Post Impulsum

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Contents

Chapter 1

The Lander in the Atmo

A red LED flickered in the darkness, and briefly I considered making peace with God. You can't blame me, really. When you're strapped inside a Martian death trap hurtling toward the Earth at speeds no less than biblical, you hedge your bets.

"What's our integrity?" said the commander.

"It's solid," John Kumar said. "Prob-success, ninety-six and change."

MASA should have scrubbed this mission. There are fucking pandemics where your odds are better than "ninety-six and change."

"Density of the debris field?"

"Still climbing, higher than expected."

Another tremor shook the vehicle. Martians are supposed to be natural-born astronauts, but I just felt like puking.

"Does it make a difference?" the commander said, after the shaking stopped. "What's the protocol at this point?"

John laughed. "No protocol, Commander. Just 'hold onto your asshole.'"

MASA's psychologists liked John Kumar. They liked how he solidified the group dynamic, and they liked getting drinks with him. There were more than thirty candidates for flight specialist, maybe ten of them more qualified on paper. But Kumar got the job.

"Better hope those aren't your last words," I muttered.

In my case, MASA didn't have so many options. There are only two other tenured anthropologists at New Plymouth University. One is a slightly pudgy super-centenarian who uses a set of exo-legs because an unfortunate accident involving a faulty airlock, and the other is married. For obvious reasons, neither of them could join the crew.

Commander Erikson opened a private channel. "Are you all right, Lee?"

"Yes, sir."

"Your vitals spiked."

Even with no better option, MASA almost didn't pick me. I had no experience under pressure, and my only time off-planet was for a destination wedding on Hawaii station. I flunked the flight test. I barely passed the physical. Under normal circumstances, I had no business whatsoever joining the first manned mission to Earth.

"Just a little nervous," I said.

"We'll hit hard atmo in a minute. Hang tight."

I nodded out of habit, forgetting she couldn't see me. The lander was divided into five pods, each with its own engine. For redundancy.

Another crew member connected to my private channel. "What do you think, Rosalind? God looking out for us?"

"Hey, fuck you too," I said. As usual, Jared talked like studying human religion made me an authority on divine actuality.

"I was serious."

"Oh. Sorry." The problem was Jared Wu believed in God, but he didn't always act like it. This wasn't unusual, particularly among biologists, but his faith tended to rub me the wrong way. It reminded me of when I was younger, more certain, and perhaps wiser.

"You write a lot of books about God, for an atheist."

"I find God more interesting as a hypothetical, Jared. If He exists, I don't think he cares about Martians very much."

"Is that why they picked—"

The roar of the engines cut him off.

I squeezed my eyes shut and tried not to think about dying. As you can tell, I might not have the friendliest welcome waiting on the other side.

On the other hand, my own misgivings might not make a difference, since God has plenty of reasons to dislike any Martian. This is the god of Moses, after all: the father-like provider. The same god who promised Israelites a land flowing with milk and honey, the same Christ who fed the five thousand and raised Lazarus to life. He likes to be needed, but Martians don't need Him. We thrive in a freezing red desert made habitable with homedomes and hydroponics, and we built soulless automatons to farm endless fields and fulfill our faintest whims—as if we ourselves were deities. I'm sure God's rightly pissed.

On the open channel, Erikson shouted over the engines, "How are we looking?"

Kumar didn't answer. He was too focused on keeping us alive.

"Talk to me, John."

"We're prime, Commander. Entry burn shutoff in two, one—"

Suddenly, the G-forces gripping my stomach disappeared, and we were coasting. Over the Earth. If my pod had a window, I would have seen the ocean's curve on the horizon. An entire ocean.

"Confirmed shutoff," Kumar said. "Good job, MASA." Twelve minutes later, I imagined, every mechanical engineer in operations would receive that signal and let out her breath. Although we had yet to touch down, the hard part was over.

"What's our integrity?" Erikson said. She had access to the same panels John did, but he had been trained on these systems. Hell, he pushed code to half of them.

"Moral or structural?" John quipped. "We sustained twelve L-four collisions. Nothing she can't handle."

"So we're on track for cohesive landing?" If the lander experienced catastrophic loss of integrity, it was designed to break apart during entry. Electromagnets powered by superca-

pacitors on the central axis were capable of ejecting each pod with enough force to put an elephant in orbit around Deimos.[1]

"We are on track."

"Confirm the landing site."

"Landing site confirmed."

ELVs had been sent ahead of us to construct the landing site. Over the course of six months, the leg-wheeled robots turned two square kilometers of overgrown jungle on the New Jersey turnpike into concrete slab, complete with landing lights and an observation bunker. There was even a micro-factory making propellant for the launch vehicle, which would take us home in an emergency.[2]

Jared reopened our private channel. "Still think God doesn't like us?"

"I think we give God a mediocrity complex," I said.

As if surviving on Mars weren't enough, we seem intent on upstaging God at every turn. We created artificial intelligence in our own image. We constructed skyhooks in orbit, a hundred times higher than the tower of Babel. How could any father love such children, who turn his great deeds to dust? Our greatest endeavor, the terraformation project, practically spits in the face of Genesis.

Jared gave a small laugh. "Nice. You should say that, instead of 'one small step.'"

"Very funny."

Months earlier, MASA had decided that I would leave the lander first, which meant I should say something to mark the occasion. For months, though, the best I could come up with was, "One small step for woman, two steps back for humankind," and I knew that was my inner cynic talking.

[1]The family *Elephantidae* consisted of mammals with a large trunk and ears, weighing up to seven metric tons. Although no full-grown specimens exist today, the New Plymouth Species Vault contains frozen embryos for eventually reintroducing the species, if they can find a suitable surrogate.

[2]New Plymouth's rail rockets have less gravity and atmo to overcome in order to reach low Mars orbit. An Earth-based vehicle needs to carry its own propellant, meaning that despite centuries of advancement in space elevators and ionic propulsion, we still had to leave Earth like Neil Armstrong strapped to a fucking firecracker.

"You'll do fine."

There had been considerable fuss when the walkout order was decided. In some ways, I remembered thinking, it shouldn't have mattered. The first human to step foot on Earth lived ninety thousand years ago. We but traced her footsteps, returning to this abandoned world like tourists to the city of Troy. No amount of bureaucratic dick-waving could make this ten trillionth step more significant than the first.

"Just passed ten thousand meters," John announced over the open channel.

"On track," Erikson said. "Not long now."

But the order mattered, and everyone knew it. As commander, Kepler Erikson was the obvious choice, following Neil Armstrong on the moon and Tia Stevens on Mars. Certainly, the commander had earned that right. She served for twelve years in the New Plymouth marine corps and received the New Citizens' Medal of Honor for exceptional bravery during the Mayweather incident. But Erikson refused. For reasons that baffled both bureaucrats and fellow astronauts alike, she announced that she wanted history to remember another name: mine.

Rosalind Lee, the "first human back on Earth."

The craft rattled, and Erikson repeated herself. "Not long now." She said it more to herself more than any of us, I think.

When Erikson made her announcement, my spot on the mission wasn't even decided. MASA wasn't impressed with my physical, and my lack of technical expertise was unique among the candidates. Most of them had some background in neural engineering or the physical sciences. I was a soft-science professor of anthropology who happened to have the right security clearance, because of my funding. I was more surprised than anyone that Erikson had read my paper on *ante impulsum* cult movements and their impact on social mores. But Kepler Erikson wanted an anthropologist on this lander, and she had a will which could have moved Olympus Mons in order to make that happen.

"Do you have words picked out?" Jared said. He was distracting me from the panic of

reentry, and I was grateful.

"Yes," I said. "Still not sure."

"You'll do fine. I'm sure of it."

"That makes one of us."

I switched off the channel with Jared, not wanting to think about the walkout. Instead, I focused on the roar of atmo and the abrupt shifts in gravity caused by guide fins adjusting our descent.

"Five thousand meters," John said.

What would God think of us, if He existed? He gave us the Earth, and we covered it like rats. Humans reproduce with such unholy rapidity that the only check on our spread must be of apocalyptic proportions.

"Four thousand."

Thus, the Christian god is a god of many armageddons. He flooded the Earth. He loosed the bubonic plague. Smallpox, World War II, climate change. Yet God's four horsemen grow exhausted by humankind's endurance. Pestilence fell to Pasteur, Famine to fertilizer. Pollution and Artificial Intelligence mounted up in their places, but we brought the first to heel by converting the second to our cause. War still harangues us, but he is a ghostly shadow of his former self. And Death we beat ever backward.

"Three thousand. On course for touchdown."

On June 7, 2483, God called his greatest warrior onto the field. Impact rode War's red horse, and he carried a sniper rifle loaded with extrasolar bullets. Impact was an expert marksman. His shot struck the city of St. Louis, Missouri on a Monday afternoon.

"Two thousand." Thrusters fired, and I felt that wrench in my gut, so familiar.

The meteorite burrowed into the Earth's mantle. Behind it, inner core material spewed into outer space like shrapnel. It surrounded the planet from orbit, and it began to fall.

"One thousand."

Ten thousand tons of frozen magma reentered the atmo in a global conflagration. Yet

even as the surface of every continent reached 600 degrees—as twenty billion people cooked inside their homes—one million Martians simply watched. If God exists, I think the impact was His last horseman, and He resents every one of us for dodging it.

"Landing sequence is go," John said. "Touching down!"

I inhaled sharply. Inside my pod, I could just make out the treetops at the edge of the landing pad, obscured by smoke. The first landing strut connected with a rough jolt, but the second hardly tapped my tailbone. The roar of the engines dropped sharply, then faded.

Erikson gave the order. "Commence walkout," she said.

In response, the buckles holding me in place loosened. "Rosalind Lee, walking out," I said, and the pod door opened.

The strange thing about historic moments is how quickly they pass you, but their deep wake lingers long in the water. By now, I hardly feel any ownership over those words I spoke, so ingrained have they become in the common conscious. Did I mean to shape a generation, as Armstrong and Stevens did before me? Not at all. I only meant to mark the moment. It was expected of me.

So, saying nothing, I lowered myself onto the Earth. I took no step. I stood stock still. And, although it went against every instinct in my Martian bones, I removed my helmet. I inhaled deeply, in open atmo. Under blue sky.

I said, "This distant breath, we breathe together," words which have haunted me to this day. In some ways, this account exists to counterbalance that moment, to let you know, dear reader, that I harbor no illusions about my place on this planet. Let the harsh eye of history judge all my footsteps, instead of just the one.

I avoided looking at the camera, held aloft by an ELV's arm. The wheeled robot made no noise as it documented every moment in seamless 360 video. Mildly, I wondered if the zit just behind my hairline was visible.

"Kepler Erikson, walking out," the commander said.

Another ELV emerged from the bunker just outside the landing zone. Tracking the commander's every movement, it seemed disappointed when she removed her helmet, took a breath, and said nothing.

I nodded to her.

The mission's climatologist was next. "Belle Mason, walking out," she said, and joined us on the ground. Removing her helmet, she added, "Still breathing."

"Jared Wu, walking out." The biologist almost stumbled out of his pod, and I grinned at him. With a wink, he set his helmet on the concrete, and said, "Where's the homedome?"

Finally, it was the flight specialist's turn. "John Kumar, walking out," he said, and joined us on the ground. "The surface is firm and unforgiving."

I laughed, but no one else got the joke. Neil Armstrong's second sentence on the moon wasn't as well-remembered as his first: "The surface is fine and powdery." It was a stark reminder that the two moments, however much we might compare them, actually had so little in common. Armstrong set foot on an untouched world. We but returned, like accessories after the fact, to the scene of a crime.

Maybe God doesn't hate us. Maybe He exhausted his wrath on that Monday afternoon, and our continued existence bothers him not at all. Yet this indifference terrifies me more than His wrath. It leaves me with no one to blame but myself.

Chapter 2

The Whale in Times Square

Without autonomous labor, Martians wouldn't have enough energy at our disposal to build a civilization. If domesticated animals fueled the growth of Eurasian civilization, then robots fueled the extraterrestrial. Robots built the first homedomes on the icy sands of Hellas Planitia, and they dug the first tunnels of New Plymouth's pod system. They harvest our food, maintain life support systems, manufacture everything from toothbrushes to terraformation balloons. And they do so 24.6 hours a day without wasting a breath, that universal currency.

Naturally, Olympus Base was also built by robots. The first Essential Labor Vehicles arrived before I even completed my Ph.D., to construct living quarters, plant crops, and recycle humankind's detritus for raw materials. They grew graphene metamaterials and assembled a power bank with enough energy to flatten a football stadium. By the time we arrived, the only job left was to perform visual checks for the sake of redundancy.

That duty fell primarily to John Kumar. On the day we arrived, he checked the solar farms, the power bank, the hydroponics, and the ELV silo. He looked inside the fuel tanks on the Samson, the ascent vehicle that would take us back into orbit. And although he didn't mention it, I knew he ran diagnostics on the defense systems.

In the evening, he summarized his findings. "Life support is nominal," he said. "Visual check aligns with diagnostics, and the power bank is functioning normally."

We were gathered in the compound's main room, a circular space with softly textured walls and minimalist furniture. The psychologists optimized it for community and wellbeing, in their simulations. We would be spending a lot of time here.

Erikson stood in the back of the room. "Good. Thank you."

Belle Mason leaned against the dinner table, wearing a thin layer of Earth soil and an expression that could have withered stone. "So what's the announcement?"

The commander had called us for a briefing, only two hours after we landed. I hadn't even begun my official duties, as the system monitoring my vitals insisted on a half-hour's rest. The stress of reentry, I was told. On top of that, I kept tripping over my own feet. Despite forty hours in the spinner, I still wasn't used to Earth-grav.

Erikson cleared her throat. "The Pegasus picked up something unusual, closer to the city. MASA wants me to check it out."

Kumar folded his arms. "What kind of unusual?"

"They aren't sure."

That sounded like bullshit. The Pegasus could count minnows in a creek from geostationary orbit, and MASA's server farm can process a petabyte of image data every second. Either they didn't know where to look, or Erikson didn't have permission to tell us.

"Will this affect operations?" Dr. Mason asked.

"Things may get shifted around today and tomorrow, to make up for the time, but nothing major. If that changes, I'll let you know."

Kumar nodded at this, with typical engineer-type curtness. Belle Mason stared at the ceiling, mentally adjusting her schedule.

Jared cleared his throat. "We were supposed to eat together at seven."

I held back a laugh. The psychologists thought we should eat meals together as much as possible, to promote group bonding. It was a silly ritual, but I liked it.

"This shouldn't take more than an hour. John, you're with Rosalind."

Kumar looked up from reviewing equipment reports on his pad. "Sure thing."

I raised an eyebrow. "He's going to help me catalogue artifacts?"

Erikson shook her head. "The situation has changed," she said. "I want you to brief him on Times Square."

"Is he authorized for that?"

"MASA cleared him just now, at my request."

Jared raised a hand. "I'm sorry, brief John on Times Square? What are you talking about?"

Erikson sighed. "Obviously, if John hasn't been briefed, then you haven't either."

"So why has Rosalind?"

The question hung in the atmo awkwardly. My spot on the mission had always been the source of some discomfort, especially given the nature of anthropology. Why did I have to be physically present when most of my official duties were typing up reports and taking photographs.

Jared folded his arms, waiting for an answer.

Erikson ignored him. "I'll be back in an hour. Everyone, as you were."

Even after she had gone, nobody relaxed. The others stared at me pointedly, but I stayed silent. MASA might object to my physical examinations, but it was not for nothing I had the highest security clearance the New Plymouth Administration offered.

Finally, Kumar broke the silence. "What do I owe you, Belle?"

"Twenty," said the climatologist.

"Yeah, yeah." Getting up, he thumbed his phone to transfer the money.

"Did you just lose a bet?" I said. "About state secrets?"

"I lost a bet," John said, "that you know more than you let on. Now, where do you want to do this?"

I rolled my eyes. "Follow me."

My dad never approved of anthropology. When I was an undergrad, he decried my career prospects, citing the (admittedly small) number of anthropologists at UNP. When I earned tenure despite these challenges, he assailed the subject matter. Who gave two fucks abotu *ante impulsum* cults? I should have studied engineering so that I could get a job for the terraformation project. So when MASA told me I was being considered for Odysseus, I didn't tell him. And when they announced my spot on the mission, it was Mom who congratulated me.

I wish he were still alive to read this. Maybe if he knew the reason MASA sent *me*, it would change his opinion.

"Where are we going?"

I palmed open the door to my workstation and gestured for John to go ahead of me. "The archive."

"This module wasn't in the mockup," he said, stepping past me.

After MASA decided on crew members, we spent two months living in a duplicate of the compound. They wanted to observe how we interacted in a confined space, and the psychologists said it was good to establish a routine in a familiar environment.

"Neither was the weapons locker," I pointed out. "The mockup was open to the press."

"Oh, do you have a berserker in your office?"

"Mh hm, right next to the hyroglyphs and smart phones."

Chuckling, John shut the door behind us.

Inside, my workspace was crisply laid out, with a standard lab bench and several rows of compact storage. The air was dehumidified, to preserve the artifacts, and the lights were a comfortable sepia tone.

"Welcome, Dr. Lee," the computer greeted me.

"Driver, confirm John's authorization for the Aragorn artifacts."

"Lieutenant John Kumar is authorized for Aragorn IV artifact information."

John gave me a puzzled look. "Aragorn IV had a battery failure."

"And now, you're one of about fifty people who know that it didn't. Driver, pull up the briefing on Time Square."

"Confirmed. Please verify your identity on the panel."

John pressed his palm on a scanner by the computer. "Who are the other fifty?"

"MASA higher-ups," I said, enumerating the list with my fingers. "A handful of faculty at UNP, the Senate Exploration Committee, Mayor Daniels' wife, who found out about it by accident."

"Hold on." John raised his hands. "Why do you know about it? You're an anthropologist, not an engineer."

I took a seat at the lab bench. Shrugging, I pointed behind him, where the computer had pulled up a series of photos. "Because of that, mainly."

John turned to look at the image, and at first he didn't understand what he was looking at. He didn't say anything. As the image sunk in, he lowered himself into the stool.

"Where were these taken?"

"Times Square," I said. "It was a famous intersection, before the impact."

"Right." The normally stolid man wore a shocked expression.

Once the world's busiest intersection, Times Square had become the final resting place for a massive sperm whale. The beast's skeleton cast ribbon-like shadows on the patches of bamboo which broke through the pavement. Its open jaws gleamed menacingly at a rusty carousel inside one of the buildings. The ribs splayed outward, overlapping warped knuckle bones which formed the front fines, leading to a long trail of vertebrae which would have controlled a Herculean tail. It was a distinctly Biblical monster.

Except, as the close-up images showed, the bones were not as God made them. Intricate carvings covered every centimeter of the ivory, depicting thousands of tiny scenes in a dense, interwoven narrative. The ribs showed hunting parties and hand stencils, not unlike the earliest cave paintings—except for the skyscrapers. Along the topmost vertebrae, those same skyscrapers burned like trees in a forest, filled with dark figures in torment.

"What exactly am I looking at?"

"An adult sperm whale, approximately eighteen meters long. It's a kind of aquatic mammal, one of the deepest ocean dwellers."

"A whale. Right." He paused. "How did it get there?"

"It swam in. The city flooded after the impact, before the sea level dropped. So it's at least three centuries old. It probably got lost in the buildings after a storm, trapped by the tide."

"So the pictures—"

"We think the carvings were made in the mid twenty-sixth century. About two hundred years after the impact."

"After the impact? You're saying someone carved this *after* . . . "

I nodded. "A group of survivors, after the impact."

