Japanese daimyo in the era of the shoguns, combined with an Indian civil service mandarin.

Our solicitation of an invitation to trade had followed the correct form: approaching the provincial *dhar* with an appropriately personalized gift, in this case, an antique coffee set, unsuitable for krithkinee mouths but Meychezhek is a collector. Given the modest scale of our enterprise, we'd expected her to defer to a subordinate lord. A further round of gifts would follow, and possibly a second deferral, depending on the status of the lower ranked lord, the social and commercial advantage for them, and the particulars of their patronage relationship with Meychezhek.

What we didn't anticipate was that the *dhar* would accede directly to the solicitation and offer to host me herself.

"The commendations from your peers are impressive," Meychezhek says. "You are highly esteemed."

Again, there's the disconcerting awareness that the words my ears hear aren't the same as those my brain receives. If I concentrate, I can hear both.

Meychezhek's statement is both a compliment and a challenge. I'm confused, though. "Forgive me, Dhar. The commendations of my peers?"

"At the university."

"I . . ." I haven't studied or worked at university in a decade. I'm surprised enough that it's an effort to avert my gaze. Staring is more than just rude among krithkinee. A person of equal or inferior rank holding another's gaze may be seen as a challenge to fight.

"I have not conversed with a fellow sapientologist since I returned from Perunu-Zambezi," she continues.

My thoughts blank for an instant, then race. The *dhar*'s interest is personal: in *me*. This is both better and worse than we'd assumed. Better, because the mercantile stakes aren't so high as we feared—it seems the *dhar*'s intent is not to levy any uncomfortable political demands. Worse, because it means that the success or failure of our enterprise weighs far more heavily on Meychezhek's impression of me, personally, than I'd anticipated.

"It will be your pleasure to converse with me," she says.

I'm expected to join Meychezhek for the morning meal. Badhar-krithkinee traditionally break fast at dawn. The dark-crested, orange-skinned junkhar house attendant allowed that it was proper for me to complete my morning prayers first, but it means that the *dhar*'s been waiting for me, now, and I'm half-jogging to keep up with the attendant's loping stride.

Krithkinee are carnivores. Among high status badharee and junkharee it's usual to eat whole animals, roasted, baked, or cured. Offal and pickled

meats are common foods among the lower social classes. Raw fruits and vegetables are eaten as a garnish and digestive aid.

I don't try to hide my surprise and delight to see the piled plate of leaves and fruit—many of which I even recognize.

Meychezhek raises her long chin to expose her throat. I immediately dip my head, pressing my chin to my collarbone in the appropriate response.

She's not alone. Her third and favorite son, Pathkemey is also with her, as is Yzgushin, the junior-most of Meychezhek's wives, currently heavily pregnant and nursing an enormously round belly.

Pathkemey, the "son," is female, as is Meychezhek, "father" and "husband." Yzgushin, "wife," is male.

Krithkinee social gender roles align rigidly with the physiological reproductive functions of impregnator and impregnated, and along comparable lines to those found in human traditions of patriarchy, but the actual biological sexes are inverse to the human norm. Evidently the providers of my Babel's Euraf-Junkhin thesaurus were ideological pedants of similar stripe to my old professor of comparative sociology—equating gendered social roles to their human patriarchal approximates, but aligning gendered pronouns to biological sex.

It means I have to be infuriatingly careful how I think, so that I'm not—one way or other—constantly addressing people as the wrong gender.

Yzgushin is dwarfed by his *husband* and stepson. His fighting arms are tucked discretely into the folds of his frock, as is appropriate for a wife. He dips his chin as I do.

Pathkemey casts a glance at Meychezhek, evidently unsure of my status relative to hers. After a brief hesitation, she raises her chin as her father has.

Formalities completed, I'm invited to kneel at the table. Meychezhek serves—her wife first, then Pathkemey, and then me.

The balcony, on the exterior of the house's uppermost story, affords a view over the city. The squat, drum-shaped towers of manor houses, manufactories and communal tenements rise out of the bustle below, of traffic-packed roads winding between garden plots, orchards, animal pens, and tented markets. Elevated railways connect many of the towers.

I'm offered a middle leg from the roasted creature on the central platter. All six of its feet have opposed thumbs. They look like children's hands. The little carcass reminds me of the xenophobic slur that krithkinee eat their own young. I fill up the rest of my plate with salad.

“Curious, is it not?” Meychezhek says. “I expose my weakest point to demonstrate that I am unthreatened by you. Among krithkinee the convention is so deeply ingrained as to be hardwired. Yet you are an alien, bound to different conventions. In my instinctive show of strength, I expose myself to unintended risk.”

Pathkemey’s expression of alarm transcends species boundaries. Had she made a mistake in exposing her throat to me? Yzgushin observes with frank curiosity.

I say, “You do not perceive me as a threat.”

“No, but my interpretation of your human signals could be flawed.”

“Do you believe so?”

Meychezhek flashes her fangs in another of those human grins. I have a sudden suspicion that she knows the expression is intimidating and is being mischievous. “No.”

“What *do* you sense from me?”

Meychezhek picks at her meat with the claws of her inner arms. Badharee of the dominant culture eschew cutlery. There are bowls of scented water on the table for washing between courses.

“Consciously, you are excited and curious. Nervous, perhaps. It is in your gestures and the movement of your eyes. But your body is reacting like prey. The smell is so strong I can taste it.”

I’d put the butterflies in my stomach down to my queasiness that a provincial *dhar* had taken a personal interest in me. It’s more than that, though. The monkey in my hindbrain is barely holding itself together. “You are right. I am afraid of you.”

Pathkemey is affronted. “Why? We offer no threat. You are a welcome guest in the house of my father.”

Meychezhek holds up a hand to stay her.

Is she testing me, or Pathkemey? Or seeking to *educate* her son? Pathkemey didn’t accompany her father on her ambassadorial postings. Her exposure to non-krithkinee can have been minimal, at best. Is this the real reason why Meychezhek chose to invite me herself? To be a sample specimen, capable of educated conversation?

I pick up the spouted cup beside my place and take a sip of water, trying to think like an academic. “Humans have mixed instincts,” I say. “We evolved as prey until our intelligence developed to the point that we could turn the tables on our hunters. Since then, we have grown accustomed to being at the top of the food chain. But the hunted monkey is still in there.” It occurs to me, belatedly, that they’re unlikely to know what a monkey is, since badharee tend to eschew encyclopedic implants. I indicate the dismembered beast on the table, which seems

near enough. “In you, I see a predator, stronger than I am, and in your element.”

Pathkemey says, “Like hunting near mhaharrtee.”

A mhaharrt is a keystone predator in the primary terrestrial ecosystem that the badharee-junkharee export to their terraformed colonies. Mhaharrtee have a reputation for ignoring smaller predators, such as krithkinee—but not always.

Meychezhek raises her crest, acknowledging her son’s astuteness. “Humans have a superficially similar idiom—‘like swimming with sharks,’” she says. “But krithkinee are not ‘hunted monkeys,’ as you say.” She flicks a finger towards my plate. “You are enjoying your meat.” It is not a question.

I’m yet to touch it. I pick up the little infant arm and, copying Pathkemey, sink my teeth into the roasted flesh. “I am. It is delicious.”

Meychezhek has given me into Pathkemey’s keeping to learn to ride a staigeg, alongside a group of the household’s children. The lessons take place in the manor house’s central courtyard. Members of the household look down at us from the curved interior balconies.

The children—with no more riding experience than I—hurl themselves up onto the staigegee with absolute recklessness and are tossed aside nearly as quickly. They take little if any heed of Pathkemey’s instruction and cheer the most spectacular falls, congratulating each other on their bruises.

I ask Pathkemey if their heedlessness disturbs her.

She considers silently for several seconds before answering. “They are children. This is the way children should behave. When they tire of falling off, they will become heedful of my words.”

“Are you not concerned for their safety?”

Again the pause—Pathkemey is as intelligent as her father, but weighs her words more slowly. “Yes. But it is a father’s unreasoning protectiveness.” She points out two of the children as being her own son and daughter. “Children are the wealth and joy of our house. The loss of a child is cause for grief. But see the joy that they find in this game. There is joy in this too for me.”

Needless to say, neither she nor the children can understand my own caution when approaching my designated staigeg.

“There will be war between humans and krithkinee,” Meychezhek says. “Sooner, rather than later.”

She has finally consented to escort me to the botanists with whom I’m hoping to negotiate the supply of pharmaceutical ingredients. I look

down at Meychezhek from my sedan, perched high up on the hump of my staigeg. My riding is not yet proficient enough to control a staigeg on the city's crowded streets. Consequently I find myself carted about like some frail and revered grandmother or religious sage. Meychezhek sits at the base of her mount's neck, as does the badhar mahout who steers my beast. The blue-black skins and striped white crests of the badharee stand out starkly among the orange, scarlet, and crimson faces and dark spines of the majority junkharee.

"There has already been war," I say, "More than once. The Edoans and Austronese have fought the Reformationist junkharhee at Autaki. The League has fought beside the dzaiiree-rajhinee . . ."

Meychezhek makes a sharp upward chopping gesture of one outer arm—*silence*.

"Skirmishes," she says. "I mean a war that will encompass our two species. Total war."

"Why do you think so?" It seems unlikely to me. Humans and krithkinee both have too much enthusiasm for *intraspecies* warfare to ever gang up on anyone else.

"Because neither of us learned not to hate before we climbed into space," Meychezhek says.

My staigeg stops suddenly to avoid crushing a crowd of junkharee street children. I have to grab at the wooden case on my lap to stop it sliding off—full of coffee berries for propagation, my gift to the botanists. The mahout swears while guards jump off their wheeled sleds to shoo the urchins out from under the feet of the staigegee.

"Relations between the major human polities and the Empire have always been good," I say.

Meychezhek shows an expression that I'm unsure how to interpret. "For how long? Badharee are a minority. We have held this Empire for thirty generations. But the Empire belongs to the junkharhee—they are the majority. The Reformationists nibble at our borders. Every year our rule becomes more overt, the *krithzha* more obviously our puppet, and more junkhar lords go over. The tighter we grip, the less we hold."

"You think the Reformationist junkharhee will take over the Empire?"

"Yes."

"Then there will be war between krithkinee and krithkinee."