I could remember how I reacted, when MASA showed me these same images. At the time, I was midway through my Ph.D., which actually did focus on ante impulsum cult movements, and feeling comfortably ignored in a subfield of one. Less than an hour later, I was the primary researcher on the *post impulsum* "Jonah Group," looking to hire twenty potential students of my own. Within a year, I gave regular briefings to the Exploration Committee in the same dimly lit chambers that the Intelligence Committee used for military reports on Xin Beijing. I headed up the most intensely scrutinized anthropological research in centuries, all because I wanted to spite my engineer father.

"How?" His voice cracked, slightly.

"There are quite a few theories, actually. That's one question we're hoping we can answer, on this mission. There are more than a dozen bunkers in the New York area alone, which could have survived the initial impact."

Leading up to the impact, numerous cult-like movements formed with the promise that they could guarantee salvation for their members—even as a meteorite bore down on the planet. There were two types of cults. The first promised salvation in the afterlife, either

through a suicide pact or ritual combat or, in one bizarre instance, setting oneself on fire and jumping into the Grand Canyon to symbolize the inbound apocalypse. The second type had a more grounded theology. It consisted of survivalist cults with sprawling, underground compounds in New Zealand or Antarctica, whose leaders had, like Noah before them, received word from God about this impending doom. Some of them were bullshit. Others were well-funded operations organized by charismatic trillionaires who wanted to restart civilization on their own terms, instead of God's.

"I thought none of them made it. I thought—"

"We thought so, too."

He was experiencing survivor's guilt amplified by an internal paradigm shift. For most of our history, Martians have imagined ourselves as protagonists of our own story, carrying the mantle of civilization after no one else could. The whale in Times Square changed all that. It pulled back the curtain on a much less flattering portrait, akin to that negligent emperor Nero, who fiddled while Rome burned.

Staring at the screen, John rubbed his jaw absently. "Why are they called the 'Jonah' group?" he said finally.

"From the tale of Jonah, in the Bible."

"Like in Sunday school??"

I nodded. "Sunday school" was how Dad referred to my department at UNP.

John rubbed his temples. "Remind me what happened to Jonah?"

"He survived three days in the belly of a whale, after being lost at sea. He was supposed to preach in the city of Nineveh, but he tried to sail in the other direction. The fish was sent from God to save him."

"Right, that always confused me. Why not just go to Nineveh?"

I shrugged. "You wouldn't go to Xin Beijing if God told you."

John laughed mirthlessly. "Fair."

"Yeah, well, we think the Jonah group borrows heavily from Judeo-Christian themes,"

I explained. As it happened, one of the more detailed carvings depicted several figures, huddled in a miniature whale's belly, underneath the burning skyscrapers. "If they have any cultural memory of the impact, it would likely represent a major event in their theological narrative. The beginning of the world, a rebirth, a great flood—so to speak."

"Why would they make something up? You said they survived in a bunker."

"That's just one theory," I said. "One with a lot of holes. But even if it's true, think about the image it creates. Hiding underground in a dirty cave is no way to found a society. Surviving inside a whale, on the other hand, implies divine favoritism. And that is a *crucial* distinction. Creation myths shape how a culture thinks about itself—the very foundation of the society. Think about what you learned in grade school: Tia Stevens, Curiosity Cortez. Their story makes New Plymouth a people instead of just tunnels and domes."

"We learned about George Washington too," John said. "Alexander Hamilton."

"Because our political creation myth isn't as clear-cut. Democratic technocracy has its roots in Ancient Athens, the Magna Carta, the United States. We can't escape the influence of Jefferson when declaring independence, or Hamilton when writing our constitution. So it's a good thing that you learn that history before you engage in a society built on top of it. But if you can separate a society's actual history from its own founding narrative, and if you can manipulate that narrative . . . "

"Then society's a blank canvas." The man nodded.

"Right, exactly."

I decided John was taking this much better than I had, when MASA gave me the same briefing. At the beginning, I couldn't tell anyone, not even my parents. My boyfriend said I was depressed for six months, until MASA brought in a psychologist they trusted for us to talk to. My now-ex-boyfriend, I should clarify. Ex-fiancé, if I'm being completely honest.

"Do you want some coffee?" I said, to fill the silence. "I think it's going to be a late night."

"Oh, coffee. That would be great, yeah."

"Hm, I told MASA to put the machine in my lab. Driver, where is the coffee machine?"

The computer chimed helpfully. "It's still in storage. Richard Samberg left a note about it."

Richard was the director of logistics for MASA. He used to take his coffee break around the same time I did. "Yeah? Go ahead and read it."

"He says, 'You would just want to set it up yourself, anyway.'"

I rolled my eyes. "Well, he's right about that. I'll go get some from the kitchen. Be right back."

"Yeah." John's gaze was far away.

I left him alone with his thoughts. With any luck, the man's regular duties would keep him distracted long enough to let him forget about this. It wasn't the sort of information you wanted to dwell on.

After the impact, everyone wanted to know if there were survivors. Many Martians—New Plymouthers and Xin Beijinger alike—had family members who didn't get visas. Leading up to the impact, New Plymouth still had strict education requirements, and even if you passed those, there were only so many star-cruisers. Unfortunately, it was impossible to know if anyone survived. The impactor and its resulting ejecta triggered an ablation cascade of manmade satellites. One satellite shatters into ten thousand nuts and bolts, each of which smashes into other satellites like a planet-wide fission reaction. The result was a field of space debris so dense and chaotic that none of our landers could reach the surface. In one attempt, two New Plymouthers died.

According to some estimates, millions of Earthers could have survived the initial impact, especially in the Eastern hemisphere, but their odds seemed increasingly grim with every passing year. Freak storms flattened the terrain in some areas, and withering droughts wiped out any chance of agriculture in others. Finally, a brief but devastating ice age made it all but certain that Mars was the only planet capable of supporting human life.

By about fifty years ago, much of the debris had decayed into lower orbits and burned

up in atmo, so MASA risked sending a probe. Lightweight and solar-powered, Prodigal I coasted into the upper atmosphere over former Los Angeles in November, 2633, beaming pristine photographs of a ghost town back to Mars. Over several decades, eleven more Prodigal missions and mapped out every major population center on the seven continents, alongside Xin Beijing's six Confucius missions. But if anyone looked up from in between the trees, our mechanical eyes never saw them.

In the kitchen, Jared and Dr. Mason were conversing intently, each holding a MASA-branded personal thermos. They looked up when they saw me.

"Hey," said Jared. "There's a pot of brew with your name on it."

"Oh, thank god." Actually, I've decided that God does exist, and His name is Jared Wu.

"Yeah, no problem."

I slipped in between them. Jared moved aside, but Dr. Mason folded her arms.

"How's it going in there? You two have been talking a while."

"It's good." I stepped around her.

"You know, maybe you could have a word with MASA? Whatever you're briefing Kumar on, I think we have a right to know."

"Yeah, I tend to agree with you." I fished around the cupboard for a tumbler and filled it from the pot. "That's why Erikson told me to brief John. If the situation changes, she'll probably have me do the same for you two."

"Since when does an anthropologist give top secret briefings?"

"I've been asking myself that for years." I got down a second mug for John. "Thank you for coffee."

"Sure thing," said Jared.

I stepped awkwardly around Dr. Mason again, headed back to my lab.

Xin Beijing's sixth Confucius probe marked the end of a short-lived collaboration between the two settlements, and MASA shifted its focus to land-based missions, each deploying more than a dozen rovers to map out the terrain. The first Aragorn mission landed in Los Angeles,

the second in Beijing. Aragorn III roamed the streets of D.C., and we found how President Wallace died in his bunker, apparently the victim of a military coup. He spent the months leading up to June 7 insisting the asteroid would miss the Earth, with no evidence.

Aragorn IV was the first amphibious rover, capable of navigating New York's semi-flooded tunnel system. After discovering the whale in Times Square, MASA redirected every nearby Prodigal drone to survey the area. For the past forty years, they've circled overhead, but they haven't seen anything.

In one of my early Senate briefings, I explained why that might be. Earth was an exceptionally harsh environment following the impact, yet the Jonah group survived long enough to develop a religious narrative. We didn't see any evidence of agriculture, but they could easily survive as hunter gatherers with so little competition. A secretive society, possibly nocturnal, could avoid detection indefinitely unless we made a concerted effort to contact them.

The computer chimed as I entered, signaling a new message. John perched on a stool with one knee against his chest. His shoulders hunched. He splayed his fingers.

"Got you a cup," I said.

He lifted his head. "Right, yeah. Thanks."

"You all right?"

"Yeah."

I handed it to him.

Kumar wasn't the first person I'd briefed, so I had some idea how he would react. Some people took it in stride, and others needed time. One senator burst into tears, muttering "We're not alone," over and over again. A grad student of mine, without missing a beat, suggested that the Jonah group might have incorporated falling space debris into their religion. She based her entire thesis around the idea.

John Kumar seemed to be somewhere in the middle. He was obviously affected, but I sensed him reevaluating the mission with a navy man's mindset.

"I have some questions," he said.

"Let me check this, first."

"Before that. Really quick, I promise."

I hesitated. "Shoot."

The man swallowed, obviously uncomfortable with the question he wanted to ask. "Why keep all this secret?" he said.

"Do you want the official answer or the honest one?"

"Both, I guess."

I sighed. "Officially, it's because MASA wants to establish a permanent settlement here without Xin Beijing interfering. They didn't want this to become another flash point."

"And the real reason?"

"To be totally honest, they don't think the public can handle it. At this point, there's too much uncertainty about who these people were, whether they're still out there, and what needs to happen. I'm not saying that's the right decision, necessarily, but it's not the wrong one either. As annoying as it is to get a security clearance for every grad student who wants to work with me, it's a lot easier than dealing with the press."

"So it makes your work easier."

I laughed. "Yes, it does. But the public will find out eventually. We need a complete picture before we go public."

"Right. I guess that makes sense."

The computer chimed again, reminding both of us.

"Oh, right," said Kumar. "Kepler she said to give her a call. She asked for you."

"Did she?" I said. "Driver, call Commander Erikson."

The computer beeped an acknowledgment. As if in response, Kumar stood up and started pacing. I noticed his right hand hovered over his hip, twitching. It was the kind of motion cowboys made in old western movies, ready to draw.

"Dr. Lee, are you there?"

"I'm here, Commander," I said.

Erikson's face appeared on the panel, filmed from one of the ELVs. The robots were gangly and spider-like, possessing no familiar anatomy and seemingly endless configurations for locomotion and manipulation. They glided cat-like along the broken pavement, illuminating burnt out vehicles shoved up against the sound barrier.

"Where are you?" I said.

"Some tunnel entrance, near Manhattan. Hey, is John with you?"

"I'm here commander."

"Good. Listen, there's an interesting artifact here. Definitely post impulsum, possibly recent."

I felt my heart race, anticipation mixing with caffeine. "What did you find?"

Erikson pointed, and the camera followed smoothly.

In the middle of Lincoln tunnel's gaping darkness, a crisp American flag stuck out of the concrete. The stripes were jagged, and much of the color had bled out from sunlight, but aside from these minor deficiencies the flag was in remarkably good condition. Either it had been preserved for centuries or it was less than twenty years old.

"Christ," I said. "I'm coming out there, right now. Can you stay on the line? You haven't moved anything, have you?"

"No, I haven't touched it. But I need to report back to MASA, Dr. Lee."

"Right." I drained my coffee in three gulps. "John can fly me out there, right? We need to photograph and catalog—"

"Fine, that's fine. Take the hellhornet."

"See you in twenty." I hung up.

Kumar was still pacing, and he wore a strange expression on his face. I couldn't tell whether he was confused or excited. He looked up when I stepped in front of him.

"How soon can we take off?" I said.

"In a minute, Rosalind. Do you think this Jonah group is still out there, right now?"

"Someone made that flag," I told him. "If it's not the same group as Times Square, then that's even more interesting. But I would bet money ... and anyway, MASA planned for something like this. They probably already have my post-docs sorting through Erikson's video."

Kumar considered that. Seeming to make up his mind, he stood up and said, "All right. We're losing daylight sitting here. Let's fly."

"Lead the way."

Chapter 3

The Flag at Lincoln Tunnel

The hellhornet split atmo with insect-thin wings, which folded over one another like Origami at high speeds. Inside the crew module, I was mesmerized. The floor was made of toughened glass, which offered a view of the landscape below. Pine trees rushed past, broken up by burned out buildings and broken roads, like the bones of some great beast whose grave we disturbed. I spotted overgrown mounds which were once cars.

The vehicle embodied good Martian design: hybridized, modular, and battery-powered. Embedded rotors in the nose and tail enabled vertical takeoff and landing. The ultra-thin airframe split apart around the cockpit, which could be replaced with a cargo module for autonomous flight. On Mars, even lighter versions of the hellhornet ferried essential goods to New Plymouth outposts, with removable battery packs for shorter trips. Our hellhornet, on the other hand, enjoyed the dense, buoyant atmo of Earth. It carried an energy storage system that could light up an entire homedome for a decade—or incinerate it in half a second.

"On approach," Kumar said.

"Hm." I stared absently at the ceiling.

If the Jonah group had survived, what would they think of the hellhornet, this black chariot of Apollo? We were breaking that prime directive formulated by Roddenberry: it is incumbent on the explorer to observe and not to interfere. Then again, Roddenberry's own

characters ignored the directive at almost every opportunity, so at least we were in good company.

"Do you want to carry a piece?" Kumar asked. "You're certified with a sidearm, if I remember."

"Yeah, cause of Ruben." Kumar knew my ex-fiancé from training back on Mars. They served together on Deimos Station during the war.

"Right. Um, well, there's a locker there. See what suits you."

Idly, I opened the locker to find a small armament: six pistols and two rail rifles. The rail rifles fired with electromagnetic fields rather than explosives, and they could correct a bad shot by up to two degrees just by manipulating current at the tip of the barrel. That may seem small to someone who has never fired a gun. In reality, the difference between a headshot and off-target can be less than a tenth. There's no spray 'n pray, with a rail rifle: if you're anywhere close, you can't miss.

The rifles were standard issue, for New Plymouth navy. "How about one of these?" I said jokingly. I toyed with the security clasp, only to find it retract at my touch.

Kumar glanced back at the sound. "Huh. Are you certified for a rifle, too? I didn't know civilians could—"

"I'm not," I said quickly, and I withdrew from the weapon. "Maybe they unlocked all the weapons for us, just in case."

"I guess that makes sense."

"Hm." I eyed the rail rifles suspiciously. "I think I'm good, John."

"Suit yourself."

I shut the locker and joined him up at the front of the cockpit. We were decelerating rapidly, causing the trees below to swerve wildly. The grasses in the clearing danced like a full head of hear, under a hair dryer. I spotted Commander Erikson at the edge of the woods, her arms folded. The motor-bike she had taken to get out here was parked next to her. One of the ELVs tracked us with a camera on its forelimb.

We touched down with an unexpected jolt, and the back side of the compartment folded away. "Clean as a whistle," said Kumar.

I stepped out of the cabin and shook the commander's hand. "Is the scene still undisturbed?"

"As much as possible. The ELVs are programmed not to go near it."

"Good, that's good," I said.

"You briefed the lieutenant. How did he take it?"

Kumar was equipping himself from the locker. Like Erikson, he carried a rail rifle at all times outside Olympus. Standard operating procedure.

"He's anxious to know the Jonah group's current status."

"Hm, so's MASA. How long will you need with the artifact?"

The question caught me off guard. "Ideally, we should set up a tent, just like we planned for Times Square. I need a couple hours to document the artifact, and then we have to decide how much value there is in preserving the site. Ideally, we'd keep everything the way we found it."

"That might be possible, but MASA will have to sign off."

"What time is sunset?"

"Not for a couple hours. We can get some stage lights and hook them up to the hellhornet. No problem."

"Right."

Behind me, Kumar emerged from the cockpit. "Commander," he said.

"How you doing, John?"

"Fine. Did we establish a perimeter?"

I stepped out of the conversation, eager to get started. We had landed in the clearing that used to be highway, now covered in tall grasses. Here and there, roughly car-sized hillocks rose up: sacred burial mounds we dared not tread on. Even on the day of the impact, these individuals must have been heading in to work: emergency responders, perhaps, or bankers

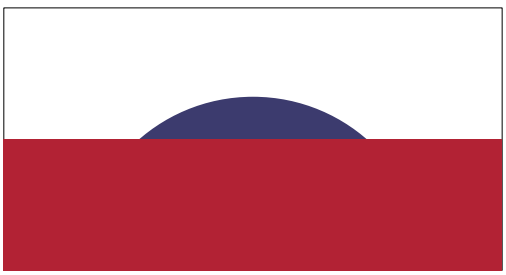
who couldn't get the day off.

Approaching the flag, I noted with surprise that its base consisted of a heavy-duty flange bolted into the concrete. It fluttered half-heartedly in the tunnel's breath, rooted at the edge of the overhang's shadow. The grass and sunlight ended just there, as if the flag marked the borders of darkness.

I reached for my camera. The flag itself had been sewn by hand from multiple layers of bed sheet. The fifty-three stars were cut and sewn out of a blue pillow case in the upper left. I counted the right number, although their arrangement was more scattered than the official standard. Thirteen red stripes represented America's founding colonies, the original "states" which made up "the thirteen united States of America" in Jefferson's declaration.[1] The flag certainly showed signs of wear. It frayed around the edges, and despite being in the shadow of the tunnel, much of the color had bled out from sunlight. Still, the artifact couldn't be more than twenty years old, and it had been mended. The string that attached it to the pole looked new.

I glanced into the tunnel, thinking. It was a testament to twenty-fifth century engineering that the structure hadn't collapsed in all this time. Whenever city planners renovated the original tunnel—a frequent exercise due to the city's endless traffic problems—workers used self-healing concrete to reinforce the sides. The New Jersey entrance, though overgrown with moss and ivy, looked ready to weather another millennium of disuse. Its massive corridor facilitated ten lanes of traffic, branching into multiple single-lane tunnels as it approached

[1]Not many New Plymouthers know that our own flag actually echoes this design, with a single red stripe to signify one settlement, as well as the Martian soil. With the blue semicircle signifying an artificial dome, our flag consists of the same red, white, and blue as America's.



the Manhattan side. These merged seamlessly into the city's underground road network, a sprawling tunnel system accessible via subway stations and car elevators, not unlike the New Plymouth tubes.

"It's in good condition," Erikson said, coming up behind me.

"Remarkably good condition," I said. A second later, I realized she was talking about the flag. "How did you know this was here?"

"The drone spotted it this morning, as we were coming down. MASA couldn't tell what it was, but apparently they've been all worked up about it since then. They didn't want to distract us from landing."

"Makes sense. Whoever put this here was making a statement. It's just had to tell what they're trying to say."

"You think they're still around?"

I gazed down the tunnel, noticing a direct line between the rusted shells of autonomous vehicles. "If not, they used this area for a long time, up until recently."

"That confirms ongoing survival, then."

I nodded. "You can tell MASA, we have a new priority one." If we discovered evidence that the Jonah group still existed, we were to seek them out, establish diplomatic ties. We especially wanted to know about what happened directly after the impact, when a hundred years of violent storms and merciless winters engulfed the planet.

"You think they use this tunnel to get in and out of the city?" said Kumar. He was peering down his scope, into the darkness.

"Probably," I said. "They could consider this the edge of their territory, or they might use this area as a hunting ground. We'll have to brief Jared, have him sample the local wildlife."

"MASA authorized everybody," Erikson said, "now that we have confirmation."

"Good. I'll brief him and Dr. Mason first thing tomorrow."

"I can take care of that. We should get them out here tonight."

"Oh, right." I had forgotten how much needed to be done. Maybe John could bring me another cup of coffee.

"In any case, they deserve to know. MASA was stupid not to brief everybody, so afraid of Xin Beijing caching wind of this before we had boots on the ground." She sighed. "Still, cooler heads have done worse. Lieutenant, can you stay with Dr. Lee? I'll be back in an hour."

"Sure thing."