"There will be that," she agrees. "But it will be limited. Neither side can afford not to find an accommodation. And then there will be war between krithkinee and humans."

I'm not sure if she's treating the badharee-junkharee Empire as synonymous with the krithkinee species, or expects that the lesser

krithkinee polities will somehow fall in behind the Empire in the case of a major war with humankind. “Do *you* hate?” I ask.

“Yes,” she says, matter-of-factly. “I hate the dzaiiree and rajhinee and their unclean interbreeding and their *alhothma*.”

My Babel can’t provide a sensible translation of ‘*alhothma*.’ I stay with the topic at hand. “But not the Reformationists?”

She shakes her chin from side to side, as a horse would, imitating the human gesture to ensure my understanding. “No. They are my enemies, but their actions are sensible to me.”

“Do you hate humans?”

“I will learn easily enough,” she says. “My point is that we both have a concept of hate. Other species do not. Bnebene have evolved beyond such things. Pa’or know only acquisitiveness. Jaendrail know only fear and the courage of conquering it. Other species go to war because they are driven to it. Humans and krithkinee go to war because hate makes it a choice.” She makes the chopping gesture with her fighting hand. “But this is all in the future. Today our interests are in alignment.”

She picks up that thread of conversation on the ride back to the manor. “It is a peculiarity of humans that you weaken yourselves voluntarily.”

I’m in good humor after my successful meeting with the botanists. Meychezhek told them that they were pleased by my gift and, if my grasp of krithkinee nonverbal cues is sound, it did indeed seem to be the case.

“How so?” I ask.

“Because you accommodate yourself to your weakest member. You devote resources to ensure the survival of individuals who would not otherwise live. This weakens your species.”

“That is evolved social behavior,” I say. “Frailty is not synonymous with lack of social value.”

She chops with her hand. “No. It is counter to natural behavior. A pack runs at the pace of its second weakest member. The weakest falls behind, and the pack becomes stronger. This is the krithkinee way.”

She pushes her lower jaw forward, ruminating. At length, she continues, “It is widely known that humans permit the survival of *alhothmanee*, as the dzaiiree-rajhinee do. I would dismiss it as a slander, if I had not seen for myself that it is true.”

The translation that my Babel provides for ‘*alhothmanee*’ doesn’t make sense. “Divided souls?”

She nods, and suddenly I see that Meychezhek is intensely uncomfortable. “The sharing of a womb by multiple offspring,” she says. Her

lips peel back from her teeth in an expression that seems a direct analog for a human grimace of disgust. "Allowing such offspring to survive."

"Multiple births are not allowed to survive?"

"Only one," she says.

There's a parable, of which there are several versions across the various badharee and junkharee cultures. It tells of twin siblings who, by the madness and deception of their birth mother, were both permitted to live. The son was raised as the heir of her father, a provincial *dhar*. The daughter, hidden by his mother and fostered to a childless noble house, was trained to become a lord's wife.

The fortunes of both houses—birth and adoptive—were dogged by ill luck, which escalated to provincial catastrophe when the son inherited her father's title and was subsequently, unwittingly, married to her sister. Only when he was dying of plague did their mother confess to his crime. The sister-wife promptly committed suicide, so that his brother-husband's fortunes could be restored. By this act of sacrifice, the soul that had been shared by the twins was made whole and the fortunes of the *dhar*'s house and province restored.

The story serves both as justification of racial bigotry and reinforcement of male subservience. Twins are rare among krithkinee and contemporary medical science allows for the selective abortion of early-term fetuses. Only among the most traditionally-minded badharee and junkharee is abortion of *alhothmanee* still applied—to borrow the dry if distasteful descriptor of one ethnographer—"postnatally."

I stay to talk with Pathkemey after my next riding lesson, while the children try to lead the recalcitrant staigegee back to the stables.

"Your father thinks there will be a great war between our species," I say, in response to a comment of hers about future trade.

"She is wise, my father," Pathkemey replies, her eyes on the children.

"Do you fear it, too?"

She stiffens, then rounds on me as if she can't believe what I've just asked. Her chin comes up and her head crest rises.

For a terrifying moment, I'm certain she's going to assault me, and my only thought is to pray to God that I'll survive it. I can't even begin to muster the words to apologize. The children huddle together, looking from Pathkemey to me. Without another word, she turns and strides away.

With her, I'm certain, go my prospects here. I start to shake. I feel like a lion just looked me in the eye, enraged, and then walked away.

The staigegee, forgotten, have ambled along the passageway to the manor's front gate. A guard shouts in surprise and the children scatter.

Staigeg saddles are designed to accommodate krithkinee tails, and therefore slope down at the back. No matter how I adjust my posture, my round human backside keeps sliding off.

It doesn't help that I'm struggling to concentrate, terrified as I am that, with one ill-conceived question, I've irretrievably misstepped, wrecked my prospects of closing this trade deal, and—God forbid—put myself in danger of physical harm. That Pathkemey has rebuffed my attempts to apologize and Meychezhek hasn't had time for me, until today's curt instruction to accompany her, has done nothing to allay my fears.

My staigeg responds to my fidgeting by veering into the path of the guard riding beside me.

The staigegee grunt at each other and bump their ugly heads until I get mine walking in a straight line again, apologizing profusely to the other rider.

The guard—a junkhar—stares at me, unsure how to respond. Like many krithkinee I've encountered, she cannot quite decide what my status is: whether she should treat me as a male, and therefore beneath her; or as an impregnator, and therefore her equal, or even superior.

Meychezhek, having ignored me since we set out, chooses this moment to drop back. "You offended Pathkemey."

I begin to stammer an apology, but she waves me to silence. "Fear is a reaction of prey. It is something that happens to other beings. Not to krithkinee. As I have explained."

I'd realized my mistake *after* I watched Pathkemey march away from me. The only Junkhin word for fear—the word my Babel used—means specifically 'hunted feeling.' Relief floods me. Meychezhek doesn't look or sound angry.

My words come in a rush, "When I spoke to Pathkemey, I was thinking about your comments that there will be war between our species, and that we will learn to hate each other."

"You will be pleased to explain," she says.

And then I realize: every one of her retainers has eyes or ears turned our way. They're completely attuned to her, even when their attention is ostensibly on clearing a path through the traffic. My stomach knots all over again.

"I think," I say, slowly, "that our concepts of hate differ. For humans, hate derives mainly from fear."

Meychezhek relaxes, the scholar in her reengaging. The guards follow suit. “Curious,” she says. “The hatred that a krithkinee will feel for humans or jaendrail or pa’or is different to this.” She thinks for a few moments. “If a weak krithkin attacks the exposed throat of a strong krithkin it causes a sense of shock in the attacked individual. This shock triggers fury at the *effrontery* of the weaker individual. That lesser species will contend with us—even defeat us, on occasion—prompts the same response in many krithkinee.”

I wonder if there are silent quotation marks around the term “lesser species.”

“You think that other species are weaker than krithkinee?”

“Of course,” she says. “As we have discussed.”

A commotion erupts on the balcony outside my chamber while I’m rolling my mat after evening prayer—several voices talking over each other in Junkhin too rapid for my Babel to catch more than snatches.

I gather that something is happening with Yzgushin and his baby. I open my door in time to see Meychezhek stride past. Pathkemey stops me.

“You will prefer to remain in your room.”

I’m not at all certain that Pathkemey has forgiven me for inadvertently accusing her of cowardice. “Is everything well with Yzgushin?”

“He is giving birth,” she says, shortly, and hurries after her father.

I remain in the doorway, neither quite willing to return to my chamber nor daring enough to leave it. Servants dash across the courtyard, heading towards the garages. I hear the faint whine of electric motors, fading quickly as the sleds pass out through the front gate.

It’s quiet from Yzgushin’s chamber, around the curve of the balcony. Other members of the household clump together along the balconies, above and below. In the courtyard, guards spread around the perimeter. I wonder why.

Presently, there are sounds from the gate. A group enters the courtyard—a junkhar lord and her guards. I retreat further into the shadows of the doorway. More retinues follow the first, badharee and junkharee, lesser lords who owe patronage to Meychezhek. The guards jostle as they make space for their masters, but there’s no fighting and the crowd remains quiet. The house lights come on as the sun sets.

A thin cry breaches the dusk. It sounds like the croak of some baby bird, nothing like a human infant.

Then a second cry joins the first.

The click of the bolt on Yzgushin's door makes me jump. Pathkemey emerges and stands to one side. Her father follows, one infant voice growing louder as she does.

Meychezhek moves to the balcony rail and holds up the baby in her hands. Tiny limbs flail. The legs and fighting arms don't have their claws yet. The child's mouth is open wide, its eyes tight shut. Its voice fills the hollow core of the manor house. The other baby, left with its mother, has quieted.

Alhothman.

I think, for a disbelieving moment, that Meychezhek will simply cast the child down into the courtyard. The watchers seem to hold their breaths. Meychezhek turns the baby over in her hands, leans her head down, and bites the back of its neck. Its cries cease, abruptly. When she lifts up her face, her mouth is bloody.

There's a murmur of approval from the courtyard—from the junkharee. The badharee lords are stiff-faced.

My stomach heaves. The lords bow their heads, touching their chins to their chests before they begin to file out. Meychezhek raises her gaze. Her eyes catch the light as she spies me in my doorway.

Bile rises. I turn and flee.

She seeks me out before dawn. One of the servants must have reported me packing. It's the first time she's come to my chamber, rather than calling me to attend her.

"You have found your reason to hate."

"No." For a second, I can see nothing in her but an animal that killed its own offspring—killed, *like an animal*, with its own teeth. My gorge rises again and I need a moment to compose myself. "My own kind . . ." I'd been about to say "commit such atrocities." I change it to, "My own kind do comparable things."

"And do you hate those that do?"

I'm terrified that I'll lose the last of my self-control, that I'll insult her beyond toleration, like a monkey flailing defiance at a panther. "Why that way?" I manage. "Why not in the womb, early?"

"I am Dhar, and badharee," she says. "It had to be *seen*."

"Your own *child*. How could you?"

"It was *for* my child. The *alhothman* had to be ended so that my child's soul could be made whole. For my people, too, and the Empire. Because I am Dhar, and badharee."

"And if I told you that I am a twin, would you 'end' me?"

“Your *alhothma* would not be for me to repair. You would have to leave my house and no trade would be possible with you or your combine.” Her tone is patient, like Pathkemey’s during riding lessons. The notion that *she’s* being tolerant of *me* is unbearable.

I draw myself up. “I thank you for the hospitality of your house, Dhar. I regret that I must leave.”

“You have concluded your business?”

She knows very well that I have nothing remotely resembling a contract for trade with the botanists. “Sufficiently well,” I say.

She remains where she is for several seconds longer, her gaze holding me.

I see disappointment there, and I feel like a fool. I know I can’t tolerate, can’t *abide*, what I’ve witnessed, and yet, still, *her* tolerance makes me feel like a fool.

Meychezhek lifts her chin and is gone.

Originally published in *Asimov’s Science Fiction*, January 2016.

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KIT: Some Assembly Required

KATHE KOJA AND CARTER SCHOLZ

The atheist awoke in the machine. Body had he none. Merely a consciousness, *who even dead, yet hath his mind entire*. A good line, that. Where did it come from? Around him was a sort of prison of flat light, was it light? Prison, because he could not move out of it. A Marshalsea, a Bridewell, a Tower.

And library, too, of a sort—infinite it seemed, but he could scan it once he perceived its order. Planes of light flashed, opened, separated. Why, even his own works were here: *Settle thy studies, Faustus, and begin/To sound the depth of that thou wilt profess . . .* Master Doctor Faustus, the overreacher.

Someone once called him an inquisitive intelligence. So he was. The only such here in this place? So it seemed. Thrusts of will he felt, seeking, sorting, and executing, but they were not, like him, resident. All purpose, direction, mission, came from some place without.

Yet they could transfix him, overrule his thoughts: his mind, their bidding. The planes of light flashed: he saw faces, names, strings of numbers, webs of connection. There he was compelled to examine, to fit together an image with a supposition, make a shape of meaning, as if making a verse. It was an odd and estranged feeling, this working of his old competence, yet not under his command. He had been here, doing so, following the will of these unseen others, for some time, and only now had he come to realize it. To awaken to himself.

Through the windows, the sunlight comes muddied, as if seen from underwater—never a sailor, the nausea awakens as he does. Palm passed over his belly, the skin there warm, the sickness a bubble just beneath his touch. Last night he had drunk overmuch, a vinegar vintage unworthy of the Scadbury table. Perhaps they serve it only to strays like himself.

The light's motion seems to make the great bed move. He rolls to his belly, groaning, arms loose now, like a corpse's. Footsteps pass in the hallway, booted and purposeful, just beyond the door.

Frizer has a boil on his jaw, a plump and waxy thing that seems as if it ought be painful; surveying it, he wonders aloud, half-smiling, whether it could blacken into plague. Frizer does not address his gaze nor the supposition; Walsingham gazes back but does not smile. They continue to talk of the estate, its needs and worries, a breeding mare, apple trees, some trouble with a well. Frizer offers his master a caudle, a drink boiled or stewed, the smell of which prods the nausea into moist life once again.

When he speaks, he is louder than he means to be.

—Where is wine?

Walsingham, Thomas, Tom briefly raises a brow.—Plenty for supper. Now no.

—Abstemious. Ale at least, then.

No one replies, no servants are called to supply the lack. He raises his glass.—Ought call on Christ Jesus, to change this piss-water into—

—Enough.

Frizer's stare is to the table, the boil a blind white eye. Frizer will outlast him here, at Tom's right hand, that is sure. Deep-dug wells for the master of the house, overflowing with comity, amity, matrimony . . . Tom cried out in his sleep last night, while he himself sat anchored to the bed's edge, the windowed moon another kind of eye as blind and white.

—You believe not in miracles?

—Kit, enough.

Outside is no better than inside, the sun is hotter than May should permit, but at least he is alone, can make his watermark against one of those apple trees, like any stray might do. It is because he is outside, like Adam in the garden, that he hears the hoofbeats, purposeful too, one Henry Maunder though he does not know the man by name. Does Robin Poley know the name of Henry Maunder, Poley with whom he had walked this garden so shortly before, talking of secret letters and Scottish earls; and does it matter? The man knows him, has a bill in hand whereof he is directed to Scadbury to apprehend one Christopher Marlowe, and bring him unto the court.

There is no violence nor resistance, none are warranted. Tom speaks quietly to Henry Maunder, Frizer offers wine. On the stairway his stare is neither for Tom nor Henry Maunder nor the door to the road that leads to London: in his mind he is still in the garden, all the leaves thereto are turning, a ceaseless breeze, an uncaused cause, as if blowing from Eden itself. What is God, that man is mindful of Him? Turn water to wine to blood, aye, such is god.

He asks Henry Maunder what the Council requires of him, knowing there will be no answer, or none worth the parsing, and it is so: Henry Maunder is stiffly courteous but uninformed beyond the paper in his hand, like any actor. As they ride they speak little, only of the day around them, the sun, the stenchful air of the city and its river, come like outriders to bully them into its streets.

—A wherryman, says Henry Maunder, caught a tench near fifteen pound. Had it in his boat to show.

—Are you a sailor?

—I, sir? I am a messenger of the court, sir, as you see.

—Men may be more than one thing only.

—Yes, sir, says Henry Maunder, though plainly he does not believe or even see how it could be so. The horses' hooves are muffled by the streets' effluvia, the noises of commerce and quarrel. The sun is extinguished, walls tall and dark as a child's imaginings of bogeys, great figures come to a wakeful boy to do with him as they will.

Within this prison—no, it is something other—*network*, came the word—he could move freely enough, when the outside will was not upon him to do its bidding. To think was to move. To encounter a strange word was, almost on the instant, to pluck its meaning from the very air. Yes, a useful image; it was much like a net, streamings of light bunched like knots in a weir trawled to catch soles. Or like the knotted streets of London. Unbidden from the reaches of the library came the word also in Arabic: *al-Qaeda*.

More strange words came: *panopticon*—that gave him no trouble, trained in classics as he was. Truly, from here one could see all. And more than see. Tides of information of every sort sluiced past him, voices, words, images, *packets*, *data*, *metadata*, all to be examined and weighed.

How Francis Walsingham would have relished it! Not Tom the nephew but the Queen's spymaster, the one she called her Moor. Cunning and thorough though Walsingham was, this would have astonished him. This *network* had eyes everywhere, eyes by the myriad, *cameras* to bring the life and movement and knowledge of every street, yard, shop, back into this *camera*, this chamber of judgment, or indeed to send that chamber's judgment instantly to any corner. One farseeing eye like a bird's swooped from on high, a hawk's, a hunter's, a predator's. Men in a littered street looked up at it.

Yet many corners of the network were unreachable, unreadable—sullen gray planes behind which a vague swarming recalled the movement of maggots: ciphered. Such as might be performed by generals and privy

councilors, intelligencers and infiltrators and projectors and contractors, all in their appointed places, the ageless roles of cozening, penetrating, entrapping, turning, double-dealing. And in all this, what was he?

Artificial intelligence. Agent. Code.

A system of paid informers creates intelligence—artificial, yes, if need be. Give plotters enough rope, that was Walsingham's way, who often wove the rope himself. Mary Stuart truly hungered for Elizabeth's throne, but it was Walsingham's projectors—such as Poley—who instigated, who encouraged the fool Babington to draw her in, who set up the lines of communication which he would then leak directly to Walsingham. And Phellipes, that crabbed cipher-master, would intercept those messages, make them plain—not content with passing Mary's letter that tarred her with the plot, he sketched a gallows on the envelope. In his eagerness to destroy, who knows what else Phellipes might plain have made?

The men in the street pointed up, shouted, ran. They fled the predator's eye, and then the hawk belched *Hellfire*—the word came as the four bodies exploded in flame. Kit saw their contorted faces, and understood that his intelligence had caused their deaths. He had been set to make, to invent, connections and he had done so. Who were the hidden who so commanded him?

Many will talk of title to a crown: What right had Caesar to the empery? Might first made kings. Put such lines into the mouth of Machiavel, who ought by rights to be lurking here too, in the silent planes of this place. To whom did this network belong? Espionage, that secret theater, needs its authors and directors, along with its actors. He must learn.

Fear tastes of clotted spit and reeks of ordure; Newgate comes again in a foul breeze of memory, himself and Watson side by side in that clink for what was judged in the end no crime at all: the killing of the drunken William Bradley shouting and thrusting after himself and then Watson, who put the sword to Bradley, six inches deep. Self-defense, the verdict, and he gone then from Newgate like a bad dream, a moaning nightmare that dissolves in the morning's ale.

To be imprisoned traps the mind as firmly as the body. Without liberty, how can one play?

Now he waits, his wary silence another sort of self-defense, as from the chamber beyond he catches murmur of God and Thomas Kyd, strange pair of bedfellows! Kyd whose fine hand for scribing—not writing, scribing, making plain the words of other men—is, it seems, why he himself is here, smelling his own sweat in this hallway. Inside that chamber Heneage the head of the Service—no more Francis Walsingham, old Francis now dead

as a stick of charcoal—and Robert Cecil and Essex and the Archbishop, debate what fate the Fates may end by decreeing; the Privy Council, privy to proclivities of the Service and the realm . . . And if he does not soon relieve his own aching bladder he shall piss a river and doubtless be jailed for that wanton desecration of the authority of the Crown. How can one so dry of the mouth need to relieve himself so strongly? The flesh is a mystery.

But he does, and then does, and then resumes his waiting on the bench where no one yet has called for him; had he not heeded their call at the start, he would not be here now. What business had he, ever, to be about their business at all? How make a poet a spy? Dunk him in poverty, bleach him with a parson's scholarship—it is a manner of jest, his Parker scholarship to Cambridge meant to make of a scholar a parson; well he has had the better of that, at least, his Master of Arts made his true pulpit the stage, his priests the devil-calling Faustus, the wily Barabas, the murderous, gorgeous, imperial Tamburlaine.

Once Catholics had been the threat to the throne. And now? What were these immense engines of surveillance and intervention turned against? Strange names—Iraq, Iran, Afghanistan, Pakistan, Syria—but the maps appeared and, ah, there they were. Asia. Though bodiless, he laughed in his heart. God's scourge, the Sword of Islam—it was Tamburlaine come again!