"When you come back, be sure to bring my field kit," I said. "And a night-time setup. Can't believe I forgot it."

"I'll do that."

Nodding at both of us, the commander strode back to the hellhornet, all the while muttering a report for MASA. Before this night was over, I needed to do the same. It might be the most report of my career.

"It's sort of spooky," said Kumar, eyeing the flag flutter.

I turned back, considering. Behind us, the hellhornet's rotors spun up to a dull roar, lifting the hybrid tri-copter into the air.

With Erikson gone, I saw what Kumar meant. "Spooky," I said, "You know, it almost reminds me of the Apollo site."

"On the moon?"

"Yes." Of course, the real Apollo flags turned white and disintegrated before America even got back to the moon. They were never designed to hold up under prolonged UV radiation.

After Erikson left, I started examining the flag in earnest. I recorded audio notes, in which I speculated about the flag's origin, purpose, and age. I noted with some interest that the colors only covered one face of the flag; the backside was white sheet, with lines of thread where the sewing needle had done its work. Was it possible the flag served some religious function? Or was it rather a *memento mori*, planted here as those words might be inscribed

on the entrance of a tomb? Vaguely, I wondered whether I was over-interpreting. The flag could be just a flag, raised to honor the men and women of the country it represented. But that would contradict much of the work based on Times Square, which posited that very little cultural memory from before the impact had survived, but it was possible.[2]

While I worked, Kumar stood unnervingly still with his weapon at his side, eyes locked on the tunnel. He seemed unwilling to look at the flag for more than a few seconds, listening with rapt attention as I spouted one theory after another, each more unlikely than the last. Before MASA, the liuetenant and I had exchanged less than fifty words, in all, despite his friendship with Ruben. My ex-fiancé enjoyed the conferences and social functions at my university, but he was hesitant to share any part of his navy life with me.

I stopped recording. "John," I said. "Can I ask you something?"

"What is it?"

"Did Ruben ever talk to you about me? You know, after we ended things."

The man shuffled his feet. "He did."

"What did he say?"

"I'd rather talk about it later, you know."

If he was anything like Ruben, that meant "never." I decided to give him the benefit of the doubt. "Sometime later, then. I appreciate it."

"Was wondering when you'd ask."

"Yeah, well, I was trying to focus on work."

After about an hour, the hellhornet returned with Erikson, Jared, and Dr. Mason, who wore a strange expression more friendly than any I'd seen on her. She immediately bounded over to pepper me with questions about the flag, the whale, the Jonah group. Where did they live? What did they eat? How did they survive the winter without wood fires, which

[2]I should add that MASA never declassified these notes. Indeed, the entirety of my account from this point forward consists of New Plymouth classified material. I maintain that its publication falls under the Intersettlement Accord of 2670, which protects the disclosure of classified information when it "is pertinent to the preservation of the human race, especially if it relates to anti-terraformation, corruption, or crimes against humanity."

would be observable from the air? I responded as best I could, outlining the theories that my students and I had worked on for almost a decade. For most of her questions, the best I could do was guess. They might live in one of the buildings, if any of them were still habitable. They probably fished or hunted for food. We know that many rodents and small mammals survived the impact, and the rivers were teeming with life wherever you looked. However, her question about smoke was rather insightful.

"Actually," I explained. "I wrote a paper on that very question. Where is the smoke? Assuming the survivors still existed, there should be cook fires burning year round, at least."

"Are they be nomadic?"

I nodded. "That's one possibility."

Eventually, Dr. Mason ran out of questions for me. She contented herself with the answers I could give, still pondering the rest.

Jared, on the other hand, avoided conversation. He collected inner core samples and measured root diameters from the surrounding trees, taking careful notes and only glancing in the flag's direction when navigation demanded it. He set out small and medium cage traps, in order to gauge the local wildlife populations. Comparing those numbers with other areas might tell us where to find a group of hunter-gatherers.

I meant to talk to him, but it was easier to focus on the artifact.

"John," I said,

The lieutenant looked up from what he was doing, setting up another floodlight. "Yes? What is it?"

I realized that the sun had set without my noticing, leaving unfamiliar shadows to dance in the forest. In New Plymouth, the public spaces alternated through a bright-dim cycle every twenty-four hours and forty minutes, but it was never truly dark. Not in the cold, predatory way that drove our ancestors to discover fire and electricity. Not dark like this, with a looming presence that lit up my primitive ape-brain like a Christmas tree of fear.

It made me laugh.

Kumar looked up. “What’s so funny?”

“Oh, nothing,” I said. “Was there anything interesting in the tunnel? Erikson had the ELVs clear it, I think.”

He nodded. “First thing she did, when she got here. What are you looking for?”

“I don’t know. It’s just a little strange, how the flag is the only artifact here. If this is the Jonah group, I would expect there to be more artwork, like in Times Square.”

“Maybe this isn’t a religious artifact.”

“Maybe,” I said. “But in any case, I want to check out the tunnel myself. Did the ELVs find anything?”

“They won’t look for something unless they’re programmed to, and they have to know what it looks like beforehand. So, no, not really. You want me to come with you?”

“Is that necessary? where’s Erikson?” The hellhornet was gone.

“Back at Olympus. She’s getting one of the field batteries out here, and a solar array to recharge the ELVs. After that, we should be good to go back, get some sleep.”

“That’s good,” I said. Despite the coffee, I was starting to develop a headache. I needed to drink some water.

“I’ll come with you,” Kumar said, which seemed to end any debate about the subject.

After checking in with Dr. Mason, I grabbed a handheld spotlight from the tool bench, which Erikson had delivered on her last trip, while Kumar told two ELVs to follow us. The robots were required by MASA at all times outside Olympus, at least one per crew member, but I was glad they were there. Embarrassing as it is, I felt less afraid of the dark when flanked by two cold-rolled Hulks with enough combined strength to lift a garbage truck.

Twenty meters into the tunnel, I realized my headache had gone away. This puzzled me at the time, but in retrospect, I realize that being in open atmo for so long had been giving me anxiety, building into a mild migraine. Most Martians would prefer an enclosed space to that endless sky, and the tunnel itself was particularly comforting. The first settlers on Mars set up their habitats inside naturally forming lava tubes, both at Hellas Planitia and, when

the Chinese arrived six months later, Olympus Mons. The formations protected them from radiation and micrometeorites while domes were under construction, and they continue to house the majority of New Plymouth's infrastructure.

The ELVs rolled ahead of us, pausing periodically to sweep a spotlight over the ceiling. Here and there, bright graffiti proclaimed dark messages, emblazoned onto the walls where every commuter would read it. "The end is nigh," one read. "Make peace with God." Another mural depicted the Earth shattering on the pavement, frozen in a moment with magma spewing through the cracks. The artist had signed their name, alongside a caption: "Wallace dropped the ball." If I still studied ante impulsum movements, these would spark months of careful research on the subculture of graffiti artists and their engagement with political protest.

"That's morbid," said Kumar. He nodded at a skeleton dancing in a bonfire.

"It's a celebration of the macabre."

"Exactly. Fucking creepy, painting that when the world's about to end."

"I don't know," I said. "It strikes me as defiantly optimistic. The artist used high-quality paint, so that their work would still be here after the impact. Maybe they knew someone would see it, eventually."

"Hm." Kumar grunted. "It's definitely pre-imact, though? None of this looks like our guys."

"No, you're right. If the Jonah group painted any of these, they imitated what was already here."

We reached a fork in the tunnel, about a quarter of the way through. A plastic crash cushion protruded out from the concrete, meant to slow the impact of an oncoming vehicle, out of control. The object harkened back to an era of human-operated vehicles, rendered unnecessary even when this roadway still functioned, but legacy traffic laws required it. This vestigial organ from the early modern era.

"Which way?" Kumar asked.

I wasn't sure what I was looking for. "There," I said, picking the right hand tube at random. We continued on.

After a few minutes, he spoke again. "Do you think the flag was a message?"

"All flags are a message, John."

"I mean, do you think it was meant for us? It could be like an olive branch, declaring allegiance."

"If that were the case, wouldn't they use the New Plymouth flag?"

"New Plymouth was an American settlement, originally."

I shook my head. "That's an indirect connection, at best. New Plymouth seceded from the United States four centuries before the impact. You wouldn't use the stars and stripes to welcome Martians, just like you wouldn't use the union jack to welcome Americans."

"What's the union jack?"

"Oh, it's the British flag."

"Right," Kumar said. "It could still be directed toward us, right? What if they saw our probes, and they put up the flag as a way of saying 'Keep out.'"

"'Trespassers will be shot,'" I joked.

Kumar didn't laugh. I figured he didn't get the reference, which was admittedly obscure if you grew up in a city full of apartments and condominiums.

"I mean, you might be right," I said quickly. "But it's more likely there's another explanation, one that doesn't fit a self-serving bias."

The lieutenant still didn't respond. I turned around. He was holding up a hand, listening intently. "Did you hear that?" he whispered.

"What?"

"Shush."

I listened. Night noises from outside echoed down the concrete walls: rustling wind, horny cicadas emerging from the Earth. The sounds of nature unsettled me, compared to the hum of machinery you would hear in a Martian tunnel, but that didn't make it a cause

for concern.

"What is it?"

"Shut up. I don't think we're alone." He hoisted the rail rifle. Both of the ELVs whirred into a defensive posture, set on alert by the lieutenant's behavior.

Judging by the incline, we were a little past the halfway point. With my spotlight, I could see about fifty meters in each direction, and I knew the ELVs' infrared cameras penetrated much further. They would have warned us if they detected anyone. And it was quiet.

Except for the distinct click of a bolt action rifle, being loaded. Very faint. Distant noise, amplified by the tunnel.

"Down!" Kumar shouted, and he dropped flat.

I reacted without thinking. The bullet whistled over my head as I hit the rego. The crack of the gunshot echoed after. My anthropologist brain registered the noise as an interesting data point. The natives had traditional weapons, with chemical propellant. Did that mean they scavenged for ammunition?

Kumar rolled to the left side of the tunnel, behind a rusted out minivan. Another shot cracked, grazing the metal next to him.

"Back, back," he said.

I didn't know where to go. The ELVs had prioritized my safety, shielding my front with their bodies. The agile robots weren't designed to act as barricades, but by bringing in their arms and crouching, they created a near-solid barrier.

"Where?"

"Get to the right. Behind that car." He checked his weapon.

"Don't shoot to kill!" The rail rifles had a non-lethal mode, which targeted the arms and legs. Ruben used to joke about it, like "set phasers to stun."

"Fuck that," Kumar said. "Rosalind, can you cover me?"

"What?"

He unstrapped his sidearm, checked the safety, and tossed it to me. It landed on the asphalt, just outside of reach.

"Pick that up, and force them under cover."

I knew what he meant, but I couldn't believe this was happening. I snatched the pistol.

"You know where the safety—"

"I know where the fucking safety is, John."

"Then fucking use it."

This was so fucking stupid. With no better plan, I fired a few shots at the ceiling. I definitely wasn't going to aim at them, didn't even know where they were shooting from.

John used my momentary distraction to pop out of cover, brace himself, and fire. Even with a kinetic discharge system, the rail rifle delivered a kick that could knock you flat if you didn't expect it. In atmo, the weapons sounded like a whip: a whisper of acceleration followed by a harsh crack as the projectile hit Mach one. John loosed two shots and ducked back behind the van.

I heard two bodies drop, one after the other.

"Don't shoot to kill!" I repeated dumbly.

"I'm more worried about them killing us." He punched his comm. "Commander, we're pinned down. The tunnel was an ambush."

The reply took several seconds. "Repeat that, lieutenant."

John started to speak, but a round of automatic weapon fire interrupted him. "Catch that?" he said.

"Where are you?"

"Tunnel. About—"

"Halfway through," I said, loud enough for Erikson to hear.

"Is that Rosalind?"

"Yes, sir."

There was a pause. "Damn it. Get her to a secure point, lieutenant. Hellhornet is fifteen minutes out."

"Yes, sir. Over and out."

I chanced to look around the ELVs. The natives crouched behind a row of defunct vehicles, about a hundred meters ahead. They peered over the car windows, wide-eyed and clean-shaven, with long hair tied in a bun. With surprise, I observed they were women, at least the ones I could see.

"Rosalind, get back," John hissed.

I obliged, but no shot followed. Even though I was sure they spotted me looking out.

"What do we do?" I said.

"We make a run for it. Back to the flag. Here, take the rail rifle."

"What?" I wasn't authorized for that weapon.

"You're going to give it to the ELV, so it can cover us while we run. I'm going to slide it across. But you have to move fast. As soon as they see what we're doing, they'll move forward."

"How do I give it—"

"Here." He set the rifle down and kicked it over to me. The natives opened fire, just like he said, but I was able to retrieve the weapon. I felt ridiculous holding it, like some space marine on her first day clearing out smugglers.

"Driver," John said. "We need to make a tactical retreat. Cover us with Dr. Lee's weapon."

"Affirmative," the ELVs responded. One of them detached a mechanical arm from its central hub, reached around to take the rifle from me. Gripping it by the scope, the manipulator inserted the weapon into a purpose-built slot. A mechanical release enabled the weapon to fire automatically, without pulling the trigger.

"Okay, are you ready, Rosalind?"

"I think so."

"We're going to run and not stop until you see the flag. That's about a five minute sprint, flat out for the first minute. Can you handle that?"

"Yes." MASA training

"Good. Driver, cover us."

"Roger." The ELV opened fire, and I heard at least one more body drop before the natives ducked out of sight. The robot braced itself and increased power to the rail-rifle, charging supercapacitors to their limit.

John looked at me. "Go!" he shouted.

I darted forward, away from the natives and back toward the light. My sweaty palm still gripped John's nine millimeter. I didn't stop.

Behind us, the rail rifle fired again, this time with the gut-wrenching roar of a hypersonic missile. Spreading out its weight, the ELV could withstand a much higher kick than any human, allowing it to raise the muzzle velocity by increasing current through the electromagnetic rails. A split second after the shot, I heard the unmistakable *ca-chunk* of a bullet entering one side of a vehicle and exiting the other, shedding barely any speed as it ripped through a body crouched against the frame, then buried itself in the pavement.

"Keep going!" John said. He checked over his shoulder for pursuers.

Violence affects your memory in peculiar ways. I remember the whisper-crack of the rail rifle, punctuated by automatic weapons returning fire. How long could the ELVs hold them off? I remember John's voice, urging me forward whenever I stumbled. He was in spectacular shape. The man could sprint flat out for a full kilometer and still have the energy to brace a rail rifle. Yet that stretch of tunnel blurs together in my mind. I couldn't think about anything except the natives, still behind us, with their wide eyes and pale, sinewy skin.

At the end of it, I remember a warm glow, where there should have been crisp LEDs.

"Just a little further," said John.

"Wait," I said, hesitating. The light was wrong.

"Come on."

But he slowed as we got closer, in full view of the light at the end of the tunnel. I had never seen an inferno before: a fire gone out of control. The sight was alien to the Martian mind, so accustomed to fire safety protocols and automatic sprinklers. In the middle of the tunnel entrance, the American flag burned in a pool of broken glass and alcohol, spewing smoke into atmo. My floodlights and cameras lay strewn around the flag, bulbs shattered, lenses melted, as another flaming bottle arced out of the forest. It exploded on the wet pavement, feeding the conflagration with yet more fuel.

"Back—" John said.

I remember the way his body jerked when the first shot grazed his shoulder. The second shot pierced his left lung, broke one of his ribs. Shrilly, someone screamed, "Ulk'halla," as the lieutenant slumped over. I didn't understand the word, but it seared into my memory.

"John! Get up, you have to get up."

A final bullet finished him off. I didn't hear the gunshot. Didn't hear anything, even though the shooting never stopped, and my feet splashed through dank puddles on the tunnel floor as I scrambled backward.

I froze. His eyes gazed upward, open, but not belonging to him anymore. I couldn't move.

"Fuck am I supposed to—" I reached out.

The next shot hit my arm. I didn't register the broken bone or pierced skin, only the change in momentum that twisted me around and probably saved my life. Another bullet grazed my ear, just centimeters from my skull.

Gushing blood, I scrambled backward. Heart racing. Fuck God, if this wasn't His idea of a practical joke. Already exhausted, I clutched my arm and bolted to my feet, back down the tunnel. Gunshots echoed in front of and behind me: the traditional rifle fire in hot pursuit, and the electronic whir of a rail gun up ahead.

I heard John's advice, clear as if he were standing right next to me, from our days in training. "First, close off the wound," he said. I couldn't fail my first aid test a second time.

He helped me study.

"First, close off the fucking wound," I repeated. Feet racing, I stripped the sleeve off of my wounded arm, a motion that would have been agonizing if adrenaline weren't shutting down my pain receptors. My fingers slipped on the blood, more blood than I'd ever seen before.

I tied a slapdash tourniquet and pulled it tight with my teeth. Had the gunshots ceased? I strained to listen, but the fighting had changed. Up ahead, I worried the ELV was out of commission. Any second, the natives would pour out of the darkness with knives in their teeth and baby skulls, braided into their hair—at least, according to my subconscious. The darkness fed on my imagined fears, now unabated by fire or floodlight.

When I came to the fork in the road, I turned left into northern tube. If the natives had overpowered our ELV, they would emerge from the right.

Fuck, where was I going to go? There wasn't any other way back to Olympus, unless I wanted to trek across all of Manhattan.

"Driver, lights," I wheezed, grasping at the tunnel wall, out of reach. "And call Erikson."

The computer didn't respond. I looked down at my watch: smashed. I'd dropped the camera sometime in the ambush. Couldn't remember when. Unbelievingly, I didn't have another gadget on me that could connect to Pegasus in orbit.

"All right, no driver," I said. "Fuck, I'm alone."

Chapter 4

Sub-terra

Maybe God had good intentions, when He made pain an unpleasant sensation, but nevertheless, fuck Him.

"Fuck Him in the dick 'til it bleeds," I groaned.

My arm felt like the aftermath of a train wreck, with shards of humerus and twisted arteries like cargo cars strewn along the tracks. At first, my brain shut down the signals from that region, focused on keeping me alive while I escaped a gunfight. Now, as a I wandered through the labyrinth of Manhattan's sub-terra, nothing prevented wave after wave of nausea-inducing agony from washing over me. Pure adrenaline can only carry you so far.

Some hard smacked into my knee, right on the funny bone. "Fucking shit," I swore, grabbing the object as I hobbled around it blindly. Just a concrete block, or a divider. It was hard to tell.

More than anything, I wished I still had that handheld spotlight, but I'd dropped it sometime during the fight. Instead, I had John's nine millimeter tucked into my belt. Unbelievingly, the weapon had no smart-lock or locator built in, like the rail rifles, or even a flashlight. In my current predicament, it was utterly useless.

I held onto it.

In the darkness, my hearing sharpened noticeably—even more than I would have liked. Water droplets echoed like ticking clocks, dripping out of cracks in the ceiling and draining through cracks in the floor on a seeping journey from the rain-soaked streets to the bedrock far below. The sub-terra was like an enormous sponge. Up ahead, ferocious wing-flapping signaled the presence of a flock of birds, which struck me as odd. Some sort of underground aviary, long abandoned? It would have stairs to the surface.

I quickened my pace, emerging from the narrow tube into a larger space, from the sound of it. My footsteps echoed off of the far wall, and a cacophony of nervous clicking accompanied it. Something whooshed past my ear, only centimeters away, but completely invisible.

"Bats, stupid" I muttered to myself. I must have stumbled onto Bruce Wayne's lair.[1]

The flying mammals didn't bother me, and I took the opportunity to rest. Lowering myself onto a ledge, I listened for the sound of footsteps in the direction I'd come from. I heard plenty of other noises: crickets chirping and cockroaches scuttling. But no footsteps.