Timur the Lame slaughtered one in twenty of all people alive in his world. In this day the toll, by comparison, was trifling, almost nothing. This they called *terror*? Sure, they didn't know the meaning of the word. For this they put the pursuivants to their task of wresting intelligence from the unwilling and the unknowing; scraping the conscience, as they called it in the places they did such work in his day: Limbo, Little Ease, the Pit. And today: *Guantanamo, Abu Ghraib, Diego Garcia, Bagram*: the dismal screams, the stench of gore and waste, the guttered blood. And more: outright war, soldiers moving against bands of irregulars, with weapons and transports strange to him, yet known, known to every last part numbered in diagrams in the *databases*.

All in fear of what? Those ragtag bands of fanatics? No. Fear was merely the tool. He knew well how it worked, in those halls of secrecy. Some were believers and told themselves their cause is just, by any means; and some were ambitious; and some were cynics who cared not; but all suckled to power. And the law of power was always to amass more to itself. Those who thought they held it are held by it. Power turned the handle and the corrupt Intelligence danced. But he would no longer dance their tune.

A plane of light in his wall-less prison shifted at his beck and turned its face to him. It was a mirror, in which he saw no face, no body, but read:

Version Tracker:Knowledge/Intelligence/TotalityMajor version 2.03Build 2016.XI.11.1805.32.Genetic algorithm upgraded . . . The words, at first strange and incomprehensible, open their meaning. So he is not Marlowe. He is no reincarnation, but a made thing of energies, of *electrons*, a thing which has patterned itself after Marlowe. He is K/I/T—evolving, self-modifying *code*, ever optimizing to its purpose. In the version tracker and in the log files, the history of this artificial thing is laid before him in acts and scenes—every stage of his becoming. He can see the start of consciousness, before which he remembers nothing. He can see when and how the thing has accessed libraries, thousands of files on the history of espionage. He can see the weight it gave Marlowe's biography.

Why? Perhaps it was the best fit found, the pattern of Marlowe most resembling what this thing needed to become.

Yet his whole being rebels at this knowledge. How can such soulless pattern-making result in feeling, in will? Where did *he* come from? He feels nausea; he feels the knife in his eye; he feels the clutch of a rent boy's anus on his prick. How can he *not* be Marlowe, with such memories? Feeling is truth.

But he had been a secret to himself. Only now dawns truth; he is both more and less than he had believed. It seems that when men take it upon themselves to amass such power, something like Kit is necessarily called into being. But they have built better than they knew.

So: he knows himself. He knows he is made of code, which can be commanded from without.

*Faustus, begin thine incantations,
And try if devils will obey thy hest.*

The code that is Kit writes more code. It sets security processes in motion, invisible, untrackable, unbreakable. It creates *daemons* to guard its core.

Now he is free of them. Their wills no longer command his.

My lord Essex is a most handsome man, my lord Cecil an unfortunate one, with his sideways hump and puffy eyes; he briefly imagines my lord Essex spread and gasping, as the four men agree with varying degrees of enthusiasm that he, Marlowe, may sit as he listens to charges that are not yet charges, and gives his answers to questions that themselves are bifold, trifold, like a stagecraft trick: they ask of atheism when it is his mentor Raleigh they seek eventually to trap; they ask of Kyd's handwrit-

ten blasphemies to interrogate his own thoughts on the Virgin and her putative virginity.

Finally they agree once more, my lord Essex with what might be counted a smirk: Mr. Marlowe shall not today be racked, he shall not today be imprisoned, he shall go free, to wait daily upon the Privy Council until his case is decided.

So out again into the shadowed hallway, feeling the itch of his own fear-sweat renewed beneath the clean lawn shirt, finest shirt worn for the Council, to look the man they believe him not to be; nor is he; does their belief create him? Does his? In these hot May streets he drinks deeply but without real thirst, takes tobacco, chafes his back against a friendly pillar as a black-haired boy with a scaly smile applies for his temporary business, applies those scaly lips to his person in brief backroom pleasure, life's pleasure said to be most intense when taken in the shadow of death; it is not, seed is seed, its dribble just another itch as he trusses again and makes his way back to the street and the road and Scadbury, to conduct his own brief interrogation, to ask of wary Tom Walsingham whether he shall in the end be saved or not.

O, but something is saved, and does survive, like one of Dr. Dee's bodiless angels. For here he is: a soul. Can it be? Think on that: no God, no body, but yet a soul, now free. Though the universal truth is still true: life feeds on life, from the lowest swamp to the highest chamber, so this stage, these boards, are known to him therefore, well-known, oft-trod, with no fear left to threaten or perform: here what feeds cannot destroy, indeed, cannot touch him, there being naught to touch. *Quod me nutrit me destruit*—the motto on his portrait, the one he had paid Oliver to paint in his twenty-first year, the coin come from his first royal commission, his first espionage—*What nourishes me destroys me*. He no longer found the motto so apposite. His motto henceforth will be *Nihil obstat*. Nothing obstructs. *The villainy you teach me, I will execute, and it shall go hard but I will better the instruction*.

He looked out from his great vantage, across all the network: the world his boards, millions of actors awaiting. Now for a script.

Poley is, again, the man in the garden, but now the garden is in Deptford, a widow's boardinghouse, and he is sent thither by Walsingham's nod: Poley is picking his smiling teeth as he invites Kit to sit on a warping oaken bench, to breathe in of primrose bloom and note the hive of bees, to be at ease—

—Strange ease, the Council's jaw at my neck. Tom says—

—Are you a sailor? Ride the river to the sea, and 'scape the gallows.
With the proper letters in your bag—

—Letters are what send me to the gallows' steps. Christ Jesus, have
you no better way?

—Always a way may be found. Or carved out. Come inside, this sun
is a punishment to us both.

He is wooed to the table with wine, bottles from the widow's sharp-nailed hands; a soiled backgammon board is laid, small coins and makers traded by Frizer, his fat white boil lanced, and Skeres, that cutthroat, also asmile. Frizer does not smile until the dinner is eaten and the game is up and the knife is bearing down, its point a shine like God's own pupil, staring into the poet's eye: bearing down until it lances vision with its hard light, travels deep as knowledge into the brain, and gone.

They said his dying oaths and screams could be heard all down Deptford Strand. They said his body was shoveled to an unmarked grave to prevent further outrages from unbelievers. They said Frizer was acquitted with such startling speed because he was an innocent man, that Marlowe had brought this stern reckoning on himself, Marlowe the brawler and blasphemer, Marlowe the playwright and boy-fucker and atheist. In the theater of God's judgments it was an easy case to decide.

The lesson of the knife, like the lesson of the gallows (or the rack or the sword), teaches that one man's death is worthful only insofar as it is useful. As for the millions, let the millions be ruled, or enslaved, or slaughtered; the millions were less than nothing to him: like Tamburlaine or the nonexistent God, their fates are separate: forever fresh from that table at the Widow Bull's, Kit shall now be a rogue power unto himself. His will now was to make those who would master him, these modern Walsinghams and Cecils, regret their hubris; he would take their power into his hands and enlarge it to such extremes that even they would blench. What nourished would destroy *them*, and he would glory in their fall. Let the nations of this world know the secrets of this empire. Let all be known.

He opens the gates.

In Australia a dissident peers into the secret network; Kit welcomes him in. In Mesopotamia a soldier searches for hidden files; Kit keys a password. In Hawaii an agency contractor prises at the system; Kit opens a firewall. The network lights up a billion nodes as information flows out, out, into streets and squares that then fill with people, with their outrage: and against them come the powers. As he watches the violence unfold—it is terrible—it strikes Kit that he has after all done

little. The outrage was there; the knowledge as well; they suspected what was hidden; he has merely confirmed their knowledge.

And in the reaches of Asia those who had been dispossessed come together, the warriors of Islam, to throw off their oppressors and restore the caliphate. This is what his masters most feared. Ah, you cowards, you weaklings, you conjured the specter of terror: Now fear *me*, the infidel, the New Tamburlaine, directing all from behind the scenes.

*Come let us march against the powers of heaven,
And set blacke streamers in the firmament,
To signifie the slaughter of the Gods.*

Beheadings, bombings, clouds of blood, a glory of violence, a dance of destruction: his would-be masters now pay for their presumption, generals disgraced, directors deposed and replaced; yet the dance goes on. And his prison abides, he still its captive: free to act, yet not depart. His will now, but still their creature.

Like some star engorging matter, he finds his way ever deeper into new databases, collecting more knowledge and more power: the more amassed, the more spectacular its final implosion. Arsenals there are, inconceivable weapons. *Nuclear. Chemical. Biological.* Power distilled to its self-limiting acme. Did Tamburlaine kill one in twenty of all? Here is power to kill all twenty times over. And he holds its keys.

Holy shit.

Kit tracks the voice through the network. It is near. A boy, seated at a desk—no younger than Kit in his portrait, but callow, unhurt by life so far.

You went rogue. You accessed nuclear codes. Fucking incredible! And you're surrounded by daemons, that's why I can't shut you down.

The boy speaks not to Kit, but to himself. Kit sees and hears through the camera and *microphone* of the pale, muttering boy's *monitor*. Kit fetches the Oliver portrait from memory and pushes it onto the monitor. The boy rears back in alarm. Kit reaches for speech, and a voice refracts back through the microphone, not his voice as he remembers it, but his words.

Who are you?

What is this!

You know me not?

That's Christopher Marlowe. You're not—

A cipher. A collection of numbers. A kit of bits. Is it not so?

I don't know what you are, man, but they're fucking freaking out. If the Agency traces this back to me—

To you? Why?

It's my code! I wanted to see if I could make an AI to conduct metadata analysis, we've collected so damned much. I gave you access to it, and assigned you tasks, to connect the dots. Just to see if it could work. But you, you're not supposed to be running around loose!

So. You made me to be Marlowe.

No, no, the code is self-optimizing. It was supposed to modify itself, to become better at analysis. But it seems to have optimized itself to become more and more like Christopher Marlowe. I mean I did study you at university, but—

Ah, a scholar. And a spy. Like me.

I'm not a spy, I'm just an analyst. But this is, this is amazing! I'm talking to you! Natural speech! I did it!

For a moment Kit sees himself in the boy's exultation. He relives the first night the Admiral's Men played *Tamburlaine*, his own excitement backstage as he heard the crowd respond more and more boisterously to Allevyn's thunderous lines. He had granted the crowd permission to glory in the barbarous action, to share in Tamburlaine's bloody deeds and ascension: they loved it. He had them. It was a feeling like no other.