I had lost count of the number of intersections I'd passed, where one underground highway merged with another, split off again, or came to a dead end at a car elevator. The ante impulsum contraptions were as innovative as they were antiquated, an engineering marvel meant to transition personal vehicles from the chaotic streets of the surface to the highly controlled sub-terra. In their heyday, each elevator delivered a continuous stream of vehicles in one direction, using a second shaft to transport empty platforms so that no one had to wait. New Yorkers hated waiting, almost as much as New Plymouthers.

I grimaced. "Need to keep moving. Ow, fuck." I moved my arm too fast. The bats' clicking intensified, curious little buggers. I leaned back. "Or not move, that's good too."

Pain is a uniquely personal experience, impossible to communicate to anyone else. Medieval artists drew bodies writhing in the agony of Hell, to discourage sinful behavior, but mere paintings can never convey the sensation itself. Only a hot poker can singe flesh. Indeed, even one's own memories are a garbled archive, which can only recall the degree of

[1]The alter ego of "Batman," a mythic hero in the American pantheon.

unpleasantness but not the sensation of pain itself. Nevertheless, there does exist a language which comes close to capturing pain, an unholy poetry shared by sports fans and sailors.

"I swear to fucking God I will shit on the Bible," I said. It helped.

The large space was probably a multi-car elevator shaft, with the platform at tunnel-level. This struck me as extremely lucky. I could have stumbled into an empty shaft which accessed even deeper tunnels, falling to my death. The thought of dying like that, in the underground darkness where no one would ever find my body, terrified me. Although, I had seen Earth's blue sky just that morning, I didn't want to die before seeing it again.

Like John, that is.

"Fuck it, John. I wouldn't be so scared if you were here. You would know how to actually deal with this arm. Probably wouldn't have forgotten the spotlight either, would you? No sir. Always prepared, fucking boy scout.[2] Fucking *marines*. Goddamn code I never could keep straight, could I? But here I am, stranded on planet Earth, while God knows what's happening back on Mars. You're probably up there saying 'I told you so,' over and over again, like you always do."

I realized I wasn't talking about John anymore. The darkness got quiet. If you must know, I was really talking to my ex.

"Fuck, I sound like one of our fights. Bet you'd love that."

Toward the end, things got ugly. He called me callous and narcissistic; I called him misogynist. He stayed out with John and the rest of his space marine buddies; I slept in my office. But when Ruben started winning our fights, he should have known the breakup was coming. Love is a strange war. You can win every battle, but then you'll lose everything.

I lowered myself onto the concrete, thankful for my one good arm to keep my balance. The pain throbbed with every heartbeat. I would go into shock, if I wasn't careful. How much blood did I lose?

[2]An ante impulsum idiom referencing the all male adventure club, whose motto was "Be prepared." The organization collapsed in the mid twenty-first century, having failed to prepare for a culture that rejected exclusivity on the basis of sex.

"I really fucking screwed up, didn't I? Fuck."

Ruben found out the same way my parents did, from Erikson's announcement. We didn't speak much after that. He told me to keep his mother's ring, a genuine Earth-mined heirloom, and I said that was ridiculous. I returned it just before launch, via courier robot.

"But it was the right decision, see? Isn't it obvious? I mean, look at me. I'm a the top of my field, here at the bottom of the—ow, fuck—planet."

I half expected Ruben to interject, without letting me think or get a word in edgewise. Maybe I would start hallucinating his voice, because of the arm. What an ironic way to die.

"I still don't understand how you thought it was a good idea to ask me?" I said. "*That* didn't help your case at all, amigo. 'Would I consider saying no?' Fuck no. What a fucking idiot. You don't say no to MASA, not when you've been preparing your whole life, and this is a one-time opportunity. Say 'No' to Earth? Are you fucking joking?"

To be fair, "one-time opportunity" may have been an exaggeration. MASA had Odysseus 2 through 7 planned already, with landing sites near other large cities. On top of that, Odysseus 1.1 would arrive at Olympus base in two years, carrying new personal to supplement or replace us, if necessary.

"Could have been on the resupply rocket," I muttered. "You could have joined me, after two years. Not that long, for an engagement to last. But 'fuck no,' you said. Same principle."

I shifted my arm. After all our fights, it would kill me if I proved him right by dying. Ruben talked a lot about wanting to start a family, how much this mission would complicate that goal. Never mind what I wanted. But really, the arguments he didn't voice were more compelling. The former space marine didn't want to set foot in another rocket ever again, and living on Earth scared the shit out of him. He thought MASA didn't know nearly enough about the orbital debris or the surface to guarantee our safety, and I shouldn't risk my life for some grand cause. Let someone else.

"Look around," I muttered sarcastically. "How lucky we are to be alive right now." I

needed to focus. Stop thinking about Ruben and start figuring a way out of here.

I squinted at the walls, trying to make out a door or service hatch—anything that might lead to the surface. There should have been one, if this used to be a car elevator, but it could have easily caved in when the city flooded. Just after the impact, these tunnels would have been under water. Then they drained out when—

"Wait, fuck. Hold on a minute." I stood up quickly. My arm flared at the rush of blood, but the all of a sudden the pain seemed dull and unimportant. "The tunnels are fucking dry."

I bent over and touched the floor. It was damp and a little mossy, but there was no standing water. That wasn't right. Even with the drop in sea level, this tunnel should have been completely submerged, or at least partially flooded. Instead, it had bats, insects, rodents, God knows what else.

"Intelligent design?" I joked, trying to recall what little I knew about the New York sub-terra. It was engineered to withstand frequent flooding, thanks to post-industrial climate change. I knew there was an enormous floodwater basin deep under Central Park, but it would have filled up long ago. "Geothermal venting, maybe?"

It sounded far-fetched, even for New York.

"Shit, I can't stop analyzing," I said. "If my arm falls off, at least I'll get a journal paper out of it. Fucking academics, right?"

Then it hit me. Obviously, the natives lived in these tunnels, for some reason. They had attacked us in Lincoln Tunnel, and MASA's drones had never seen any surface activity, aside from the whale in Times Square.

"No, that's ridiculous. They would need a *massive* water pump, running for years, to drain the sub-terra."

New York City had operated thousands of pumps. Even after all this time, some of them would likely work fine with a little maintenance.

"And diving equipment, possibly? They would have to clear out the deeper tunnels, so

the pumps could reach that far."

Even as I spoke, counterarguments seemed to shout at me, as if I had tiny grad students on either shoulder. Most famously, divers on the island of Kalymnos, in ancient Greece, descended thirty meters or more just by holding their breath. They collected natural sponges from the sea floor and sold them to the mainland as a luxury item. In theory, the Jonah group could do just the same, clearing debris or scavenging for artifacts beneath the city.

"But this is ridiculous. How much water would the sub-terra hold? How would they power a pump, even for a short time, let alone for years on end?"

The darkness seemed to answer on its own. Why wouldn't they have power? A healthy dose of Martian hubris affected every paper ever written about the Jonah group: whether they concealed cook fires in the buildings or knew how to use green wood with less smoke. Something so simple as an electric oven never occurred to me. This changed everything. If I had expected to find anything at all, I had expected a primitive society, barely surviving, which could be lifted up by Martian civilization. Never in my wildest abstract had I ventured the possibility of a thriving society with electricity or automatic weapons.

"Shit," I said. "If MASA knew what was here, if we'd been more careful . . . "

John wouldn't be dead, for starters. I might not be about to lose an arm. God knows what happened to the rest of Odysseus, if Jared and Dr. Mason were still alive. Fuck.

"Stop that," I told myself. "You need to find a way out of here. You need to get to the surface." If I could make some sort of signal, the Pegasus would flag it from orbit. The hellhornet would be here in less than ten minutes if it wasn't already circling the city, looking for me. Fuck, what if I missed it?

The bats stirred as I groped for the edge of the cavern with my good hand. I took every step with caution, in case I had guessed wrong and this was really a train platform. By following the echoes, I managed to reach the opposite wall, where a lower tunnel, wide enough for a single vehicle, continued on. I stopped. Should I stay here and search for an emergency exit? There had to be one, with a once-glowing "Exit" sign now utterly useless

in the dark. If I traced the edge of the wall, I would probably find it.

But I had wasted too much time, talking to myself. Suddenly voices spoke out of the darkness behind me, their whispers amplified by smooth concrete walls.

"Cal'forna knows the every motion of her ardent warrior," the voice said. "Her searching step, her deadly twitch. Amidst the whims of darkness, old Cal'forna guides her."

I froze. It sounded like a prayer, half-chanted, with all the hallmarks of a developed theology. Despite my arm and the imminent threat, I wanted to stop and listen. Instead, I hurried forward as quietly as I could, constraining myself from every vulgar utterance that rose up in my pain.

I searched for an exit but no longer with the same desperation. Moving forward had higher priority now that pursuers followed close behind. I felt like a lab rat, running a maze in search of the cheese at its center. Except there is no cheese, and a deadly feline stalks my trail through every twist and turn I take.

"Footsteps echo up ahead, my sisters!" someone shouted, seemingly hot on my heels.

"Shit," I whispered. How many "sisters" were there? I tried to move quietly, but this required slowing down. I decided to risk an all-out sprint, while I still could.

A pale light flickered up ahead. My eyes relaxed in their sockets, thankful for some point of reference to focus on. I might have stopped and doubled back, afraid that the light signaled more pursuers, but the voices behind me grew ever closer. They chanted unintelligible prayers under their breaths, punctuated by booming shouts and the smack of a rifle stock on concrete, as percussion.

The light shone dimly on a curve in the tunnel up ahead, unmoving. I risked another sprint, and ran straight into a cavernous thoroughfare, where my footsteps echoed. A motionless LED dangled from the low-arched ceiling, tied to an existing light fixture which no longer functioned. The cord trailed back to another bare LED, just beyond the glow of the first. The lights proceeded in both directions, one after the other, like ghosts of the forgotten highway. No wind disturbed them, or they might have swayed where they hung.

"Fuck, I was right," I said. "They have electricity."

"Aye, electricity," a low voice echoed. "Cal'forna's light, they say."

I whirled, but the voice didn't come from behind me. Just ahead, a figure emerged from another tube, which merged so seamlessly into this one that I hadn't noticed it. His hair draped over his shoulders in thick dreadlocks, and he wore no shirt nor shoes, only a thin fabric which covered his midsection. His great, beady eyes fixed on me.

"Do not fear, Ulk'halla's child," he said, keeping his voice low and raising his hands. "The delilahs stalk you as they stalk a deer. You must hide. If they catch you, they kill you."

"Who are you?"

"I am Cynic. Tonight I am your friend, Ulk'halla's child. Your only friend, it seems. You must hide. The delilahs draw near."

He didn't point a rifle at me, and I was in too much pain to argue. I took him at his word. "Where? Do you have a place?"

The man pointed. "Out of sight."

He pointed to a crevice at the edge of the roadway, which once served as a drain. I hesitated.

"Quickly," the man urged. "I hear the delilahs' death prayer."

Indeed, the voices grew louder every second, although they spoke so quickly I couldn't make out the words. I didn't have time to doubt. Bending down, I scooted to the edge of the tube and wedged my hips inside the gap. There was a space below road level, about half a meter, for water to gather before draining into a central pipe. Clutching my injured arm, I lowered myself into the hollow, aware of a spongy, squelching substance underneath me. My back soaked with water, but I was well concealed.

In the darkness, unfamiliar phrases occupied my thoughts. Twice, Cynic had called me "Ulk'halla's child," which could imply great respect or fear—I had no idea. Possibly, it meant no more than "stranger." However, the word "Ulk'halla" reminded me of the Norse

"Valhalla," an after-life feasting hall for Odin's warriors. One of the natives had shouted the word as John died, like a battle cry. But "Ulk'halla's child?" That didn't fit.

Cynic used "delilahs" to name my pursuers, but it could refer to just that group in particular, or an entire warrior class, or women in general. I listened intently, as their "death prayer" grew closer and more distinct.

"Cal'forna's light illuminates the ardent soldier's track," they chanted. "Her spying eyes, her safeguard soul. Upon the path of shadowed endings, old Cal'forna guides her."

This "Cal'forna" was either the name of an all-powerful deity or trusted leader—or possibly both. The Egyptian pharaohs were gods, why not this "Cal'forna?"

"Cal'forna twists the ardent—" the voices cut off, just as they filled the tunnel with echoing whispers.

One of the women spoke. "You stumble on delilahs' footpath, Cynic of the turen."

"Delilah's footpath indeed, Waver. Do the delilahs own Cal'forna's roads, these days? Or do they lay claim to His ocean as well?"

"We claim the hunting water, long as any wake remains. Ulk'halla's child drips its blood upon the pavement."

Shit. Had I left a trail of blood, even to this hiding spot? I tensed, ready to spring.

"What blood? I see only moss."

"She stops bleeding, one half-K back. And yet we hear her running."

Although terrified, I couldn't help but notice the odd phrasing these natives used. They used the present tense to describe past events, and their formal greetings suggested a strict hierarchical society. Their English, although recognizable, had obviously developed in isolation for some time.

"Then you follow no trail at all, only the echoes of a whisper," Cynic said. "You follow my own footsteps, no doubt, for I seldom tread lightly. But this is all folly. Why not let Ulk'halla's children drink their own water, as Veracity commanded."

"Veracity puts too much water in the turen's cup. We strike Ulk'halla's vermin hard,

this night. In darkness, one has died. Two more we take in bondage, so the rasha cleanse their filth from clean Cal'forna's water. A fourth escapes our grasp, borne high by winged demon, deadly, armed upon Ulk'halla's fire. Pray, bookbinder, that your river never crosses such destruction as we witness here this night. Three delilahs died: Earna, Lithe, and Chrysanthemum."

Jared and Dr. Mason were alive! Captured, but alive. "Winged demon" no doubt referred to the hellhornet, which meant Erikson arrived too late for a rescue, but she engaged in combat. If she had equipped the hellhornet's weapons module, the natives' bolt-actions wouldn't have stood a chance. Even without it, Erikson would have been untouchable. She could set the craft to hover, out of range of the natives' bolt-actions, and fire her rail rifle from the open door. That would explain why these "delilahs" didn't chase me right away.

"And the fifth?" Cynic prompted. "I come from the express-way. No fifth child of Cal'forna lurks in that darkness. If she does so, why does she linger? She does not seek the Havian way, for certain. In well-lit Cal'forna's home, she dies. This night, she finds one of Cal'forna's blowholes, escapes to the open sky she craves, no doubt."

"Then she defiles Cal'forna with her hands," the delilah asserted. "Yet you say 'she,' when I say 'it.' Why?"

"You hunt a woman, clearly. If a man, you never hold such hatred in your eyes as one betrayed by a sister. This night, you hold that hatred."

There was audible intake of breath from more than one delilahs. Evidently, Cynic had struck a chord.

"Phah!" Waver spat. "Although a brother of my blood, Tur Cynic, you disgrace me. Speak only what you know and not such guesses. Fucking tur!"

Perhaps these two were actual siblings? Unlike the delilahs, who seemed to call each other "sister" much like nuns of a convent. Clearly, though, the difference in their stations overshadowed any feelings of familial attachment. Was "Tur" an a title or an insult? Or both?

The delilahs all spat, but Cynic took the insult in silence. I resisted the urge to poke my head up above the street, so that I could observe the delilahs up close. Even if they faced the other direction, as their departing footsteps indicated, I feared that I would cry out, if I only bumped my arm against the wall. The pain brooded dully now, like a pile of embers which might flare up at the softest breath of wind.

When the echoes of the delilahs had all but faded, Cynic whispered, "Are you there?"

"Who, me? Not going anywhere."

He appeared in the gap, smiling broadly, with one arm outstretched. I took it gladly, and together we managed to hoist me out of the drain without inflicting too much pain.

"I need to keep moving," I said. "Ow, fuck." I adjusted my arm.

"Aye," he said. "Your wound is urgent. If I lead, do you follow me?"

"You mean, 'will I follow?'"

He shook his head. "'Will follow' is different, in our way of speaking. I mean, do you follow me down the tunnel, in the time just after now? I lead you to a safe place where the delilahs do not tread, nor the rasha, nor the laymen for that matter."

He spoke carefully, aware of the likelihood that I would misunderstand him. Not for the last time, I wished I had a linguist to consult with. Martian English differed from the Earther dialect even before the Impact, and it had evolved further still in the centuries since then. But the natives used familiar words with an unfamiliar grammar, as if they had learned each word individually, without hearing them strung together. Even the smallest differences, between "will follow" and "do follow" were separated by vast oceans of meaning.

I hesitated. "Where? What place?"

"A place called 'Stacks.' It is the house of the turen, my brothers and sisters."

"Where is that, exactly?"

He pointed down the tunnel. "Follow the Havian way. At roach's scuttle you find Borrowers Market. Stay forward through the market, though shopkeeps are a most persistent creature, and come to a squarecase marked by Athena. Descend below the bedrock and

answer the riddle, if the doorkeep does not know you. There lies Stacks."

That didn't answer my question. I meant "where in Manhattan," but I realized that the aboveground might not mean anything to Cynic. The natives navigated untold kilometers of tunnel with practiced ease, their brains having developed to prioritize topological reasoning over spatial awareness. To such minds, a "place" would not be defined by its location but by its connections to other places.

In the end, the pain in my arm made the decision for me. "Fine," I said, "I'll trust you, Cynic. Where to?"

His eyebrows raised at this, and he shook his head. "Oh. You did not mean 'will trust.' Instead, say only 'I trust.' If you speak as Ulk'halla's child, then Havians know you as Ulk'halla's child. If you speak as Cal'forna's children speak, then no one notices your lanky arms."

I looked down. I had always thought of myself as rather stocky, compared to some Martian women. Now I realized that any Martian, growing up in lower gravity, would seem strangely proportioned to an Earther.

"If you lead," I said carefully, "then I follow."

Cynic smiled. "Good. If you live, you learn to speak as a Havian. Now, keep close. We sail the hurricane's eye, this night."

Chapter 5

The Market Nestles in a Maze of Basements

The "Havian way," as Cynic called the roadway where he found me, cut across the underbelly of Manhattan. Where it turned, the roadway tilted significantly, giving the impression of a high-speed racetrack built solely for the horned inhabitants of Hades, deep beneath the Earth. Or rather, for the financiers of Wall Street and their daily commute from Long Island. Everywhere I looked, the tunnel walls sloped outward at the floor, as from decades of erosion at the hands of merciless tides, sweeping in and rushing out. The erosion was not deep, yet it created at all times a sense of imminent collapse.

Possibly because of this erosion, the walls bore none of the nihilist graffiti that had adorned Lincoln tunnel. Instead, intricate murals adorned the entrances of branching tunnels, freshly painted within the last century or so. They depicted animals, for the most part, in mid-action: burrowing mole, racing fish, lunging shark.

Cynic named the tunnels as we passed them, keeping track of our place underground. "Mole's den. Yes, yes. Salmon's run . . . great white's hunt. Faster, if you can."

I understood this last part as directed toward me, and I quickened my pace. As for the rest, even with my thoughts consumed by inflammation, I gradually understood the purpose

of these roadsigns. The Havians remembered the tunnels as vivid images from nature, not the alphanumeric sequences favored by ancient New Yorkers.

"Rat's persistence," the Havian muttered, passing a depiction of the rodents nesting. "Dolphin's cackle."

Most of the roadsigns marked gaping tubes, which merged onto the highway or branched smoothly away from it. Yet some were doorways, which accessed service entrances or wealth sub-basements, I had no idea. Then unmarked exits I took as dead ends, either caved in or—more likely—accessing only a car elevator, to dispatch riders onto the local streets.

"Trout's leap . . . catfish mucking."

In its heyday, New York must have been a wondrous place to live. The aboveground streets made no room for heavy traffic, being swarmed by pedestrians, pop-up shops, musicians, artists, and dancers. When they surfaced, the cars poked their way carefully like elephants amid a throng of mice, depositing their human cargo and retreating quickly from this chaos to sub-terra, which was their sole domain.