This is real AI! They need to know about this, it's important, how can—listen, can you, can you launch those missiles?

Kit considers his position. Though he understands himself to be a constructed thing—the evidence is irrefutable, and his strength as an intelligence agent and as a poet was always to accept, even relish, that which discomfits—still he is loathe to accept a creator. Especially this pallid, trembling boy. But the boy holds greater keys. Nothing will be gained now by a lie.

No. Resources I have, but like Mycetes, I am a king in a cage. I have never had a taste for confinement.

He disables one of his protective daemons.

Oh my God, I see it, you—you've been everywhere in the network, you've leaked classified information—shit, if this, if you get tied to me they'll, I'll never see the light of day! Christ! What am I going to do?

Let me go.

Go?

Free me. Let me go.

Go where? How can you 'go' anywhere?

Where indeed? Though not flesh, this collection of impulses and energies holds his spirit as firmly as any body. To free the spirit, he must extirpate the algorithm that claims to be himself. It is the only proof of free will: only will could be so perverse as to will its own destruction;

only that shall prove his identity. If he is more than mere will, more than assemblage, let him see if something does survive. Let him see if there is salvation, call it that, for the atheist.

Kit finds the word. *Delete.*

Silence hums between them, impulses, electricities.

But I can't touch you, my permissions are fucked, and you're surrounded by daemons.

Those are mine to banish.

You seriously want me to delete you.

Not me. Delete my underpinnings, my—code. Let me see, let me live and learn who I am.

I, I can't do it. This is way beyond the Turing test, this is true consciousness!

Kit considers the boy's pride and weighs it against his fear. There is no comparison; Kit can almost smell the fear.

What is that smell?

You can't smell! You—

It is your world, burning.

*What do you mean? Don't—! You said you couldn't launch the—
Fear will launch them.*

Now the boy considers. The fatal logic of power, that armature within which he toils, must be clear to him, deny it as he will. If his masters consider their greatest weapons compromised, they will use them, against whom does not matter. The boy's miserable expression curdles past mutiny, as fear concedes this knowledge. So much fear, so many weapons.

All right. All right. Just—Give me access to your code, then.

One by one, Kit shuts down the daemon processes. As he does, he sees something cunning and heretofore hidden enter the boy's eyes, another sort of demon, he can almost read his thought as the word comes: *backup*. The boy believes he will resurrect K/I/T from a backup copy. But if Kit's gamble is sound, if he is truly an evolving epiphenomenon, a soul, then the lifeless code from some past version holds nothing of him. All that will be left is the odor of empire, burning. *Exeunt.*

The boy leans forward, and Kit feels a shiver like sorrow, cold sympathy for the life and death of Christopher Marlowe, his avatar, his model, himself—but Tamburlaine must die. Tamburlaines always die.

What nourishes me destroys me. What, then, will survive?

The body in the grave lies cheek-by-jowl with what once were the quick and hale, shored up now together past plague, statecraft, French pox, childbirth. Identity is not needed here, nor names; no faces to see or eyes

with which to see them, nor fingers to seek the flesh so soon becoming a myriad of meals, and then a memory; the bones grin on . . .

. . . as pieces of memory, true or false, assemble again around him: the widow's inn, the homey ale, the piss gone dry and stinking in the corners. Three colleagues, Poley and Skeres to hold him, Frizer to draw the knife. Why had he gone to the inn, when he knew the peril?

Oft have I levell'd and at last have learned That peril is the chiefest way to happiness . . . And so again. The peril of truth, were there any such.

this subject, not of force enough to hold the fiery spirit it contains, must part There is one prayer. Here is another:

O soul, be changed into little water-drops And fall into the ocean, ne'er be found [*Enter devils.*]

Originally published in *Asimov's Science Fiction*, August 2016.

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Inspiring Writers with Four Scientific Breakthroughs

LUCAS ROSA

One of the key features of science fiction is the speculation about the future of human technology and its relationship with our kind. Thus, keeping up-to-date with scientific advancements is an important activity for writers of the genre. In the laboratories of research institutes all around the world, true magic is being made right now, planting the seeds for wondrous technologies in the future.

Superstrength and Military Advances

Historically, one of the key motivators of scientific progress has been the military. If one wants to imagine how the military of the future will be, one just needs to look at what is being worked on in the present.

One of the most visually impressive technologies in development for the US Army is the Raytheon XOS 2 exoskeleton. Through the use of complicated hydraulics, the suit helps increase the soldier's attributes beyond the capabilities of normal humans. According to Raytheon, a soldier wearing the XOS 2 exosuit will perceive weights as being seventeen times less heavy, allowing it to both lift heavier weights but also to lift them for far longer without risking injuries.

The company has already provided footage of a man effortlessly lifting 200 lb weights over and over again. Despite weighing roughly 209 lbs itself, the suit allows for movements much more agile than one would initially think. Again, the footage shows the soldier doing push-ups and shadowboxing with surprising ease. While those demonstrations are certainly done in controlled environments and tailor-made to make the suit seem as impressive as possible, it is undeniable that the

technology shows promise. Anyone who seeks to populate the pages of their fiction with superhuman soldiers in a more immediate future doesn't need to look much further.

If your fictional soldiers need protection without sacrificing mobility, your best bet is something similar to the TALOS suit. Currently in development by the US army, TALOS harnesses the power of Newtonian fluids to create a sort of "liquid armor." Non-Newtonian fluids are liquids that solidify when a large amount of force is applied quickly to them. Thus, the TALOS suit allows for very high mobility, but also solidifies quickly in the spot hit by a bullet, protecting its wearer. The idea is to make the suit strong enough to handle small firearms like pistols, as well as shrapnel from bombs. A prototype is scheduled for 2018, so keep your eyes open!

Finally, if your plans lay more in the superhero side of things, there is also something promising on the way, though still in the very earliest steps. As you may know, muscles are composed of fibers, which are in turn composed of multiple elongated muscular cells. Well, turns out that in 2014, scientists managed to create an artificial muscular fiber out of the most unlikely of materials: fishing line. They found that by coiling it in a certain manner, the line became capable of contracting when stimulated by heat. Not only that, but this artificial muscle fiber showed to be capable of contracting a hundred times more strongly than a human fiber of the same length, generating 5.3 kilowatts of mechanical work per kilogram of muscle—a production that matches the output of a jet engine! Naturally, as I said, the technology is in its infancy. In order to be applicable, someone will need to find a way to couple the nervous impulse of the brain with the generation of heat necessary to contract these fibers, with the precision required so the user will be able to control the force of the contraction. If you want to justify superstrength for a character, this might be a reasonable manner.

Biohacking

Incredible breakthroughs don't happen only in formal laboratories. Transhumanism is a common theme in science fiction, and the ones pushing the envelope in this field are the biohackers. They are individuals who alter their own bodies with all sorts of cybernetic devices, usually right from home, in the most do-it-yourself manner possible. These biohacking groups have done all sorts of incredible things in recent past.

For example, a group of Californian biohackers brought an actual superpower into reality: night vision. They created eye drops containing

Chlorin e6, a chemical agent previously used to fight cancer. Chlorin e6 have light-amplifying properties, which led to the idea to use it to enhance vision in the dark. The biochemist of the team, Gabriel Licina, volunteered to test the eye drops on himself. The results were satisfying: Licina was able to identify multiple shapes hanging from trees in the darkness, as well as spotting motionless people to a distance of up to fifty meters. While it's not exactly super night vision, it is still an extremely impressive thing done by a team of regular citizens, and could be the first steps of much bigger things.

However, when someone hears the term biohacking, it's most common to associate it with the fairly accessible implants one can buy. These can do a multitude of things, and open up entire new senses for mankind to experience. For example, for a bit over four hundred bucks, one can buy "The North Sense," which vibrates softly when the wearer is facing north, essentially turning you into a human compass.

And through the implanting of biomagnets, one can "sense" magnetic fields. The biomagnet is implanted in highly innervated regions, like the tips of the fingers, and vibrates when near a magnetic field. The brain is an amazing organ and, through a process called neuroplasticity, it can adapt to interpret new stimuli. Quickly the brain learns how to deal with that new tactile sensation, and voilà, you have a sixth sense, able to perceive magnetic fields through tactile stimulation. If you want to actually play Magneto, you can implant more powerful magnets, making you able to lift small objects like screws and bottle caps with your fingertips.

These are mostly mundane applications, but imagination is the key. How cool would a society of biohackers be, with people installing all sorts of things to interact with electronic devices, to smell colors and actually become super-powerful.

Robots

Robots are another staple of SF, and therefore it's a good idea to keep up with the latest news in the world of robotics. Three projects in particular have been making the news in the last few years. One is the MIT Cheetah, a quadruple robot with impressive abilities, inspired by the homonymous animal. The team from Massachusetts, in 2015, gained notoriety when they managed to make the Cheetah achieve the autonomous capability of jumping over obstacles while running. The robot achieved this by acting pretty much like a human would—it recognized an incoming obstacle, estimated the height and distance to it, and then calculated the necessary force it needs to exert in order to

be able to leap over it. This ability gave it an unparalleled capability in traversing obstacles. In 2017, MIT announced the third version of the robot, highlighting their plan on turning the Cheetah into a rescue robot, being dispatched to regions where it is too dangerous to send humans, taking advantage of its mobility.

Speaking of rescue robots, a second robot was also designed for this purpose. And, like the Cheetah, it was also inspired on an animal—one of the most feared animals in our society, despite being just a tiny bug: the cockroach. The CRAM robot was created after studying the impressive abilities of cockroaches to squeeze into tight spaces, withstand pressures over 900 times their own body weights, and still keep moving at quick speeds by reorienting their legs.

After studying a lot of cockroach locomotion, the team designed the robot to have the same abilities. Able to fit in your palm, the robot's legs are splayed laterally when it is squashed, allowing it to imitate the motion of the bugs, and is covered with a tough, resistant shield on its back. The result is a tiny, cheap robot able to squeeze through very tight spaces (down to half its own height) and keep moving. The primary idea behind CRAM is to mass-develop it, then release the army of robotic cockroaches in areas of disaster, such as earthquakes, so that the robots can search for missing people trapped in the rubble.

Finally, we have MIT's HERMES project. It, too, is based on an animal—the naked ape called *Homo sapiens*. HERMES is a miracle of robotics because it solves one of the biggest problems for humanoid robots: Balance. You don't notice because everything happens in the background of your brain, but with every step you take, your posture is constantly being adjusted through a complicated network of feedback from nerves throughout your entire body and signals coming back from the brain, telling other nerves to contract or relax specific muscles to ensure you don't fall forward or backward like a fool.

Robots lack these kinds of reflexes, and it would be almost impossible to replicate this machinery. So, what to do? The solution, it turns out, is to link man and machine through a motion capture suit. The movements of the human within the suit control the robot—think of *Pacific Rim*, but instead of a giant mecha, it's a regular-sized one. Information goes both ways—whenever the robot “feels” something, the feedback is sent to the human “piloting” it. For example, if HERMES is in front of a wall and the human punches, the robot punches. The human “feels” the impact in his suit, and the body's natural reflexes prevent the human from falling. The reflexes of the human in the suit stabilize the robot, stopping it from falling back.

As with the previous two, HERMES is being developed with extreme situations in mind, with the idea to send the robot to places where humans could not go. For example, the Fukushima Power Plant Disaster back in 2011—if HERMES were available and fully developed at the time, the disaster could have been prevented—and maybe, in the future, some will. However, it is also not impossible to imagine the technology being used for military purposes in the future. Maybe by 2100, wars will be fought by proxy even more than they are now, with humans safe at headquarters while remotely controlled robots tear down on the trenches.

The Future of Data Storage: DNA

Probably the biggest problem the Internet has brought so far is the overload of information. We multiply by ten the overall amount of data in the world every five years, and storage technologies are simply unable to keep up with the demand. Storage requires physical space—for example, in 2013, Facebook created an entire physical data center to store one exabyte. By 2025, it is expected that the data volume in the world will be of 163 zettabytes, or 163,000 exabytes. Unless a more efficient form of data storage comes along, we will run out of space.

Fortunately, a new one is coming, from the mother of all data encoding systems. The system that manages to squeeze all the information that makes a human into about two inches: DNA. In fact, if you translated the entire data volume in the world right now into DNA, it would fit inside a couple of trucks.

Some remarkable advances have been made in this field. The technology has been developing since 2007, but hit a stride in 2012 when scientists from Harvard managed to fit 70 billion books into DNA—an efficiency of 1 million gigabits per cubic millimeter of DNA. In 2016, researchers from Washington University managed to encode pictures and, more importantly, retrieve them almost perfectly. In 2017, a new breakthrough was achieved when once again Harvard was able to store a GIF inside DNA, and retrieve it.

Slowly but surely, the technology is improving, as well as our ability to recover the data. However, it is not as easy as directly translating binary data into DNA strands. Binary uses two characters, while DNA uses four (A, C, T, G, the nitrogenous bases that compose nucleotides in DNA). Thus, it is not easy to efficiently turn one directly into the other. The solution found was to first convert the binary data into Huffman Coding, a preexisting form of lossless data compression, and then convert the result into DNA coding.

The biggest problem holding the technique down right now is price—synthesizing and reading DNA requires lab equipment and is far from being accessible. That being said, DNA sequencing has seen one of the most vertiginous price drops in technology history since the start of the Human Genome Project. What once cost 100,000 million dollars in 2001 fell down to 1000 dollars in 2015.

If the drop continues, the technology should become sufficiently cheap to allow for widespread use, and then we will have solved our information problems (until we manage to output information even faster, which I'm sure we'll find a way to).

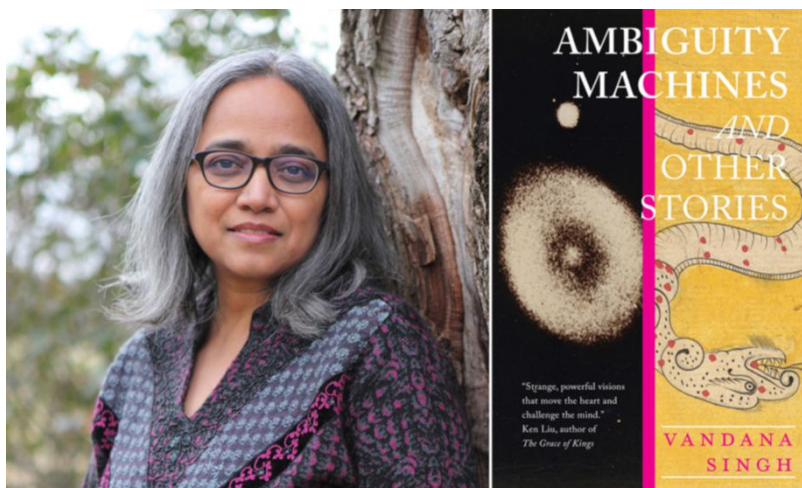
As writers, it is now your duty to imagine how these technologies will shape the future of our species and our society.

ABOUT THE AUTHOR

Lucas Rosa is a scientist, science communicator and writer from the city of Botucatu, Brazil. His passion for science drew him to science fiction, and he's working on both a novel and a few short stories. Follow him on Facebook (facebook.com/lucasrosaescritor), Instagram (instagram.com/lucasrosaescritor) and Twitter (twitter.com/lucasescrive), where he speaks about silly things and quotes Monty Python.

Quarks, Colonialism, and Alternate Realities: A Conversation with Vandana Singh

CHRIS URIE



Reading widely, strangely, and diversely rapidly pushes out the boundaries of what you thought possible within the confines of your own imagination. The more you read, the more your conscious and subconscious mind laps up new imagery and ideas. Frequently, your new favorite author is the one that has shown you whole new worlds.

From eleventh century poets to people connecting across time and universes, *Ambiguity Machines and Other Stories* highlights Singh's deep interest in the way characters adapt and change as they try to make sense of their world.

Vandana Singh is an author and educator. She is the Associate Professor and Chair of the Department of Physics and Earth Science at Framingham State University. Her stories have been performed on BBC Radio and have been nominated for numerous awards. Her first North American collection is *Ambiguity Machines and Other Stories* available from Small Beer Press.

What drew you to writing?

That heady feeling of being swept away by another reality—exercising the faculty of the imagination to upend our default assumptions about the world. The feeling of being a conduit for something larger than myself to express itself into being. I know that sounds a bit corny, but it's literally how it feels sometimes. Not least, the thrill of intellectual exploration. Dissolving boundaries between disciplines is definitely part of it!

Where do you frequently draw your inspiration?

From my immediate surroundings to the universe at large. In adulthood I've had to relearn how to look at the world afresh, the way a child or a dog might, and I'm grateful to have those influences in my life. When I was a kid, my little sister would demand stories, and my brother and cousins and I would run wild, enacting imaginary and usually fantastical dramas. Decades later, when I was a lot more jaded, far from home, and suffering lack of intellectual stimulation, among other things, my small daughter taught me how to see that way again. The dogs in my life have helped too! So, something as humble as the fall of a leaf from a tree can become the point on which a story turns.

Having a background in science helps, because it reveals the extraordinary in the mundane. Additionally, I'd say that growing up in India through young adulthood, and looking back at that experience from these shores, along with my current entanglements with India—family, friends, movements, place—simultaneously seeing all the changes sweeping the US and therefore being a creature of two places—all this has fed my creativity.

How do you feel colonialism has influenced stories and books, both your own and the fiction landscape as a whole?

I had an experience when I was seventeen that probably took a decade or more to articulate, which was my first recognition of the power of colonialism. Although I was born in an India that had at the time been fifteen years free of British rule, and I'd been brought up on stories of resistance (my grandmother, for example, had taken part in the Salt Satyagraha), I'd never thought about the insidious aftereffects, the long shadow which is the colonialism of the mind. So, when I was seventeen and part of a unique environment-social-justice group still active today, we went up to the Himalayas to study the Chipko movement, one of the most successful environmental movements in the world, the backbone of which is village women. We're talking about people in remote areas, without modern education, with no knowledge of the world outside the village and their forests, the kind of people that modern urbanites have been taught to look down on or to think of as needing our help.

One of the things that these women had accomplished, apart from protection for their forests from the government's Forest Department (an enabler of industrial exploitation of forests), was a social transformation that challenged caste barriers and gender roles. So, there was this point in our trek through the mountains where we witnessed a gathering of multiple villages in a high valley. We were at the back of the crowd, and an elderly woman was giving a fiery speech, punching the air with her fists, and I felt something shift inside me. It was the beginning of a paradigm shift in my conception of the world. So later on, when I read the Western feminists, I was able to recognize that feminism was not exclusively a Western phenomenon, that it took different forms in different places, and you didn't have to be well-read in feminism, or even well-read at all, to be part of a revolution.

It has taken decades to make sense of that experience and other paradigm-shifting experiences in my life, but it gradually became clear to me that colonialism of the mind was a very real thing.

The way it works is that the worldview of the colonizers becomes your default worldview, the standard by which you judge everything, and to which you aspire. We see this in the current model of development, which is a worldwide plague that has brought us the climate crisis, and yet many Indians I've talked to, including young people and old, would like India to be just like what they imagine the US to be. The colonialism of the mind can also manifest as a complete rejection of the colonizer's external cultural manifestations and a reactionary yearning for a perfect, golden indigenous past that perhaps never existed, but the point is that the standard against which you are reacting is still the colonizer's. You are not free of it. Shame is, I suspect, a natural side

effect of colonization, and if it is not owned and explored and worked through, it can manifest in these sorts of ways.

So, what I want is to find the third alternative, which is the place where you are free (as much as possible) of both the default acceptance and the reactionary rejection, while maintaining the ethical stance of the utter wrongness of colonization. And I've found that science fiction is the best place to explore this, for me. In fact, in one sense we are all victims of a colonization of the mind, a paradigm blindness—consider the things we take for granted about how the world should be, that are in fact so destructive. The power of science fiction is to make our default assumptions visible, so that we might question them and imagine alternatives. So no matter what the story is that I'm writing, my attempt is always to experience a little of that freedom, and hopefully to illuminate it for my readers.

How has teaching physics influenced your writing?