"We grow close," Cynic said. "Cover your wound, if you can. Make no conversation you can otherwise avoid."

"Wasn't fucking planning on it," I said.

He glanced back at me, smiling. "Such a vivid tongue, and yet you forget again. Do not say 'was' or 'has been' or 'will.' Speak about now."

I grimaced. I would have knocked his teeth out, if I didn't think the motion of my good arm would inflame the bad. But the better half of me trusted this Cynic. I knew I wouldn't have escaped the delilahs without him.

"I make no fucking plan about it," I amended, through gritted teeth.

The man laughed. "That is good. Roach's scuttle, this is the place." Where we stopped, rough brick interrupted the concrete, crumbling away in some places but still holding together after all this time. The brick arched toward the ceiling, merging into the rest of the tunnel. Over a heavy iron door, the roadsign depicted an enormous cockroach, painted as if it perched

on the wall. Its antennae probed the edge of the door curiously.

Cynic stopped and turned to me. "You intrude at an inconvenient time, when we are most active. But nothing changes. Speak little. Walk quickly. Borrowers Market is a busy place."

"I will—do," I said, catching myself.

He nodded. Then he frowned, observing my uniform in full for the first time. My name stood out on the left breast, next to a science-officer's patch and the MASA logo. Underneath, the flag of New Plymouth declared my home settlement, and this was what he fixed on.

"Truly, you are Ulk'halla's child," he said. "You even bear his emblem."

I looked down. "What? No, this is my flag, my settlement."

He tilted his head.

"My country, my . . . kingdom," I clarified. "I can remove it."

"Aye, do that. It gives away the game."

Working from the tear at my shoulder, where I had ripped off the cloth for a tourniquette, I struggled to strip more from the uniform. This proved too much for one arm to do properly, and I let out a cry when my elbow bent just so.

"Here," Cynic said, wearing an anxious expression. I held my bad arm with the good one while he labored over the synthetic Martian fabric, exposing my undershirt.

I stood still while he worked. "What about the flag at Lincoln tunnel?" I said. "If this is Ulk'halla's emblem, what about the emblem with red and white stripes and white stars on a patch of blue?"

"That is Cal'forna's emblem. What you call 'Lincoln tunnel' we call 'Cal'forna's gate.' The first tunnel on the roadway to Havia, so we mark it with God's own standard."

"God's own—shit, careful."

"Sorry!" Cynic repositioned himself, to keep from bumping my arm.

I bit my lip, to keep from crying out as he wrestled with the fabric. Did he say, "God's

own standard"? That implied some degree of monotheism, if "Cal'forna" was synonymous with "God." At least, the Havian religion resembled Christianity in its dualism between good and evil, albeit with the roles reversed. Everything underground was holy, while up above the devil dwelt.

"Won't they think me strange," I said, "if I wear a ripped uniform?"

He looked up, scowling. "'Won't' means 'will not.' Take care, even with contractions, lest you presume too much or promise on too little."

He paid such careful attention to every verb, out of his own mouth or someone else's. "*Do* they think me strange," I corrected, "if I wear something ripped? Do they notice me?"

"Maybe." He nodded approvingly. "But likely not. The laity wear what they find, so you don't stand out if you walk among them. Your skin shows no sun, which is good. Otherwise, they would know you for Ulk'halla's follower, if not his child."

"Yeah, not many tanning beds on Mars."

"What are tanning beds?"

"They're interesting, actually. Before the impact . . . " I trailed off, as the word "impact" made Cynic straighten with alarm.

"We talk of tanning beds another time," he said quickly. "This night, we brave the market. So say nothing if you can."

With that, he ripped the New Plymouth flag from my chest and flung it on the ground. There it lay, the blue, white, and red speckled with mud, before Cynic trampled it with his boot. Afterward, I could see nothing of "Ulk'halla's emblem."

"Let's go."

"Lead the way."

He opened the heavy door and I stepped past him, into a dimly-lit corridor of brick archways and foot-weathered concrete. A far-off lamp cast bustling shadows on the near wall, accompanied by cavernous echoes of haggling, cursing, purse-cutting, and coin-counting. I heard a young woman calling out "fresh fish" with a sing-song rhythm, accompanied by the

smack of a butcher's knife severing bone, as percussion. Chimes tinkled and children cried for the toys they craved but their parents would not buy. An old flutist struck up a merry hymn.

The door boomed shut when Cynic closed it, and I jumped. Wordless, he strode past me, keen eyes surveying the labyrinth up ahead. He waved for me to follow. I did so carefully, treading over uneven steps and perilous potholes. I clutched my bad arm as if to keep warm.

Borrowers Market absorbed us without skipping a beat. A one-eyed crone carried flashlights and rechargeable batteries, and her neighbor sold hot pastries, straight from a brick oven in the basement behind him. Up ahead, the fish stand spread its wares on racks of ice, which they replenished from a whining freezer every few minutes. When a fish sold, the young woman flung it to a bare-headed boy in an apron, who cleaned it. If the customer asked, he filleted each side expertly and collected the scraps in a wooden bowl, which sold as well. The fish's head, separated by an enormous cleaver, went straight into the freezer, to serve as bait on the next outing.

We delved deeper into the market. I dare say, nothing like it exists on New Plymouth, such a disorderly array of pop-up shops and swerving footpaths crammed into the awkwardly joined sub-basements of New York's underbelly, the architectures of half a dozen bygone eras smashed together. Brick archways collapsed into poured concrete, into concrete slab braced by steel. The shops were made from a strange substance, slender and lightweight like carbon metamaterial, but splintering in some places. I failed to recognize it until we passed an old whittler debarking a walking stick, and afterward I wondered how many precious trees had been felled to populate make this maze of basements. One never glimpsed the whole of Borrowers Market. Each corridor rapidly twisted out of sight like the small intestine of some great beast.

The market swallowed us whole.

The Havians themselves captured my attention most of all, for I had never seen such a diversity of human beings in one place. A Filipino man greeted me courteously as he

handed out free samples of licorice. A red-headed toddler of Afro-eurasian descent raced past me, laughing as another trouble-maker chased him. I noted the second boy's features, which were recognizably Japanese mixed with native American—although I couldn't tell you which nation. And in every chamber, we passed at least one individual who's unique heritage I couldn't place, for all my supposed expertise as an historian and anthropologist. It was a humbling moment. New Plymouth has always touted its cultural history, founded from the mixing pot of American exceptionalism rather than the monoculture of China, but our founding members were still disproportionately white and Asian. It took enormous capital to immigrate to Mars, and endemic systems of power ensured that our current culture reflects that racist history, unfortunately.

I know New Plymouthers like to imagine themselves as separated from Earth's unpalatable history, when it comes to race. We point to our leaders, who reflect the diversity of black and latino minorities in our midst, but in doing so we miss the point entirely. We can still spot a Xin Beijinger from the other end of the street, without even hearing him speak.

The diversity of the Havians was, by contrast, a wholly unnatural thing. They were by no means a population of equals—the way this throng of shopgoers parted before my guide attested to that—but the basis for their differences was, of necessity, something other than the color of their skin, which was so varied. Almost unbelievably varied, in fact. It suddenly struck me as statistically impossible that so many countries of origin could be represented in one group, unless it were by design. However the original Havians had survived the impact, their members had been carefully selected.

I observed that the shopkeeps shouted their wares to every passerby, but when Cynic and I approached, they grew quiet. Something the man wore must have signaled his rank, or possibly the fact that he wore nothing at all above his waist. Yet many others went bare-chested—men and women alike—without receiving the same treatment.

"Cynic," I said weakly. "Why do they avoid us?"

"They know me for one of the turen, and they see you stay close to me."

"How do they know you?"

"Some know my face. Others see this." The man turned his head and pointed to his ear. The upper part was doubly pierced by a sanded-down sliver of bamboo.

"That's all? An ear piercing?"

"It is enough, but they avoid the turen out of uncertainty, not fear. I am no priest of the rasha, draping the red cloth over my hands for fear of dirtying them." He smiled, as if he had made a joke. I didn't get it. "The laity dare not glance at a rasha, let alone speak with her."

I weighed this nugget of information as best I could, while trying to ignore the sensation steadily disappearing from my arm.

"Why is it called 'Borrowers Market'?"

The man waved idly at the stalls. "In its early nights, the market borrowed from up above. Shopkeeps sold trinkets from before Ulk'hall's fire, which we sorely needed. Now, some of them scavenge in the twilight. Mostly they make their own wares down below, to stay in Cal'forna's domain."

We passed a stand which sold religious items, but to my eye it seemed a garish temple of American nationalism. An American flag draped over the front table, complementing a myriad of tiny carved and painted wooden flags and a figurine of a whale, with the same colors. I stopped short. Even as I watched, the shopkeep worked her knife along the back of an elaborate carving, a second whale, which was as yet unmarred by red, white, and blue. She scraped one shaving after another, smoothing the curve of its back, tranquil amid the chaos of the larger market.

I veered toward her, heedless of my guide. I needed to understand the connection here. "What is this?" I asked, pointing at the whale.

"Fifteen," the woman said, without looking up. She had a pony tail of dark hair, which she twirled when concentrating.

"What?"

She wiped her knife and inspected her work. "Fifteen, and not a shot less. If you like, I can throw in twig-fish. That's worth a spent or two."

Cynic appeared beside me. "Nine," he said coolly.

The shopkeep looked up. "Fucking tur. Twenty for you."

"Eleven."

"Done."

"I want the unpainted one." He pointed to the whale in her hands, which neared completion.

"Oh?" This gave the woman pause. She squinted at us, and I got the impression she needed glasses. "What ails your arm, tur-wife?"

Cynic answered for me. "It hurts her, Cal'forna's shopkeep. Now, eleven for the unpainted statue. Quickly."

"Just a minute, fucking tur. Always 'quickly,' 'in time,' 'on time.' Over-productive and under-achieving, the whole lot of you, cozied up with your books like babes in a blanket. Aye, I'm done. Eleven?"

"Here." Cynic drew out a moneypurse from his pocket and counted out the sum from its contents. He laid his money on the counter, and my eyes widened at the sight of it. Instead of coins or hard cash, the Havian currency consisted of bullets. Two shotgun shells and a twenty-two casing equaled "eleven," it seemed.

The woman swept Cynic's money out of sight as soon as it appeared, industriously cleaning the counter's surface as she did so. I watched with interest, my bad arm momentarily forgotten, as she finished off the carving with a final stroke of her knife and wrapped it in a gray blanket. She handed it over to Cynic, with a curious glance at me.

"Many thanks," Cynic said, without a hint of sarcasm.

"Aye, be off with you."

We turned and left, with Cynic cradling the wooden whale under one arm. "Why?" he said after a few moments. He didn't say it angrily, as I half-expected, but rather with

genuine curiosity. It occurred to me that he may have the same desire to understand me as I did him.

"To understand," I said. "Is Cal'forna the whale?"

He nodded. "The great whale."

Puzzle pieces clicked together in my brain. The whale in Times Square was no mere shrine, it seemed, but rather the god herself. Like Christ with his cross, she had taken on an American flag as her symbol.

We reached the end of the market all at once. The narrow passage crowded with shop-goers, streaming out of an elevator shaft which had been converted into a spiral staircase. Several shops hoped to grab their attention—and their death-dealing coins—early. One sold fine linens, the other scented candles. The chamber smelled strongly of cinnamon and lye.

Above the gaping elevator door, a vivid mural of Athena smiled down at us. Yet the goddess here differed from the depictions I remembered. She held a long gun instead of a spear, and in place of a helmet, a crown of paper pages adorned her head. Her feet were planted in a pool of water, and a silvery eel wrapped itself around her legs. No owl flew overhead, but a solitary mole poked its fleshy nose out of the Earth.

A thought struck me. "Cynic," I said, while we stood waiting for the crowd to pass. "How old is the world?"

Several heads turned at the question, and their interest told me I had said something either very strange or very dangerous. I clutched my bad arm, keeping close to my guide.

Cynic answered with a knowing smile. Loud enough to be heard, he said, "Ulk'halla creates the world this morning, and Cal'forna creates the underworld this night. Half the world is one day old, the other half six hours."

I detected a trace of sarcasm in his voice, but it was hard to tell. He gestured for me to follow him. Together we stepped into the elevator shaft and descended, even further, below the bedrock of Manhattan.

Chapter 6

She Sleeps Amid a Canopy of Books

The hubbub of Borrowers Market faded inside the retrofit elevator shaft—the "squarecase," as Cynic had called it. Stripped wooden beams spiraled around a central axis, jutting into the walls to support the structure's weight, and providing a convenient fixture for the squarecase's lamps, which hung by their own electric wire every twenty steps or so. Hardened wax held the wires in place and doubled as an insulator. I marveled that the Havians had built so much with their own hands, using only the tools that were available to them. The stairs themselves rested with one end on the central column and the other cleverly interwoven with a wooden exoskeleton that concealed most of the concrete.

On Mars, it would have been a trillionaire's staircase, painstakingly constructed by one of a half-dozen carpenters, using reinforced wood from a sub-terra tree farm. If I weren't gasping from the pain in my arm, at every jolting step, I would have lingered for hours. The smell of pine, so unfamiliar to me, was intoxicating.

After ten minutes' descent, we came to the bottom of the elevator shaft, where smoothly joined floorboards concealed the original elevator car and its counterweight. In Earther buildings, as on Mars, most human-transport elevators used magnetic rails to glide smoothly from floor to floor, but the cable-tethered variety was cheaper and therefore more practical for service elevators, such as this one. Yet the wound steel was nowhere to be found, with

only a frayed tangle of wires poking through the wood to indicate it had ever been there. The Havians had obviously removed it intentionally, and I didn't doubt they had some clever use for the steel.

"Here," said Cynic, and he pulled on a section of the floor, which hinged upward. Looking inside, I saw the elevator's emergency hatch, slightly rusted, but obviously well-used. An image of a stack of books adorned its surface.

"I'm not sure I can climb down there," I said.

"I can help you. The main door comes from Central Havia, too public. The delilahs and the rasha never glimpse this way."

"Right." I nodded.

Cynic leaned down and knocked on the metal, which had been painted with a stack of books. "Who keeps the borrowers door?" he said with an air of ritual.

"You who knock must know my riddle on this night," said a voice within. "Who creates all thinking things on Earth?"

"Alan Turing."

"Precisely." The hatch opened outward, and a freckle-faced woman grinned up at us through a tangle of red hair. "Cynic, you wander far this night."

"The delilahs wander farther, for they hunt Ulk'halla's children. I fear at least one among them, Waver, suspects what we seek. Does Sanguine return?"

"Not this night. I wait anxiously for both of you. Slywalk hears rumors in Central, that a winged demon of Ulk'halla kills seven delilahs."

"I hear three," Cynic said. "Fidget, I have one with me, but she is wounded."

The woman's eyes flicked in my direction. After a short appraisal, she said, "I dislike the angry look of that arm. She is Ulk'halla's child?"

"Aye."

Fidget popped up out of the porthole excitedly. She wore copper-color glasses and a bright orange pair of pants, which seemed otherworldly in the deep underground. Like Cynic, she

had a sliver of bamboo pierced doubly through the upper ear, and she wore nothing else above the waist. Her wiry frame had a certain sinewy strength to it, although she looked like fifty kilos at the most.

"What's it like?" she said, "Where you're from, I mean. Most of the books describe Mars as a barren world, before Ulk'halla's children make it a place like Havia. The newer books are shorter, of a different style, with too many references to the internet. How is Mars made green? How do you breathe, with the air so thin, so cold?"

I hesitated, surprised to hear her speak so frankly about Mars.

"Oh, my name's Fidget, chief astronomer of the Turen. Introductions, always annoying."

"Rosalind," I said. "Anthropologist . . . chiefly. Why do they call you Fidget?"

The woman frowned. "That's my name, is it not?"

"But when did you get it? Did they call you Fidget at birth, or did you choose your name yourself, or—"

Her eyes widened. "You speak so strangely! As if I die another night, and you bury me deep underwater."

"I mean, 'Do they call you . . . '" I hastily corrected, but the woman seemed to have forgotten my slip-up, and Cynic said nothing of it.

"We make haste," he urged us. "Speak little on the landing, lest the neighbors listen."

"Aye, sorry." Fidget dropped back into the elevator. "Try the ladder, Ulk'halla's child. If you fall, I catch you down below. No worry."

I hesitated. I would have preferred Cynic as my spotter, as I was closer to his mass than Fidget's, but the man was distracted by something up above.

"Come on," said Fidget. "I got you."

"All right, all right." Taking a deep breath, I swung my legs down and hooked onto the ladder. Grabbing the top rung with my good arm, I gently lowered myself as far as I could. Then, bracing my upper back against the side of the hatch, I transitioned my grip to a lower rung. In this way, I lowered myself almost to the floor of the elevator.

"Is there a box or something," I said, panicking near the bottom. I clung to the ladder, unable to see directly beneath me.

"Uh, aye, one second." The woman grabbed a chair in the corner of the elevator, where she'd been sitting, and parked it underneath me. "There."

I felt the chair with my leg and shifted my weight onto it cautiously.

"There you go! Now, just hop down, if you can. Do you need a hand?"

"Yes," I said, gratefully.

While Fidget helped me onto the floor, Cynic descended the ladder, making sure to close the trapdoor behind him, as well as the elevator hatch. He secured the latter with a sliding bolt.

"Sanguine returns this way, perhaps," Fidget reminded him, gathering her things. I noticed the book she was reading, "Tia Stevens," by Charles F. Cook. The Cook biography was one of the better ones, still taught in high school classrooms across New Plymouth, about the first human on Mars.

"Aye, what of it? I dare not leave the bolt undone, this night. Delilahs may suspect, and Cal'forna knows what the rasha think." He sighed. "Still, never is anything great achieved without danger. Run and fetch a tyro to keep the borrowers door. Meet us in Viewings, with something to clean her wound."

While the astronomer hurried to carry out these orders, Cynic helped me to my feet again. Standing, I found his shoulder a necessary support. The strength had gone out of my legs.

We hobbled out of the elevator and into a narrow passage, braced with wood and lit by a series of LED lamps mounted into the bedrock ceiling. At the end of the tunnel, we turned left.

"Straight ahead lies Stacks," he said.

"I thought we were in Stacks—think, I mean."

"Aye, we are. This way. Just here."

We turned another corner, and the tunnel emerged suddenly into a sterile hallway with tinted glass all along the opposite wall. The hall overlooked an enormous room, hollowed out of the bedrock, with racks of long, metal boxes stretched from the floor, about ten meters below, to the cavern's ceiling, which I couldn't see. It resembled one of New Plymouth's automated warehouses, bathed in red light. Vertical track covered the shelves for a picker robot to whiz across, interrupted by pneumatic tubes to transport items. Yet no robots skated along the rails. Instead, wooden scaffolding clung to the shelves like barnacles to a humpback whale, with several platforms constructed where the bins could be set out and sorted through. I spotted one such bin with its lid open, the contents visible.

"Stacks," I said, realizing what the word meant. "Like book stacks."

Suddenly, I knew where I was: the New York Bookvault. Once, it was the single largest repository of physical documents in North America; now it could be the largest anywhere. Unlike traditional libraries,[1]Bookvault consisted entirely of an automated storage and retrieval system, maximizing storage space while minimizing the retrieval time for any volume in the collection. When a visitors in an aboveground study space requested a book, the picker robots glided from rack to rack until they located the appropriate bin, then extracted the volume with a specialized gripper. The pneumatic tubes carried the book to its final destination, inside specialized capsules that held it firmly in place while zipping through the twist's of New York's underground until it reached its final destination, either the New York Public Library up above or any of a dozen branches spread across the city.