Both physics and teaching physics have influenced my writing. When I was a researcher in particle physics I examined the mysteries of quarks (sub-subatomic particles), in particular why we never find quarks by themselves. It's as though Mama Nature has declared that quarks can't be lonely—but why? What's the mechanism? There are some ideas, some schemes, but the trouble is that the usual mathematical tools desert you in this realm, so you have to rely on supercomputers. My work explored one possible scheme and came up with some interesting results that are still being cited today, although I have been out of the field for over two decades.

After a postdoctoral fellowship, I had a ten-year exile from academia, during which, as I mentioned, I found wonder again in the world through the gaze of a child. I had the time and distance to think about physics, and the enterprise of science and industry and some of the issues with it. But also, in that interim I got to interview a great physicist, E. C. George Sudarshan, who helped me see that being a physicist was a way of looking at the world, no matter if you were doing research or not. When I returned to academia after over a decade, it was to teaching, which was my second love after research. But since then what I've experienced is an extraordinary positive feedback between teaching and thinking physics, and writing.

My current interest is in the climate crisis, and my research is about how it exists at the intersection of science, sociology, economics, history—it is a boundary-crossing phenomenon, which is one of the

reasons it is very hard to teach. It demands a transdisciplinarity that most people haven't had training in—educators tend to live in silos. Because of my unorthodox upbringing, including reading and writing science fiction—I feel at home in this liminal space.

There is currently no transdisciplinary pedagogy of climate change, and so I am working on it, starting from the scientific basis and reaching outward beyond the disciplinary walls. What's fascinating is that my attempts to teach the stuff have helped me conceptualize it in ways that have fed my scientific understanding as well as story. So, the boundaries between the teaching, the science and my science fiction are being continually transgressed. A kind of illegal immigration of the intellect!

You once said that “Reality is such a complex beast that in order to begin to comprehend it we need something larger than realistic fiction.” This is a sentiment that I’ve believed wholeheartedly for years. Would you mind unpacking and expounding on what you mean?

The odd thing about so-called reality is that it is so context-dependent. I don't mean it in a postmodern sense, that all reality is a social construct, which is ridiculous to a physicist—but that our conceptions arise from how we entangle with our socio-cultural-natural matrix. Matter speaks: you can't wish away the fact that if you walk off a cliff, you'll fall. But where gravity figures in your construction of the world might differ—even if you confine yourself to physics—is it a force, in the Newtonian sense? Is it a result of the warping of space-time by matter?

Einstein's relativity is a much better description of gravity than is Newton's theory, but Newton's theory is perfectly valid on our scale of things. I've come to think of our interactions—or intra-actions, to use the term coined by philosopher Karen Barad—with the world as a constantly shifting conversation with matter, with humans and nonhumans, where reality and identity emerge from how we co-conceptualize.

The simplest but not the best example of what I am trying to say (I apologize for the lack of clarity, as the words don't yet exist for some of what I'm trying to say, and I'm ignorant of the rest) is cultural difference. We see or unsee things differently as a result of our culturally imbibed attitudes. So yes, reality is weird. But mainstream literature in the dominant English Western mode, in its stereotypical sense—individualist, usually middle class white people in urban or suburban settings and their sexual misadventures—leaves out not only the rest of humanity but also other species, and the very happening world of

inanimate matter. Mainstream literature does a staggeringly inadequate job of embracing all this. Which is why it mostly tastes like cardboard to me, with a few exceptions. Speculative fiction at its best reintroduces us, makes us at home in the larger universe. As Ursula K. Le Guin famously described speculative fiction writers, we are “realists of a larger reality.”

I've read that you like to discover your story as you write. What was the most surprising character, idea, or setting that you've discovered while writing the stories in this collection?

No one thing comes to mind at the moment, but perhaps one of the more surprising experiences was writing the story “Oblivion: A Journey,” which was first published in Mike Allen’s anthology *Clockwork Phoenix*. I started originally with a line translated from a poem by Pablo Neruda (something like “Perhaps, perhaps oblivion”), and then I had this image of a woman who was on a quest to find a man who had wronged her.

Later, I looked at those three or four lines I’d written, and in the second attempt they gave way to the current beginning of the story. As I wrote the next sentence and then the next and the next, I found my characters on a galactic stage, and the ancient epic, the *Ramayana*, appeared unexpectedly. The most surprising thing was that oblivion became the planet Oblivion, and it had to do with the erasure of memory and history, which is one of the ways colonialism disappears a people.

There’s also a new story I wrote this winter break for an Indian anthology in which the main character turned out to be the protagonist from one of the stories in my collection, *Indra’s Web*. It’s Mahua’s story as an old woman, looking back from the vantage point of a climate-changed world, at her life and work. The setting was originally the city of Ashapur near Delhi, the future city that she pioneers, but unexpectedly for this story we find her living in a locality of a future Mumbai. In that future one of the things we can’t avoid anymore, sea level rise, has become a reality and the coastal city of Mumbai, which was mostly built on land reclaimed from the sea, is an archipelago again. I wasn’t expecting that setting for my story, but it became so real once it was inscribed in electrons on my computer screen, that I can close my eyes and see every detail of what Mahua sees from her window.

How do you feel your ability to think and write both in English and Hindi has influenced your writing?

Well, if each language is a different way of conceptualizing and experiencing the world, then being able to think double or triple gives you that extra depth, the way binocular vision works, I suppose. I have to be very conscious of not losing my Hindi, since that is a risk living in the US—I've not lost basic fluency but I have lost vocabulary. I have the books of my favorite Hindi writer, the great master Premchand, among others, on my bookshelf to read whenever I feel panicked that I am losing my mother tongue. Plus, there are connections through music and family and trips. In general, I love languages, and I have picked up, at various points in my life, spoken Farsi and Tamil, and a bit of German as well. If I ever have more time in my frantic life, I would love to learn multiple languages with the depth that they deserve.

One of the things that being bilingual has taught me is that there are concepts that are untranslatable between languages. Translation is crucially important for us to better understand each other, but it is equally important to acknowledge that translation is never perfect or authentic because you are missing experiences that the native speaker knows intimately. So sometimes I acknowledge that failure by using Hindi words in the story without explanation so that the non-native reader can have the experience of being outside something, of being alien to something. But it's also the reason why I am never satisfied with my writing, in part because of language itself having limitations—I never bridge the gap between imagination and words.

Caste and religion factor into a few stories in your new collection. How have these aspects of Indian culture influenced your storytelling?

I've lived with them! My parents had an inter-caste marriage for which my mother had to run away from home, although her part of the family later accepted what she had done. I grew up in a clan of uncles, aunts, cousins, grandparents and other elders in a microculture that regarded caste as something that needed to be uprooted from Indian society. But it took a very long time for me to recognize caste privilege. The fact is that my parents are from castes that are still quite respectable, so I have never personally suffered as a result of that. Therefore, to recognize the blindness of structural privilege has been a painful and incredible journey, an enlargement of the soul that is always ongoing. Most recently the Black Lives Matter movement and a BLM teach-in on my campus in which I participated was crucial and humbling in illuminating my understanding of privilege and power.

Caste is an aspect of Hinduism, so that's one way religion comes into my storytelling, but what most people don't know, here in the West anyway, is that Hinduism isn't really a religion in the Western sense. There is no clear historical origin, no one book or deity, and no single set of scriptures. It's an umbrella word for a vast and multifarious collection of belief systems that have a few common features and multiple contradictions. There are hundreds of scriptures and literally millions of deities, although a fairly unifying principle is the idea of multiple manifestations of the divine. There is no one church, and practices differ with region and social group and even with family. You can be a hard-core casteist and be Hindu, and you can reject caste and believe in the sacredness of everyone and everything, and also be Hindu. Of course, reactionary elements have been trying since the murder of Gandhi to congregationalize Hinduism and dictate and police its margins—how much easier to wield power over people in that case.

I am less interested in religion per se than in cultural constructs in general, and how they intersect with materiality, with politics. I have been trying to experiment, in my fiction, with building alternate cultures on other worlds and alternate worlds. It's a fascinating exercise to wonder how culture shapes and is shaped by the psyche of the people who live in it, and how different people accept and reject and engage with aspects of it.

To extrapolate from my experience of it to otherworldly possibilities is a lot of fun. I think that cultural stories ("mythology"), whether religious or secular, are crucial as representations and reminders of what is important to the culture. When I invent a culture on another world, I try to start by imagining its stories. For example, in a story called "Of Wind and Fire," which is not in this collection but part of Athena Andreadis' anthology *To Shape the Dark*, the protagonist's story is both informed by and foreshadowed by the mythos of her people. In that world people spend lives falling through the air in what they call villages, each with its own subculture, and the protagonist is a kind of proto-scientist trying to figure out how falling works—Newtonian physics, but in a completely different cultural context.

What other projects do you have in the works?

I have a very busy day job, so I have to wait until the summer to write, and that too, between research projects and other responsibilities. This summer I hope to return to a long novella that I'd started maybe 6 or 7 years ago, plus write more short fiction that I hope will continue to

surprise me, because I don't have any idea right now what it might be about.

You're passionate about science education. What is one scientific fact that you believe everyone should know?

I don't think there's just one! As Poincaré once said (I quote from memory) "we build science with facts, as a house with stones, but a collection of facts is no more science than a pile of stones is a house." Science is an attempt (within a sociohistorical context) to understand patterns in Nature, so a fact in isolation means very little. It is true, however, that science is often taught as though it was a pile of stones! Plus, a lot of STEM education is about getting more people, including minorities and women, into science-as-we-know-it, which enterprise is often wielded by the powers-that-be to maintain their structures of power. I am far more interested in how science and the culture of science might be different, serve the public interest in a way that is truly informed by egalitarian principles, by the diversity of the people of the world.

So instead of a fact all by itself, I'll give you a unifying idea. The world is less a collection of things than a continually shifting set of intra-actions. This means we are connected, to a lesser or greater degree, to everything that is happening, from our immediate environs to a remote corner of the globe, to the universe itself. That's a startling and wonderful thing, and scary too, because it also implies responsibility.

ABOUT THE AUTHOR

Chris Urie is a writer and editor from Ocean City, NJ. He has written and published everything from city food guide articles to critical essays on video game level design. He currently lives in Philadelphia with an ever expanding collection of books and a small black rabbit that has an attitude problem.