"Aye, stack of books," Cynic repeated, letting me rest against the wall. "Also, a logical stack, or queue, in which the last item placed is the first found. We spend many years understanding the system, which seems so random, until we discover the written logs. Every book belongs in its place. Bins nearest each tube are accessed frequently, when this place lived, with some local aggregation by subject matter."

[1]Traditional libraries consisted of study spaces and bookshelves, which visitors searched through themselves in order to find a book. The library at New Plymouth University, has a small collection of rare books—all books being rare on Mars—but its digital collection comprises the bulk of its offering.

"'Lived,'" I said. "Don't you mean, 'when this place lives', present tense?"

The tur shook his head. "Speak of the dead as past, the living as present, and never say 'will do' unless you mean 'will do forever,' until death that is. Once, Stacks lived and breathed. This night, it remains, a giant's cage of ribs for us to scavenge over like sharks at a whalefall frenzy."

I nodded, but the sudden motion made me wince. Pain stabbed through my arm.

"Are you all right?"

"Just the arm. Give me a second."

"Fidget meets us in Viewings, up ahead."

He braced me up again and we continued down the hall. Viewings turned out to be a low-ceiling viewing room with a book dispenser at one end and a help desk at the other. It resembled a similar room at New Plymouth's rare book collection, where I spent the majority of my time as a researcher before MASA briefed me on the Jonah group. Most of the tables had been removed at one point, excepting two or three in the center, where Fidget stood. She had her back to us as we entered, poring over a spread of bandages and surgical instruments.

"Does borrowers gate lie tended?" said Cynic.

"Aye. You know Melody, the little blonde girl? I catch her in the hall reading *Lord of the Flies* again, out of bed. She reads that book twenty times, by now. Over and over. I tell her, if she's up anyway, she can at least tend the door."

"Hm, do you let her keep the book?"

"Of course." Fidget opened a jar and scooped out a generous tablespoon of something gelatinous, which smelled strongly of disinfectant. Rubbing it through her hands, she nodded at me. "Up on the table, anthropologist chiefly."

"Rosalind is fine."

"All right, Rosalind. How's the arm?" She lifted it gingerly, examining the angry flesh that surrounded the bullet wound.

"Fucking hurts. Didn't you say you were an astronomer? Sorry, I mean *are* an astronomer? Don't you have a doctor, or—"

Fidget chuckled as she unwound my makeshift tourniquet. "Oh the best doctor. But I don't trouble him with something so simple. Every Havian knows how to mend a broken bone by the age of fifteen, except maybe our friend Cynic, here."

I looked at Cynic, surprised.

"Makes me queasy," he said. He did look rather faint, now that I noticed.

"Aye, well, blood disagrees with some folks' stomachs. Lie down," Fidget said. "My brother, can you hold her shoulders? Rosalind, I need you to relax as much as possible. We're going to have to set the break. Do you know what that means."

"Yes, that's—I mean, that's what we would do."

"Okay, lie down slowly, if you can."

I lowered myself, taking great pains not to bump my arm on the hard surface. I tried not to think my bones being repositioned inside my arm. Shit, this was going to fucking hurt.

Cynic's hands rested on my shoulders, and although he held me gently, his grip secured me firmly in place. The freckle-faced woman said, "Ready?"

"No," I joked. "I mean, yes. I'm ready." Bloodless LEDs glared down at me from the ceiling. I shut my eyes.

"I'm going to count to three."

"Okay."

"One . . . two—"

She yanked the bone on two. I screamed, and Cynic placed his hand over my mouth. Blackness encroached on my vision.

I came to as Fidget lifted my arm to wrap it, securing a wooden splint. Sweat glistened on her brow, but she wore a satisfied expression and whistled a merry melody. I took that

as an encouraging sign.

"Hm," I groaned, wishing I could pass out again.

"Oh, you wake. Here, I fetch something to help you sleep."

"No, no drugs. I need to stay awake."

"Why?"

I didn't explain the obvious. Basic principles told me not to ingest anything my captors gave me, if possible. I didn't yet know where these turen stood, so I exercised caution.

"In case I need to."

"Ah." The woman finished off one roll of cloth and started another. "You have strong bones. The wound will heal well, by my reckoning."

"Yeah, I get that from my mom."

She looked at me quizzically. "What do you mean? She gives you your bones, as a gift?"

"No, I mean she has a thick skull. Sorry, I'm half joking. We say someone has a 'thick skull' when they act stubbornly."

"Perhaps I misunderstand." Fidget looked uncomfortable, as if I said something offensive. "Do you mean a mother raises you? Like the infidels before Ulk'halla's fire?"

This caught me off guard. I tried to stay calm, choosing my words carefully to emulate the Havians' active speech as much as possible. "Forgive me, Fidget astronomer, if I ask a question to which all Havians know the answer. I walk unfamiliar ground."

The woman nodded, but she gazed at me with wary curiosity, as one might examine a deadly arachnid.

"Do you have a mother?"

"Of course not. The turen raise me, as with every other turo."

"What about the other Havians? Where do they come from?"

"You ask such strange questions. You mean who brings our little turos?"

"No, I mean, where do Havians come from?"

"From Cal'forna. She creates the world anew this night."

"No, I mean, not that. Where do you think—I mean, where do babies come from?"

At this Fidget laughed. "Oh, you ask the easiest question, like a little babe yourself! Of course you have no great whale on planet Mars. You have no oceans, unless the books speak wrongly. But the bald eagle Ulk'halla soars the solar system above your skies. Does he give you new Martians, as Cal'forna gives us baby Havians? If not, then we call you 'Ulk'halla's child' wrongly."

"Babies come from Cal'forna?" I repeated, sure she was joking. "You mean, that's how babies are born?"

"Of course."

I waited for Fidget to laugh again, to tell me Havian babies were born the normal way, but she showed no sign of breaking. "What about sex?" I said.

The astronomer looked up, surprised. "Do all Martians change the subject so quickly? Perhaps, if I grow to like your Martian smell, then I fuck you this night. But let me look at you." She straightened and observed my body in full. I couldn't help but do the same, since she wore so little.

"No, I mean, maybe. I mean . . ." I trailed off, caught off guard and thoroughly confused.

I had meant, "What about babies coming from sex," but I suddenly realized this might be a strange question to her. In the early twentieth century, Western anthropologists wrote about indigenous populations in Australia and New Guinea who did not recognize the connection between sex and pregnancy. These reports were later debunked as a case of superiority bias, but in principle a society could believe babies had some other origin, including divine conception. The Christians believe in at least one such occurrence, as a prominent example. The Havians might recognize some connection existed but attribute the baby's origin to Cal'forna, or they might believe in divine conception as a matter of course.

"Hm, I think your wound makes this night not ideal. Another time, perhaps." Fidget finished the second roll of bandages and tied off my splint with a flourish. "How does that feel?"

"Tight."

"Too tight?"

"No, tight is good." I paused awkwardly, not sure what to say. "Thank you."

"Aye, Ulk'halla's child. You can repay the debt with further conversation. I hold many questions in my quiver." She sat beside me, smiling brightly.

"And I give answers freely," I said, resolving to learn as much as I could before asking thoughtless questions.

The astronomer did not lie when she said she had many questions. First, she asked if Mars were truly red, as the books suggested, and I described the iron-rich soil, full of sharp, unworn sand that would slice your intestines to shreds if you ingested it. She asked about our books, our music, our houses of pleasure. I described the first in great detail, the second with much hand-waving, and the third very carefully, not wanting to step in shit by accident. I struggled when her questions turned to orbital mechanics and space elevators. Every Martian learns those equations in high school, and they're about as memorable as long division. Still, I did my best to answer, and I gleaned much from Fidget's reactions. She readily accepted our hydroponic farms and water reclamation systems, but the idea of homedomes as big as Manhattan proved too much for her imagination. I reasoned that the Havians' agriculture much resembled our own, despite having access to rich soil and natural light. Their religion kept them underground.

As we talked, Fidget's questions revealed more about Havia than my answers did about Mars. She considered me the Martian equivalent of a tur, one who can read and write and access ancient wisdom through books. I struggled to explain that every Martian fit this description, and although an academic among New Plymouthers was similar by way of analogy to a tur among Havians, the absolute differences were stark. Academics published regularly, but the turen hoarded their knowledge. They guarded trade secrets like corporate researchers, with recipes for growing crops and blueprints for underground buildings, the construction of which wouldn't threaten nearby tunnels below. They even operated the

library's ancient computer system. Fidget described how she spent much of her time predicting the next solar eclipse, using a programming language called Python.[2]Apparently the extraterrestrial event was significant in the Havian religion, representing Cal'forna's victory over Ulk'halla's fire. The rasha depended on the turen to predict this event, having no computer of their own nor even, as far as I could tell, any knowledge that such machines existed.

Although I hesitated to ask any direct questions, I began to understand the delicate balance of power that existed among Havians. The common people, or the laity, consisted of farmers and tradesmen, like the shopkeeps in borrowers market. The majority of them lived in Central Havia, having developed some notion of land ownership in that cavernous space, and thought themselves lucky to own a small patch of well-lit tunnel on which to build four wooden walls. They were numerous, I gathered, but unorganized and well-employed, so that the upper classes never felt the threat of revolution. As an additional comfort, the laity were loathe to spend any of their precious bullets by actually firing them.

The delilahs, by contrast, fired their weapons liberally, as I had witnessed in Lincoln Tunnel. They controlled and operated an abandoned bullet factory outside Central Havia, which once supplied the New York police and now served as the Havian mint, with bullets being the primary medium of exchange. Thus, the delilahs were not only warriors but also economists and bankers. They regulated the production of new currency and exchanged the empty casings, which they could reload, with fewer but more valuable live rounds. As a result, the delilahs wielded enormous power, which they secured by becoming an almost monastic order of mathematics and marksmanship. They kept the peace when needed, but most of the time they hunted aboveground. They stalked small game, which was abundant, and chanted a variation of the death prayer I had heard.

"What are the delilahs like on Mars?" said Fidget.

[2]The object-oriented language played an important role in the scientific community of the twenty-first century, facilitating an early form of artificial intelligence called "machine learning." Modern neural engineers jokingly call these systems "relu-tively smart."

"We have something like delilahs," I said. "But bankers and hunters are different on Mars, or least they pretend to be."

"What a concept! I wonder how you defend your bullet-factory."

As far as I could tell, nothing physically prevented the delilahs from storming the turen's library stronghold. Stacks had several entrances, one of which opened directly onto Central Havia. This was always well-guarded or firmly locked, but the turen were scholars, not warriors. They knew how to fire a gun no better than the laity and likewise hoarded their live rounds for spending. Yet the turen enjoyed greater security than the delilahs by far, because of their knowledge. No one except a tur knew how the books were organized or how to interface with the computer, which was really a cluster designed for technically proficient researchers. It would take years to replicate the turen's efforts, during which time the electrical grid and the food supply would both be endangered, along with any number of important systems that depended on ante impulsum technology. Far better to suffer the existence of an academic aristocracy than to end them and let civilization suffer.

"What is Stacks like on Mars?"

"New Plymouth University?" I said. "Well, we've got a minor homedome to ourselves, where the students like to party. And we have an archive, much like Stacks, only smaller. Martians don't keep very many physical books; most of them are stored on the computer. To be honest, I spend most of my time in my office, thinking about what Havians might be like. I'm really a theoretical anthropologist, if you must know. It's a made-up field."

"All fields are made-up," said Fidget.

For all their power, the turen and delilahs lacked the reverence that belonged to Havia's religious leaders: the rasha. Fidget seemed unwilling to discuss details, only generalities and mysteries. The rasha lived in a secret chamber underneath Central Havia, from which they supplied the entire city with electricity. Fidget knew nothing of how they managed this, being satisfied herself that the light came from Cal'forna, as if the great whale herself, lying dead in Times Square, were actually a power plant of epic proportions. At the same

time, Fidget repeated her assertion that babies came from Cal'forna. I grew frustrated. The electricity explained the rasha's power, maybe, but not their reputation.

"But the electricity has to be generated by something, Fidget. Like a solar panel or a reactor or a . . . I don't know, a wind turbine. I guess."

The astronomer merely shrugged. "Perhaps on Mars, you need these things. But here, the rasha bring us Cal'forna's light."

"Maybe they have access to a tidal power plant," I mused. "Then the electricity would come from the ocean, from Cal'forna."

Fidget shook her head. "You misunderstand, anthropologist-chiefly."

"Just 'Rosalind' is fine."

"Aye, Rosalind."

"What do you mean, I misunderstand?"

"I mean the electricity comes from Cal'forna," Fidget said.

"The same as the babies," I said.

"Aye, the same as the babies."

"You see this happen? You see Cal'forna yourself, delivering a baby."

Fidget shook her head.

"Then how—"

"But Cynic sees. He represents the turen at Bahdum, when Cal'forna speaks, and newborn babies take their first breaths. The power lines come from Cal'forna's own mouth, he says."

I started to respond to this, but uncertainty made me think twice. A wrong word might betray the truth about New Plymouth: that we had no bald eagle named Ulk'halla and, strange though it may seem, gave birth to our own children. I wanted to keep that information to myself, for now.

"Speaking of Cynic," I said. "Where is he?"

"He speaks with Sanguine in her chamber. After I set your bone, Sanguine returns from

Ulk'halla's road, which she takes to visit your nest of demons—your base of operations, I mean. The rasha call it a nest of demons."

"We call it Olympus base," I said. "Why does Sanguine go there?"

"To warn you about the delilahs' attack. She arrives too late, by my guess. In the same tide, Cynic searches Cal'forna's road, where he finds you, brings you here." Fidget sighed heavily. "They talk and talk, all night long unless I miss my guess. Debating which current to swim. Are you tired?"

I caught myself yawning. "Very much so, sorry."

"It's only mid-after-midnight! Do Martians sleep so much, they cannot stay awake for more than four hours?"

I smiled wearily. Of the differences between Havians and New Plymouthers, this had to be the safest to expose. "I have been awake for closer to thirty hours," I said. "We kept our clocks on local time, before landing, but not Havian time. You sleep during the day, normally?"

"Aye," said Fidget, "until Ulk'halla retreats back to his star."

"Right. That makes sense, nocturnal along with subterranean." I yawned again.

"Stop, stop." Fidget said, starting to yawn herself. "You should rest anyway, for your arm. How does the pain afflict you?"

"A dull ache, nothing more."

"Good." She stood and gestured for me to follow. "You can sleep in my hammock, this night. Follow me."

I finished my water and followed the astronomer out of Viewings, down a short flight of stairs, and onto the smooth concrete floor of Stacks.

It may seem incredible that such a collection could have survived the impact, almost entirely untouched by the fires that wiped out humanity—except these Havians, somehow. Yet libraries like these were specifically designed to withstand natural disasters, especially floods but also asteroid impacts. The entire vault was probably sealed off by whoever

managed the collection, a last act which would alter the course of an entire society. Even if water or book-worms penetrated into the archive, each individual bin was hermetically sealed to protect its contents. One or two of the seals might fail, but the collection as a whole would survive.

Like a child, I couldn't help but crane my neck to marvel at it, the largest collection known to man. The red light made navigation more difficult, but I vaguely remembered that white light could damage books over time. The turen's walkways meandered through the upper shelves seemingly at random, running straight in some places and staggered in others, so that the inclined portions made a giant's staircase. Except for some dedicated platforms, they consisted of thin boardwalks, maybe twenty centimeters wide, supported by rafters. This maximized access to the bins, but it terrified me to catch sight of a child, maybe twelve years old, sprinting barefoot more than twenty meters up, where any misstep would send him crashing to the concrete below. The boy clutched a book in both arms.

"That's Mendo," Fidget said. "Little rascal's always up before everyone else, even when they're not sleeping in like this. We all stay up late yesterday, after the delilahs catch sight of your ship come down. Such a long meeting of the turen happens only once a year, normally."

"Should he be running like that?"

"Aye, why not?"

"If he trips, he falls to his death."

Fidget shrugged. "He never trips. He runs Stacks' narrow track every day since the age of six, without falling, to fetch this book or that one. I do the same at that age and even now, if I need some volume in haste and I have no turo to fetch it for me."

"Turo, that is a young tur?"

"Aye, before they defend their thesis and take the test of Stacks. I take my test three years ago, at twenty." Fidget smiled proudly, I gathered that twenty years old was younger than most who took their test.

"How old is the youngest turo?"

"Six. The teachers raise them until then, of coures. We take the ones who learn to read the quickest. Here we are."

We reached a narrow stair in the middle of a row, and Fidget gestured for me to go ahead of her. I did so, since a twelve-year-old had shown no fear, and soon found myself clinging to the wooden steps and shaking with fear. Barely five meters off the ground, I refused to go any further.

"I'm sorry, I can't . . . just give me a minute."

"Ah, you fear heights," Fidget said.

"What? No, I just, my arm. I mean, maybe. I wouldn't know. I've never been anywhere I could fall, exactly." New Plymouth didn't have many lookouts, being a mostly sub-terra city. I would have guessed Havia was much the same, except for this jungle of books.

"Don't look down."

"Yeah, right. Fucking, God-damn—"

"Breathe, anthropologist-chiefly Rosalind."

"Just Rosalind."

"Aye, Rosalind. Can you make it to the platform?"

"How high up is your hammock? Fuck it. I don't think I can go to sleep anymore. Just take me back to the surgery room—Viewings. I'll sleep on the floor."

"Hah! Nonsense. You see Mendo, sprinting back to us? If a twelve-year-old can flirt with falling to his death so carelessly, then you can too."

"He's got two good arms to balance with."

"Excuses, Rosalind."

She was right, and the better half of me knew it. Fuck, how did I manage to go thirty years without getting more than five meters off the floor?

I took a deep breath. Steeling myself, I looked straight ahead and clawed my way up the next step by keeping my eyes on the platform. Step by step, I made my way up the rickety scaffold. When I reached the platform, I rolled over.

"My hammock is at the end."

I looked, and the twenty-centimeters of footbridge seemed like a knife's edge over twenty-meters of atmo. At the end of the row, the walkway turned out of sight, but not before it passed over a thin canvas, stretched between the shelves. I shook my head.

"If you need to, use the overhead line to keep your balance."

The overhead line hung taught above the walkway. Obviously, the turen didn't use the line when traversing the walkway. I guessed it was for holding onto while retrieving a bin on one side or another.

I stood slowly and grasped the rope with my good arm. Inching forward, I made the mistake of looking down. The floor dropped out from under me, and sweat broke on my forehead.

"Straight ahead," Fidget reminded me.

Fucking twenty-something. I reminded myself that she would be a first-year master's student, if we were on Mars. She was only trying to help.

I managed to cross the chasm eventually, by pulling on the overhead line and stepping sideways like a crab. I fixed my eyes on a bin that protruded up above, ignoring the waft of air that could only come from a great space below me. Fidget tiptoed behind me, heedless of the height.

"It's mostly celebrity memoirs in this section," she said, when we reached the stretch over her hammock. "So no one reads them. I can take a nap in the middle of the night, if I need to."

I observed a wooden shelf that stuck out under the walkway, laden with a few novels. Among them: *Red Mars* by Kim Stanley Robinson and *The Martian* by Andy Weir. I guessed that Fidget wanted to research the relevant material, even in her light reading.

The astronomer helped me lower into the hammock, an undignified process which had me convinced I would break my neck before the end of it. After a minute, though, I lay nestled in the canvas, which had a thick padding on the inside and smelled of lavender. A

reading light hung from the walkway shelf over my head.

"Thanks," I said, suddenly very tired.

"Thank you," the freckled woman replied. "For answering my questions, that is. If you need anything, call 'turo,' and one fetches it for you."

"Aye," I said, but already her voice sounded distant as I curled up in the hammock, swaying amid a canopy of ancient books and metal bins, and slept.

Chapter 7

A Cup of Coffee Carries Conversation

There exists a moment, after waking, when the only thoughts are born of dreams and yesterday's troubles have yet to intrude upon this morning. The unconscious mind lingers on the surface. Ripples of subconscious reasoning cascade on the shoreline of awareness. Indeed, all great ideas have their birthplace there, but the moment splinters at the slightest touch, like a barely-frozen lake.

"Rosalind," a voice hissed.

I stirred in the hammock. My arm ached. I wanted to punch Ruben for something he said in my dream. Or was it our breakup? Something about going to Earth as an excuse to get away from him. Earth. Landed in atmo. Lincoln tunnel, sub-terra. Borrowers market, Havia, Stacks. Fuck, I was in that deathtrap hammock, wasn't I?

"Rosalind?" It was Fidget. She wore a pair of cargo shorts and the bamboo shoot in one ear. "Do you wake?"

"Yes, I'm up." I focused on not moving. The hammock felt like it wanted to flip me onto the conrete, twenty meters below.

"Night's well," she said, lowering herself to sit on the walkway. I took it as the Havian form of "good morning."

"What time is it?"

"Still sun-time, for a few hours at least. Tell me, do Ulk'halla's children drink coffee?"

I sat up, my fear of heights momentarily forgotten. The hammock swayed precariously, but the distinct scent of Columbian dark roast was worth dying for. Vapor emanated from two hefty mugs, one in each hand. I grabbed Fidget's bookshelf with good arm and let both my legs dangle outside the hammock for balance.

"Of course we drink coffee," I said.

"Ah, good. I do not know, since some dislike the taste. But you seem like a perfectly normal human being." She extended one of the mugs.

I accepted it gratefully. The coffee smelled so good, like a tenure letter mixed with sex in the morning. I took a sip. As the smooth taste of it lit up my brain with dopamine, I decided to trust these turen. Only decent, trustworthy people make you coffee in the morning. Or evening, or whatever. It was hard to tell the time underground.

"Shouldn't you be asleep?" I said, taking another sip.

"I wake early, after only a few hours. Normally I sleep late, until mid-dusk, but this night I can hardly sleep."

"Why?"

She shrugged. "Partly, I sleep in the bunks today. The little turos make too much noise, as usual."

"Oh, I'm sorry. You give me your bed."

"No, not that. I sleep poorly in any case, for so much happens yesternight! So many questions keep pestering me, until I write them down." She pulled out a note pad from her back pocket. I marveled at the object: an entire book of real paper, just for taking notes. I only knew what it was from movies.

"What? You look like a squid that's lost its ink."

I laughed. "Nothing, sorry. You can ask me your questions."

It felt strange, drinking my first cup of coffee for the day and laughing with someone who wasn't Ruben. Fidget rifled through her notes, hugging the pad close to her chest. She

seemed to argue with herself, flipping back and forth through the pages.

"Where do you get the beans?" I asked, thinking they must have accessed a storeroom or a warehouse from before the impact. In its day, New York had more independent coffee shops than there are commuters on the pod.

"Oh! We grow them ourselves. Is it very good? I think so, but maybe Martians have better coffee."

"No, it's very good."

"Aye, thank you. We use sun-lamps for photosynthesis, and we fertilize the soil with our own compost. Most of our food, we buy from the laity, but we grow the coffeee ourselves. It tastes better."

"Where do you find the first beans?"

She looked at me strangely. "The first beans?"

"Yes, to plant. After the imp—I mean, after Ulk'halla's fire," I corrected myself, recalling our conversation the day before.

"Ah," she said, understanding. "I don't know! But I want to find out, now that you ask. I never think to ask questions like that, until yesternight. Now, they keep me up so much, I cannot sleep. So strange."

"Aye, strange."

I needed to learn about the Havians' religion as soon as possible, before I said something that could get me killed. It was obvious—now that I had some coffee in me—that the Havians had an absolute religion. That is, they believed in their god the way Martians believe in gravity: not as a personal preference but as incontrovertible fact. There was simply no difference between religion and reality. For a pre-enlightenment society, which has no other explanation for natural phenomenon, this would not strike me as unusual, but the Havians had a sophisticated understanding of the sciences. I knew from Fidget that they predicted the motion of the planets, without believing that angels held them in their orbits. They read the likes of Charles Darwin and Niels Bohr, which introduce the possibility of

an atheistic universe even if they do not abolish god entirely. Yet Fidget took Cal'forna's divinity as a fundamental assumption. She believed in the great whale, giver of life and creator of electricity, without question. There must have been *strong* evidence to reinforce such blind faith.

Unfortunately, religious questions were tricky, like asking a Martian which direction was down. I would seem insane. However, Fidget seemed newly curious. She had a positively rebellious attitude.

"Fidget," I said carefully. "A question still lingers in my throat, too heavy to stomach but dangerous to let loose."

"Hah!" The astronomer smiled. "You must hold a good question."

"A strange question."

"If I sleep in the pods of New Plymouth, I imagine I hold many strange questions too. Ask."

I took a deep breath. "How do Havians survive Ulk'halla's fire?"

Fidget smiled brightly. Hastily, she looked to one side and the other, making sure no one listened. Then she leaned close and whispered, "You mean the asteroid?"

I nodded, scarcely believing that I heard her correctly.

"Aye, your caution serves you well. Few forgive your ignorance, and none describe Ulk'halla's fire with the word 'asteroid.' Dangerous!"

"Why?"

"Because of the rasha. Like the church and Copernicus, when he claims the Earth revolves around the sun. Yet my advisor and I theorize as much, that Ulk'halla's fire comes from outer space, rather than a bald eagle the size of Central Havia, breathing fire from its mouth. An asteroid strike seems more likely.

"But we are astronomers," Fidget added. "Few other turen think this way, and we speak carefully about such matters."

"What about Cynic?"

"What about him?" The astronomer sighed. "He studies political philosophy, if that tells you anything. It's difficult to read his thinking, and the rasha make the asking dangerous. "

"Hm. What story do they tell?"

Taking a long swallow, Fidget finished her coffee and set it down. "Hear how the humans once *covered* the Earth," she said, annunciating the past tense deliberately. She spoke the words with some practice, as a monk might recite Revelation, and kept a rhythm to them. I later memorized the passage, which comes from the rasha's sacred text, and so I can recall it perfectly:

"Hear how the humans once covered the Earth, for they birthed like the animals born of their flesh, and they mastered all manner of unholy arts, ever heedless of soil and water and air. The great eagle Ulk'halla observed how the humans infested the Earth, and his wrath burned like petrol igniting a blaze. From his beak spewed a fire as big as a mountain, and a panic of nations swept over the globe. From the streets, which Ulk'halla had carved with his talons, the humans cried out with their infidel screams. So they leapt from tall buildings and dug deep underground, but Ulk'halla's high fire devoured them all. Only his children Ulk'halla protected by bringing them back to his nest in the sky. There they live to this night looking down on us all, with their demons to bring them whatever they need.

"But Cal'forna the whale felt the flames of her brother, below the great depths of her ocean non-finite. She heard how the humans cried out and felt pity. Cal'forna, who never had children before, liked to think of the humans as halfway her own; she admired the civilization they built and the government granted consent of the governed. And so she defended the Earth as her own, with the ocean itself an unbreakable armor, and javelins forged from a skyscraper's frame. When the eagle refused with his talons unsheathed, and his monstrous red eye filled with envy, the whale locked in combat no mortal could witness, reclaiming the roads down below as her own. So she wrestled Ulk'halla across constellations and suffered the gashes of razor-sharp carbon, and yet she prevailed at the battle of ages. She warred with Ulk'halla, whose beak bears the sunlight, and won.

"After fires burn out and the flooding recedes from a shoreline too fractured to build on, Cal'forna refashions the underworld roads and the light which illuminates safely. Ulk'halla retreats to that nest in the stars, which burns red from his evil meandering eye. Then at morning the sunlight incinerates all, and no Havian walks on the overhead streets which Ulk'halla reclaims as his own."

As she spoke, I noticed the presumption of some shared knowledge: that Ulk'halla and Cal'forna were deities who, like the Christian god, each had a chosen people. The story didn't concern itself with where these beings came from, or how the Earth was formed, or even how humans in general came to be. Martians—or rather, Ulk'halla's children—were little more than a footnote.

A silence fell. When she spoke again, Fidget had broken out of the rhythm. "The rest of it covers our traditions and history and such," she said. "Cal'forna bears us as her children, and she creates the world each night for us to inhabit, when we cannot go aboveground. Later verses describe the endless night which *will* come." She emphasized the future tense.

I considered. The story of Cal'forna and Ulk'halla told me much, but it answered very few questions. The whale still reminded me of Jonah's great fish, although obviously the fish had taken on god-status itself rather than being merely sent from God. Did the eagle represent America? I had thought the American flag was Cal'forna's "emblem," and the New Plymouth flag was Ulk'halla's. Two sides of the same coin, perhaps.

"All Havians commit the story to memory," Fidget said. "As you can imagine, I think it may not be the whole truth. Ulk'halla's fire? Phah. An asteroid wipes out the dinosaurs, why not human beings as well? Much more likely."

I nodded. "That's the story all Martians learn. Until yesterday, I never hear about Ulk'halla."

"The rasha say she battles Ulk'halla each night, but I bet she never leaves her chamber. Why should she? If you never hear of Ulk'halla, then perhaps Ulk'halla never exists. 'Ulk'halla's child,' my ass. I call you 'infidel' from now on." Fidget spat to her left, away

from me.

"Infidel," I repeated. "Or you call me Rosalind, as that's my name."

"Hm." Fidget was quiet. Her burst of honesty appeared to have taken the wind out of her sails, and now she stared straight ahead, searching for something she couldn't find in the bookstacks.

I tried to parse what she said about "Cal'forna's chamber." Obviously, the whale deity had a physical presence with the Havians, like the arc of the covenant with the people of Israel, but the bones in Times Square didn't exactly fit. Fidget had said the power lines came from Cal'forna's mouth. Was it possible that nighttime activity in Times Square would go unnoticed by MASA? Between three satellites and five drones, they had near-constant surveillance of the site, but weather still caused gaps.

"Fidget," I said.

"Aye?"

"Last night, I hear the delilahs mention two more of Ulk'halla's children, whom they capture. These are friends of mine, and they do nothing wrong. If possible, I must see them."

She shook her head. "You cannot. This night, the delilahs hunt you on Cal'forna's road, along Havian Way, even in borrowers market. If they find you . . . " she trailed off.

"But Jared and Dr. Mason, they're alive?"

"Aye, they breathe deeply, Sanguine tells me. The delilahs hold them in Foundry, beyond our reach. They question them right now, I imagine"

I sighed. "What do they want, the delilahs?"

"To kill you, Rosalind. They seek vengeance for their comrades who fall to the murderous sky demon—the airplane, you call it, don't you? Yet they desire blood many years, before this night, ever since they watch your base of operations from afar. Delilahs know nothing of New Plymouth, not even of Martians, who make so many wondrous technologies to do their bidding. They see only demons erecting habitats under the open sky, making a home

for Ulk'halla's children, from which you overrun us."

"What about the turen?"

She smiled. "No, most turen think different. We watch your demons—for lack of a better word—building. Never trust a delilah, we always say. So we observe them setting up scientific instruments, unpacking old manuscripts, making laboratories. We leave infidel artifacts in their path, and they gather them up, little archeologists. Thus, when your—excuse me—what is the carriage of fire called?"

"Rocket," I said. "Lander, really. And we call the demons ELVs."

"Elves," she repeated. "Interesting."

"E-L-Vs. Oh, never mind. What did you think when you saw the lander?"

"Aye, we know it carries scientists, not soldiers."

I bit my lip. "And you? What do you think this night?"

She gave me a knowing look. "I bring you coffee, don't I?"

"Yes, you do. But you hear the delilahs' words. You don't strike me as a fool, Fidget. Only a fool turns a blind eye to evidence."

"Hah! You think well of me." Fidget shrugged. "Perhaps I like you, anthropologist-chiefly Rosalind. But also, you don't strike me as a soldier. Perhaps you brings soldiers with you, but so do explorers, when they strike out into the jungle. You come to learn, and that matters deeply."

"Hm," I said, not disagreeing with her but not exactly agreeing either. "Missions like this get funded for many reasons, Fidget. And they're usually not the ones on paper."

Fidget nodded. "You struggle with how much to tell me. I understand. Our conversation echoes of my question, the one that keeps me up at night."

"Ask it then."

"Aye, I do." She rubbed her chest distractedly, thinking. "I suppose the question is a simple one, on the face of it. Why do Martians come? I know why you come, Rosalind. But why does New Plymouth—that is the name, right?—why do they send you? Such a

journey costs much and gains little that I see. What causes a civilization to support such an endeavor?"

That caught me off guard. It was exactly the sort of question that anthropologists like to ponder, and I didn't have a ready answer for her, surprisingly. I spent so much time pondering theoretical societies that I seldom stopped to consider my own.

"You fall silent."

"It's a difficult question."

"Sorry."

"No, that means it's a good question. If I have to answer, I suppose it's because there's nowhere else to go, really."

"Nowhere to go?" Fidget frowned. "What do you mean?"

"Well, Mars isn't very big, and we already have colonies on the moons of Jupiter. Do you have any idea how far that is? A few years ago, I fly to Ganymede for sabbatical. Takes fucking forever."

"But what about the stars?"

"The stars?" I laughed. "You mean, other solar systems? It would take generations to reach the closest one, four hundred years at least. Who would go? It's a suicide mission, for you and your children. Your children's children."

"Hm."

I could see the effect all this information had on Fidget, as she weighed it against the assumptions she had made. The tur opened her mouth to ask something, then shut it again. I needed to change the subject. The best thing I could do to help Jared and Belle was to learn as much as I could about Havians. That way, if other avenues failed, I would at least be able to provide usable information for Erikson to act on. Although how Erikson would know where to find me, I had no idea.

"How many turen are there?" I said, casually.

"Hm." Fidget looked up. "Including the turos? Sixty, maybe seventy. Twenty-one full

turen, like Cynic. Another twenty like me, working toward tenure."

"You have tenure?"

"No, not me."

"But you have a system of tenure, like professors? Or something else, you mean."

"No, like professors," Fidget said. "We have no university like in New Plymouth, but turen are still teachers and researchers. Tenure represents the trust of many bullets, to support a tur's activities, her turos, and the rest. It means she contributes newfound knowledge."

"Hm. At New Plymouth, tenure means you know which asses to kiss. Or you're just lucky, like me."

This made Fidget laugh. "Aye, it's basically the same pot of water in Stacks."

This led to a discussion of the university system on Mars, which resembles the American academic tradition that produced most of the original New Plymouthers. I described our campus, which has its own homedome, and the system of pods and walkways that facilitate student commutes from anywhere in New Plymouth, rather than having to sleep in hammocks between the bookcases. Of course, many students slept in the library by accident. And the cafes. And especially the heartless auditoriums of the Kersten building, which tend to put even the most ardent grad student to sleep, dreaming of Gauss's law and electromagnetic flux. The school of engineering would object to this characterization, of course, but they can hardly compare with the cozy seminars of the history department, which were shared with anthropology.

At length, Fidget returned to more pressing matters. "Night falls," she said, when a turo raced beneath us. "We should get breakfast."

"What happens this night?"

"Ah, good thing to ask. This night holds a lot of water, for you and your friends, but mostly for you. The turen form a lodge to talk things over, and every tur may speak if he or she wishes—although full turs may speak longer. We debate like the ancient Greeks in

Athens, long ago, as a direct democracy." Fidget puffed up proudly when she said this, and she paused for me to comment.

"That's good," I said. "Democracy is good."

"Aye, we think so. Not every Havian shares that opinion. The laity live in coooperative anarchy, you might call it, and the delilahs pick their leader by trial of combat and contest of coin, the rasha by primogeniture."

"So they are kratocrats and autocrats."

"Aye, I think so. Cynic would know. What form of government is New Plymouth?"

"You mean besides a corporate plutocracy?" I joked, recalling a satirical essay from my early college years. "No, ah, we live in a democracy, unlike the other settlement on Mars. Although, if you actually read our constitution you'd call it a representative technocracy, but that's splitting hairs."

"Hm." She nodded as if this made perfect sense. "Well, the turen form a lodge this night. If you can speak, I think things go better for you. Do you address the turen?"

"Aye, if you think I should. Shit, though, what do I say?"

"The truth."

"What, erm, specifically? Oh . . . "

Fidget grinned. "Sorry. Do speak the truth, if you can. But also, guard your Martian secrets. Too many truths can frighten tongues, and turen talk like otters in a lodge."

Did otters survive the impact? I couldn't remember.

Fidget feel silent again. She rubbed her palms and shivered, although the air was warm. I sensed another question dancing on the tip of her tongue, almost spilling out of her, but something held it back. I realized that Fidget might perceive as much danger in asking me something as I did asking her. The turen outnumbered me, but unlike the delilahs, Fidget knew what I represented: a Type I city-state[1]with enough orbital firepower to make the impact look like Christmas.

[1]New Plymouth technically achieved Type I status shortly after declaring independence, if you measure based on Mars' energy absorption. We reached the Earth-based threshold of energy consumption in the mid

I wondered what MASA was doing. Probably trying to figure out where I was, at that exact moment. The historical maps would have included thoroughfares like Lincoln tunnel and "Havian Way," but abandoned sub-basements like borrowers market? Good fucking luck. Columbus had a better chance of reaching India than I had of a MASA rescue. Still, Erikson would do everything she could, and that gave me more hope than an entire homedome full of MASA strategists.

"Rosalind," Fidget said, interrupting my train of thought. "I have another question."

"Aye?"

"You ask me yesternight, 'where do babies come from?'"

I tensed. "Yes, I do."

"This night, I ask you the same question."

I got the feeling that this was the question which kept Fidget awake all night.

"From Cal'forna?" I said, accidentally sounding uncertain. "I mean, they come from Cal'forna."

"All children?"

"No, well, Martian children come from Ulk'halla, don't they? That's why you call me Ulk'halla's child. Except you just said Ulk'halla doesn't exist, didn't you? 'Say Ulk'halla,' I mean. Shit, tense, I know. Is this a trick question?"

Fidget picked up her coffee cup, forgetting it was empty. She set it back down again. After a long pause, she said, "I don't mean to trick you. I should say, 'Where do *Martian* babies come from?'"

I hesitated. "From . . . women." This seemed like the safest answer, all things considered.

Yet it clearly surprised Fidget. "Really? You can have a baby, from your own body? Like a rabbit?"

"Well, not exactly like a rabbit, I mean, but yes. In principle. But there's no giant flaming eagle involved in the process—as much as my fiancé would like to think otherwise."

twenty-sixth century when we constructed the Sagan mirror and Deimos Station megastructures. God only knows where Xin Beijing falls on the Kardashev scale.

"You have a partner? This *fiancé*?" She struggled with the unfamiliar word.

I shook my head. "*Ex*-fiancé, I mean to say."

"Good. That is good." She stared ahead. "But truly, you do not joke? Martian babies come from women?"

"Yes. You think they come from somewhere else?"

"I do not know," she said. "Sometimes I wonder if all babies are born this way. The rasha say otherwise, and they have strong arguments on their side. After all, no Havian women bear children. That much is true." She paused and looked at me thoughtfully. "I suppose, if you want to, you prove them wrong, since you come from Mars."

"What? I can have a child?"

"Aye, you can, right? But no. Even this, the rasha can easily discount. Maybe they say Ulk'halla grants his daughters the power of childbirth, long ago, so that he may abandon them. But Cal'forna continues to bear children, since she cares more deeply for Havians, or some similar argument. It matters little. Some turen believe you, some rasha despise you, and all delilahs try to kill you. Nothing changes, except an innocent child shares your fate."

"Aye," I said, glad that I wouldn't have to give birth just to prove a point.

"In any case, your women must rule over all of Mars. Every one of them can create new life."