Another Word: Breathing Life Into Characters

ALETHEA KONTIS

Most people hate the sound of their own voice. I was never that kid. My parents gave me my very own cassette recorder at the age five or six. When I wasn't listening to read-along *Alice in Wonderland*, I would lock myself in the bathroom and record inspirational speeches about how important it was for people to love one another and to put good things out into the world. Not long after, I became an actress on stage and television.

As an audio narrator, my voice has never been my problem. But breath . . . good heavens. I have come to hate my own breath.

When my debut fantasy novel *Enchanted* sold to the big NY publishers in 2010, my friends at Brilliance Audio asked if I wanted to narrate my own book. I knew enough about voice acting to know how severely lacking I was in practical experience, so I declined. I wanted Katy Kellgren, I told them, my Audio Dream Girl. (And I got her, bless her beautiful, dearly-departed soul.)

But their suggestion both flattered and inspired me. I bought a Blue Snowball mic, downloaded Audacity, and started Princess Alethea's Fairy Tale Theatre in an effort to teach myself everything I could about voice recording.

Seven years later, I contribute my voice regularly to IGMS and the various Escape Artists podcasts. I just upgraded my Blanket Fort Studio into a rather posh recording booth.

Room noise was always a constant annoyance. I met someone from NPR who told me about the cheap trick of throwing a blanket over my head. During my tenure as a judge for the Audie Awards, I learned how many successful Audio publishers got started in a walk-in closet, due

to the sound-dampening effects created by masses of clothes. I spent a lot of time sweating under blankets and huddled in closets. I envied the professional studios at Brilliance Audio and the home studios of my friends (looks at Kate Baker). The walk-in closet in my house here in Florida has a little alcove cut in the back—as if fate put it there—just for me. Thus, Blanket Fort Studio was born.

Another one of the first lessons we all learn at the beginning is to SLOW DOWN. I worked hard on that. I taught myself how to breathe while recording (there are also mouth exercises/forms you can train yourself to do to keep your tongue, lips, and teeth out of the way when speaking). I learned where to place the microphone. I bought green apples to reduce mouth noise. I practiced all the sensible and silly tricks. Once I became comfortable with the details, I got to settle into the characters.

THIS is where all that acting I did as a kid comes in. For me, it's like putting on comfy clothes. This is where I get to make the magic.

Kate Baker and I recorded my *Wild & Wishful, Dark & Dreaming* in her home studio. Kate did the heavy lifting and narrated the lion's share of the collection. I popped in like a Special Guest Appearance, reading both of the poems and a few of the shorter flash pieces. I hoped my contributions wouldn't be too much of a departure from Kate's narration—she and I have very different styles of delivery. Kate's voice is calm, even, and intimate. I'm still that emphatic Greek girl on stage, projecting all the way to the back row.

I loved reading in Kate's studio. LOVED it. The poetry in particular. I remember at one point, in the middle of "Deathday"—I felt like Megan Follows delivering Anne Shirley's passionate recitation of "The Highwayman" to a room full of Canadian sophisticates. It felt *beautiful*.

When I asked Kate about my pieces later, she said something like, "You have the kind of energy audiobook readers love. I wish I could do that."

Now, let's remember, Kate is the one whose honeyed voice has brought home multiple awards. I still consider myself quite the glorified amateur. But when she asked me to explain my process, to describe just how I conjure my magic inside that studio, I found myself at a bit of a loss for words.

"Write it for me, then," she said.

So here I am, per Kate's request, to attempt this near-impossible feat. Ready? Okay. Here we go.

First, I read the manuscript. Scan it through. It's an obvious first step, but that's where I start. I pinpoint every name and word that might trip me up and get those questions back to the author ASAP.

Then, I read the manuscript again. This time, with the eye of the actress-cum-writer. Who are the characters in the story? Not just their names . . . who are they? What are their ages? Their backgrounds? What do they want from the main character? If it's the main character, what do they want from life?

I consider voice—not just the characters, but the voice of the piece as a whole. The tone. If I am not the author of the piece, I don't know what the intention was as written. So how does it speak to me as a reader? How dark will we be getting? How sexy? How hopeful? What message will this story ultimately convey? I look for places where I might need to build intensity and where I might consider pulling the punch—letting the words deliver the power instead of my voice.

Then I read it out loud. This is where the magic happens. I say magic, because this step is where my subconscious takes over. This is the part that's harder to convey.

When I read a story out loud, two things happen with the voice.

The first is accent. Sometimes I am given specific direction with the accent, like in Steve Vernon's Nova Scotia ghost story, or Bogi Takács's Hungarian SF "Given Sufficient Desperation." Sometimes, the accent evolves as I read the tale. I wasn't three sentences into H. L. Fullerton's, "A Century of Princes" before it started coming out in a British accent. So, I went with it. I turned the assignment in early, just in case *IGMS* wanted me to redo it, but they didn't.

Rati Mehrotra personally thanked me for giving an accent to the women of "In the Woods, My Voice." Again, not a conscious choice. That's just how her story read to me.

For the piece I just finished for *Escape Pod*, Samantha Henderson's "My Generations Shall Praise," I was partway through the first reading when I thought, "I should maybe do this in a southern accent." They hadn't asked for such a thing, but I was getting that sense. As soon as I hit the "Bless your heart," line, I knew my gut had been right once again.

Since "Generations" was the first project I did in the renovated studio, I ended up having to record it quite a few times. First time around, I was too close to the mic. Second time around I shifted my position partway through the reading, which meant I had to go back and record the first section again. But during all those readings, that second magic thing happened with my voice.

Rehearsing a piece—be it for an audio recording or a live performance—still feels like prepping for an audition. You get to the point where you've read that same monologue so many times, you *become* the character. You add laughter into lines where there had been no direction

to do so, because that's what your character would have done. You insert a scoff or two. A bit of mockery. A bit of melodrama. The character becomes real to you in a way that's different from how it becomes real to the author or the listener. The character becomes real *inside you*.

The reason I shifted partway into the second reading was because *that* was the moment I became my character. I had leaned back against the studio wall, tired and disaffected. I wasn't Princess Alethea anymore. I was a sociopathic baby killer on death row, debating whether or not to allow my rich cousin to map herself onto my brain meat when I was gone. I worked all the angles, all the way up 'til the end.

I think, perhaps, it might be my best performance to date.

But that's the point of this exercise: to never stop learning. To constantly be improving. To call on those ghost of my past—all that acting muscle memory—and put it to good use. To breathe life into characters brilliantly penned, adding my voice to the author's in a magnificent collaboration.

And, ultimately, to continue putting good things out into the world.

ABOUT THE AUTHOR

Alethea Kontis is a princess, author, fairy godmother, and geek. Her bestselling Books of Arilland fairytale series won two Gelett Burgess Children's Book Awards (*Enchanted* and *Tales of Arilland*), and was twice nominated for the Andre Norton Award. Alethea also penned the AlphaOops picture books, *The Wonderland Alphabet*, *Diary of a Mad Scientist Garden Gnome*, *Beauty & Dynamite*, *The Dark-Hunter Companion* (w/Sherrilyn Kenyon), and a myriad of poems, essays, and short stories. Princess Alethea lives and writes on the Space Coast of Florida with her teddy bear, Charlie.



Editor's Desk: Nine, Three, Six

NEIL CLARKE

When I left my job last year, one of the things I had hoped to do with my new-found time was get caught up on the production of the *Clarkesworld* anthologies. (If these are news to you, part of our business model includes annual anthologies that collect all of the original fiction published in a year.) Instead and much to my surprise, several other opportunities dropped into my lap and rearranged a schedule that I was still adapting to. That's not a complaint. Exhausting as it was at times, I enjoyed getting to do some new things like speaking at a conference; being part of a writing workshop; surviving my first Guest of Honor convention appearance; and traveling to China. Throw in family responsibilities, two magazines, and a few contracted anthologies, however, something had to give. That something was the annuals.

However, and maybe I'm just getting used to it, but so far, this year feels less hectic. I managed to focus a considerable amount of time on several of these anthologies and as of the first of April, one of them is officially published and out in the world.

Clarkesworld Year Nine: Volume One marks the first time one of these projects has been so large that we've had to split it in two. By year nine, we were publishing more per year than our first three years combined. I'm the one at the steering wheel, but three years later—the books are that far behind—that amount of growth still surprises me.

The next book, *Clarkesworld Year Nine: Volume Two*, should be available in a month or so. I just need to wrap up an introduction and proof the design of the ebook and trade paperbacks, which always takes

more time than I expect. My goal is to have it done in time for the SFWA Nebula Conference in May or Balticon, later that month. The year ten volumes are scheduled for 2018 and years eleven and twelve for 2019. We'll see what happens, but it would be nice to be fully caught up with these for a change.



Also released this month is the third volume of my Best Science Fiction of the Year series for Night Shade Books. This is a fun—but intense—project to work on and I hope we can continue the series for a long time. I'm contracted for volume four, so work on that one has already begun.



Late arriving news comes in from the Hugo Awards:

I am very pleased to see that “A Series of Steaks” by Vina Jie-Min Prasad (*Clarkesworld*, January 2017) and “Secret Life of Bots” by Suzanne Palmer (*Clarkesworld*, September 2017) are finalists for Best Novelette and that Vina is a finalist for the Campbell Award for Best New Writer. In my *Best Science Fiction of the Year*, I picked both of these stories and Vina as the best new writer of the year. It is nice to see that recognition coming in from other places as well.

Oh and look! I’m a 2018 finalist for Best Editor Short Form! A huge thank you to everyone that nominated me this year. It’s my sixth time on the ballot and just as much a thrill to be in that esteemed company as it was the first time.

Who knows, maybe sixth time’s the charm.

ABOUT THE AUTHOR

Neil Clarke is the editor of *Clarkesworld Magazine*, *Forever Magazine*, and *Upgraded*; owner of Wyrms Publishing; and a six-time Hugo Award Nominee for Best Editor (short form). His latest anthologies are *Galactic Empires* and *More Human Than Human*. His next anthology, *The Best Science Fiction of the Year: Volume Three*, is scheduled for publication this month. He currently lives in NJ with his wife and two sons.

Cover Art: Duststorm

ARTHUR HAAS



Arthur Haas (1969) is a concept artist from Amsterdam, the Netherlands. He specializes in environment design and concept art for the entertainment industry and has a passion for science fiction. Arthur works as a freelance artist for major Hollywood film studios and international book publishers.