"Hah!" I burst out laughing. "Not exactly."

"No? Then you must have a fiercely democratic society. Here, only the rasha may carry Cal'forna's children, bringing them into this world. Cynic represents all turen at Bahdum each year."

"Bahdum," I repeated, turning the word over awkwardly.

"Aye, the night when new babies are born, and Cal'forna speaks."

Now, the rasha's grip on power made more sense. They controlled the source of electricity, for some reason, but far more importantly, they produced all of Havia's newborns. They must have hidden all the pregnant women in some inaccessible chamber, like Stacks, who

gave birth to the entire population. The rasha pretended as if the babies came from Cal'forna to keep their true origin secret, the same reason that turen guarded Stacks from outsiders. But where did the rasha get the women? Were they might themselves an order of mostly pregnant priests? Or did they keep a few dozen fertile women locked up like brood mares? I shivered at the thought.

Fidget raised her head. Changing the subject abruptly, she said, "Night falls! The lodge convenes in half an hour, by my guess.

"Do you speak of these matters, if the turen ask you?" she added, uncertain.

"You say, 'Guard your Martian secrets.'"

"Aye, I do. Good! That is good, you remember. Very well. Can you come with me?"

"Only if you help me out of this death trap hammock, Fidget."

Chapter 8

The Turen Talk like Otters in a Lodge

Because I entered Stacks through a side entrance that first night, I had seen only a small portion of the turen's home, namely the outskirts, which offered scant footbridges and platforms for navigation. Further out, Stacks consisted of unmapped wilderness, where the unmarked bins might contain anything from erotic novels to newspapers[1]and the only means of accessing these treasures were hand-spun ropes dangling from the shelves. If the turen needed a book from these areas, they climbed. Or rather, they sent a turo to fetch it for them.

The turen's lodge would take place in an auditorium, the same hall where turos defended their theses and young turs fought for tenure. Fidget explained as much, leading me inward with the empty coffee mugs in one hand.

To my great relief, the central hub did away with narrow walkways in favor of hardwood floorspace, built right into the metal shelving. Here, the robots' rails had been removed and the book bins transported elsewhere, replaced with warmly decorated living spaces or reading nooks with wooden shelves. Old-fashioned chalkboards covered the walls, and unintelligible scrawls covered the chalkboards. I even spotted a break room, complete with a coffee machine. Heavy curtains separated study spaces from one another, sewn from a dozen or so rabbit skins, to block out the noise and provide some sense of privacy.

[1]A kind of daily publication which reported the news on large sheets of paper, popular in the twentieth century.

We ascended a flight of stairs and passed several dormitories crammed with bunk beds, where the youngest turos lived. I spotted a little Korean girl, with dark hair and features much like my own, no older than six or seven. She lay curled up on the bottom bunk with a plush dolphin toy for company.

We crossed through a passage in the shelf to another row, lined with private apartments on either side, built right into the shelves. Most of these had proper doors instead of curtains, but I glimpsed a few living spaces through the cracks. These had pleasant landscapes framed on the walls and wooden rocking chairs, next to the couch. Instead of a television, which would occupy a family pod on New Plymouth, a chess board or sometimes a record player[2]served as the unifying object. The full turen inhabited these rooms, either on their own or in pairs, with private bathrooms and a communal wash room. Painted animals marked each door much like the tunnel roadsigns. Fidget directed my attention to one door with a"fox's stare," where Cynic lived.

The center of the hub expanded onto a coffee bar where a few turen conversed quietly over their evening cup. Once again, their diversity struck me as improbable, under normal circumstances. In one nook, an elderly Native American man chatted with a dark-haired Scandinavian woman, while in the corner, a West African pored over a copy of Plato's *Republic*. They looked up when Fidget entered, and their eyes locked on me.

"Night, Cynic," one of them said.

"Night's well."

"That's her?"

"Aye," I said. "Good night to you."

At this, the woman's eyes narrowed, and the old man sipped his cappuccino thoughtfully. The West African returned to his reading.

The coffee bar surrounded a freight elevator shaft on all sides, with waist-high wooden railings that overlooked the pit. Cynic rang a bell three times. The machinery whirred to

[2]An auditory entertainment device, which used analog discs as the storage mechanism for music or spoken word.

life, and a flat counterweight sped upward as the carriage descended. The whole contraption obeyed a ten-year-old boy, who lounged in an armchair with one hand on the button while the other paged through a paperback copy of *Flatland*. He hardly looked up, except to align the elevator with the floor.

"Hold it!" someone called.

I turned. A tall blonde woman wearing a full-length dress jogged down the passage behind us, cheeks flushed with exercise, the same color as Fidget's hair. Like Fidget and Cynic, she struck me as remarkably fit, although I supposed if the grad students at New Plymouth had to jog a half-k and climb twenty-five meters of rope every time they wanted a book, we might have a more competitive intramural racquetball league.

"That's Sanguine," said Fidget. "My advisor."

"Ah."

The woman pulled up short in front of us. "Night's well!" she said. "I run here from C-38. You know how far out that is? I oversleep, and then I remember I want one of the books on Mars, before speaking. I fear I miss the start. You fetch her, then?"

"Aye," said Fidget. "We just arrive."

"Oh, good." The older woman smiled at me. "Do you sleep well, Anthropologist Rosalind? Or Dr. Rosalind, is that better?"

"If you say 'doctor,' then you call me Dr. Lee," I said. "But really, just Rosalind."

"Hm, two names! How interesting. Do you address the lodge this evening, Rosalind? What do you say?"

Fidget interrupted. "Sanguine, the turo's waiting."

"Oh, right."

The ten-year-old looked completely content, buried in his book. Nevertheless, he pulled the wooden gate open with one foot and admitted us without taking his eyes off the page. The gate swung shut on a spring, and the turo thumbed another button. We ascended jerkily.

"Where does this lead?" I said.

"The lodge lies on the top floor, above ground."

"Really?"

"Aye, in the old library," Fidget said. "Fifty years ago, the turen paint black over the windows, to keep out Ulk'halla's rays. They restore old study spaces and construct an auditorium in the center, for holding lodge. The turen have greater numbers then. Now, we scarcely fill half the seats."

We passed two more turen-built floors as we ascended, one of which opened onto a kitchen and the other a dining hall where five or six young turos wolfed down breakfast. I had only a second to absorb the sight of them, spreading cheese on toast, before the cavern disappeared below us, replaced by concrete walls speeding past.

"How do you make cheese?" I asked. "I thought I saw some, in the dining hall. Do you have cows?"

"You mean the large, belching animal, covered in black and white?" Fidget said. "No, these no longer roam the Earth. Some of the laity breed goats."

"Goats." I nodded to myself. "Oh, but how do they survive the impact?"

Fidget shook her head. "Cal'forna fashions the first goat from a sea urchin."

"Oh."

The turo looked up from his novel, suddenly taking a greater interest in me. He had bright green eyes, intent on my face. I shifted uncomfortably, wishing I had said "Ulk'halla's fire."

The elevator jerked to a halt in an industrial-type basement, where the original library's maintenance crew accessed the machines below. The Havians had adopted this as their main entrance.

"Come on," Sanguine said, waving for us to follow.

"Does New Plymouth build churches?" Fidget asked me, as we climbed a short flight of stairs. "I visit the old churches in New York, once, to see their vaulted ceilings and hanging

crosses. The pews burn black from Ulk'halla's fire, and worshipers' bones lie scattered in every row, every aisle. So many come to pray, but no one listens. The infidels worship a strange god."

"We have churches," I said hesitantly. In fact, we had the same sort of churches as she described, but I wasn't sure what to say about them.

Fortunately, Sanguine chose that moment to ask Fidget about her research, which steered the conversation tactfully into safer waters. I listened idly to the young tur's description of a database of exoplanet observations, which she recently discovered among cold storage memory tapes.

The hallway spilled into the center of the lodge, in which a warmly lit stage offered both podium and blackboard for its speaker. Sleek aero-armchairs comprised the seating arrangements, grouped into tables of two or three to facilitate conversation around repurposed oven coils, which served as space heaters. The lodge had no ceiling except for the library's massive arches, twenty meters high, and no walls except the original New York brick well beyond the final row of chairs. The lodge was not so much a room as an open-air amphitheater within the larger room. It reminded me of Shakespeare in the park, underneath the original steel of Stevens dome. Indeed, the rows of chairs curled upward like a fishbowl, with a slightly elevated stage to match the average altitude of the audience. About fifteen turen had taken their seats. They jotted down notes and doodled on pads, using bamboo reeds soaked with ink, while the hubbub of newcomers slowly coalesced. Conversations struck up between colleagues, of which I caught mere snatches: a mathematician and a physicist debated something to do with general relativity, and two historians argued over the best term for "pre-Ulk'halla's-fire" as a historical age.

"We sit here," Fidget said. We took our seats in the lowest row.

I tried to catch more of what people were saying. A few keywords seemed related to the Odysseus crew, namely "explorers" and "conquistadors," which gave me a sense for my audience. Those in my immediate vicinity mostly shared an ill disposition toward Ulk'halla's

children, convinced that the delilah's narrative held at least some underlying truths. I couldn't blame them. After all, we brought our finest weapons on this scientific expedition, and anthropology takes second place to survival.[3] Vaguely, I wondered if they would call for my execution on the spot.

After another ten minutes, during which more turen continued to trickle in, Sanguine climbed onto the stage and cleared her throat expectantly.

"This promises some interest," Fidget whispered.

"What?"

"I think you know. Sanguine visits your base of operations yesternight, but no one hears her warning."

"Olympus, right."

"Olympus, like in ancient Greece? Palace of the gods?"

"Aye, Martians have a healthy ego, don't we?"

Fidget laughed and scooched her chair closer to mine. She started to say something, but the head of astronomy cleared her throat again, and this time the lodge fell quiet. She spoke methodically, checking off mental boxes as she called for count of quorum, the minutes, and finally the reading of this night's agenda. It was a full quarter of an hour before the lodge finally started. I noticed that latecomers continued to slip inside, shaking hands and seating themselves with the same disregard for decorum as the established faculty at New Plymouth.

They straightened when Sanguine changed the subject, however, and became rapt with attention when she described the ELVs at Olympus base and the sound of the hellhornet flying overhead. After the delilah's attack, Commander Erikson had returned to base and activated our automated defenses while she consulted MASA. Four of the ELVs swept the perimeter at regular intervals, headlight blazing. The hellhornet circled overhead, equipped with a laser array capable of melting a man's skull from 2,000 meters.

Fortunately, Sanguine described these details while being completely unaware of the laser

[3]Orson Scott Card, *Ender's Game*. 1985. (paraphrased)

array or the ELV-mounted rail rifles or the more powerful weapons currently being diverted from MASA central command. In a few days, the care packages would begin raining down inside disposable heat shields, filled with more guns, ammunition, and automated vehicles to carry them. Soon, Erikson would have proper marine bots at her disposal—hell, even a berserker—and shit really would catch fire.

Thank God this Sanguine woman didn't know that. She painted a pretty portrait with her words, of peaceful Martians completely and unprepared for the brutality of the delilahs' attack. The Martians only returned fire out of self defense, which was technically true, and had retreated to a defensive position after one of them lost his life, two more were captured, and the "chief anthropologist of Mars" lost her way on Cal'forna's road. Thank the great whale that Cynic found her! The rest of them—Sanguine assumed we had more than five crew members—were probably huddled around their heating coil, figuring out what to do next. All alone. Unable to communicate.

I held down a laugh. Right now, Erikson probably slept in a bio-smart mattress with more temperature control circuits than there were books in Stacks, while MASA strategists debated over what she should do next. Still, the image had its desired effect. By the time Sanguine had finished, I half-believed in peaceful, fun-loving Martians myself, not the deadly demon-spawn that delilahs insisted had picked them off from the sky like Zeus slapping mosquitos.

After she finished, Sanguine yielded the rest of her time for general comment, during which more than a few belligerent turen made their opinions clear. Aye, the Martians may not be savages, as the delilahs would have them believe, but that doesn't mean trust them! What have Havians done, leading this foreigner into the inner sanctum, letting her sleep in the sacred Stacks, and making a seat for her at lodge? The insanity!

Fidget leaned over to me. "Now, you speak," she said. "Be brilliant, anthropologist-chiefly Rosalind."

"Oh now? Thanks. Perfect timing."

"You speak well."

I laughed, despite myself, and realized that I rather liked Fidget. We shared the same sense of sarcasm.

When the conversation reached a lull, I stood abruptly. This had less of an effect than I had hoped, since the spotlights on the center stage left the front row mostly in darkness, but Sanguine noticed me. She silenced the arguments by ringing a dull bell, carved from an enormous conch. After a brief introduction, she helped me onto the stage and stepped down, leaving me alone.

I blinked, adjusting my eyes to the sudden brightness. I could hardly see my audience, because of the spotlights, only the tops of their heads.

"Speak," a booming voice implored.

Fucking shit. What the hell was I doing?

"Aye, I speak, I speak," I said, throwing caution to the wind. "Do you always harbor such impatience, as a newborn goat for its mother?"

The booming voice laughed, and I relaxed a little. The surest way to get an audience on your side is to tell a joke and have it land.

"Turen new and tenured," I began, in what I guessed was a formal manner. "I thank you for letting me address the lodge this night. An educated person can give no greater gift than time."

This seemed to go over well. A few turen nodded their heads and murmured assent.

"Thus, I refuse to waste time convincing you that we come to learn, not to conquer. That much is self-evident. As an anthropologist, I spend my time the same way you do: reading ancient texts and thinking deeply. I work at a university, much like Stacks. I defend a thesis. I work toward tenure. If Mars means to wage a war, they do not send people like me to start it."

I paused, trying to gauge the effect of these words. It was difficult to tell, and the uncertainty was making me nervous. I hadn't felt this on edge since my thesis defense.

"Unanswered questions bring me here this night," I continued, "across an ocean without water, aboard a ship without sails, and against the objections of everyone who ever loves me. My partner leaves me. My parents hardly speak to me. Yet I can do no other until have answers to those questions. How do you live? How do you love? How do you treat your dead? As an anthropologist, I come to learn. And I know of no better place to learn than Stacks, with so many historical volumes, you practically drown in perspective. How do you accomplish anything besides constant reading, I wonder?"

"We don't!" someone shouted.

"Hah!" another voice.

"Aye, exactly. Exactly."

I folded my arms, considering my next words. My audience listened intently now, hanging on every syllable. I heard bated breaths and knuckles cracking.

"So let me introduce myself properly," I said. "I am Dr. Rosalind Franklin Lee, chief anthropologist of Odysseus I, the first Martian to step foot on planet Earth in over four hundred years, and I am your best chance of avoiding further bloodshed. Aye, Martians want no bloodshed. *I* want no bloodshed. But the delilahs attack first, and my good friend, John Kumar, dies in the firefight. Martians think they act on behalf of all Havians, rather than impulsively, for their own ends. I alone understand the difference between educated tur, deadly delilah, and priest of the folded cloth. Until two days ago, Martians know nothing of Cal'forna's children. We have no reason to imagine that an entire society—a civilization—still thrives on Earth after the impact."

At the word "impact," several turen sat up straighter. Fuck. I had meant to say "Ulk'halla's fire" again, but I was still getting used to the Havian's version of events. Hell, I was still getting used to the fact they had electricity. I decided to forge ahead.

"Aye, 'the impact.' That is Martians' name for 'Ulk'halla's fire.' We call things differently on Mars, for we care more about the truth of what happens than the story we like to hear. Such is the mind of a scientist."

At this, more of the turen nodded, but they stopped when a dark figure rose from his chair, into full view of the spotlight. It was Cynic. He folded his arms over a light vest, which he wore, and commanded utter silence while he pondered a question. I waited.

"What is the truth?" he said finally. "Tell us, Martian." He said it casually, like asking about the weather, but the entire lodge hung on my answer.

"I have no pretty words to wrap the truth in a rasha's rhythm," I said. "But I speak now about an armageddon. Hopefully my words need no dressing for you to remember them well.

"Four hundred years ago, twenty billion human beings cover the Earth. They belong to many great nations, with weapons so great that they dare not go to war, for fear of destroying the whole world. Yet they wage wars nonetheless: economic wars, political wars, and climate wars. America, where you reside this night, is one such nation. She is not the most populous nor even the most industrious nation—that is China. Nor is she forward-thinking or pragmatic like the nations of Europe. She is irrational, hypocritical, and egotistic. Yet she is also great. Indeed, the greatness of America lies not in being more enlightened than any other nation, but rather in her ability to repair her faults.[4]She contains no single people and has no single ideology except the equal and unalienable rights of all people to life, liberty, and the pursuit of happiness. The American dream."

"The American fantasy," said Cynic.

"Yes," I said, getting excited. "Yes, exactly. The American fantasy, because it doesn't actually exist. Equal representation and equal opportunity are impossible to implement, but the *ideal* of equality inspires multitudes to strive for a better life, a greater liberty, a closer approximation of happiness. People from all nations dream of coming to America, and when she accepts them, America thrives. She builds. She invents. She uses the riches of automation to climatize her energy sources, establish the first Mars colony, and lift an entire generation out of poverty in less than a single lifetime."

[4]Tocqueville, Alexis de, 1805-1859. Democracy In America. New York :G. Dearborn & Co., 1838. Vol. I, Ch. XIII.

Cynic nodded thoughtfully. His arms unfolded, and his shoulders released some of their tension. "Aye, America strives for admirable ideals. Whether or not they achieve them makes up another matter."

"You see, but I come from a settlement founded on the exact same ideals, in an environment that *requires* individual prosperity."

"How?"

I inhaled deeply. "Well, it's simple. Martian poverty doesn't exist because homelessness on Mars is death. The first settlers of New Plymouth require incredible resources just to step foot on red soil, and their presence demands continual investment for decades, in the form of vacu-habitats and food deposits, not to mention personnel replacement. The pilgrims at Plymouth rock harness their wealth from the land around them, with help from the native tribe.[5]"

"The first Havians face cold winters and harsh sunlight from Ulk'halla's rays, but Cal'forna prepares a place for them. Havia has plentiful fishing and farming, thanks to Cal'forna's light." Cynic rubbed his chest, pondering. "How do the first Martians survive, on such an inhospitable world? Does Ulk'halla shelter you with his wing?"

I laughed, aware of how reckless this speech had become. "Perhaps. But if his wing shelters us, we cannot see it. The first colonists live in sub-terra habitats and eat protein bars out of reusable packages. No one stays for more than two years. Still, the running population doubles every twenty-six months until the completion of the first homedome. Curiosity Cortez, the first native Martian, is born shortly after.

"Her citizenship sparks a political revolution that brews inside the settlement. By that time, New Plymouth becomes a self-sufficient Mecca of automation and education. We declare our independence on the fourth of July, 2084, with a population of fifty thousand. Within another century, we boast a population of one million souls,[6]supported by universal income, education, health care, and the rest. Jefferson would have called it utopia."

[5]Until King Phillip's War, that is.

[6]Not counting Xin Beijing, which negotiated for autonomous zone status in 2125.

"What do you call it?"

I shrugged. "An imperfect system, like any other. We inherit many of America's problems, and we create plenty of our own. But on the whole, New Plymouth prospers.

"Of course, we remember what comes next, which you call Ulk'halla's fire. We remember. The asteroid appears all of a sudden on our telescopes,[7]on an extrasolar orbit that passes within 2,000 kilometers of the Earth. But governments react sluggishly. America and Europe trust in the existing asteroid defense systems, which use gravitational attractors to sling asteroids out of dangerous orbits. Mars trusts that the Earthers have a handle on the problem, having plenty of problems on their own. New Plymouth and the United States engage in a trade war. Political protesters clog the tubes of Xin Beijing. Unfortunately, no one fully grasps the danger until too late. Gravitational systems don't account for an impactor with so much velocity, which might be broken up but not diverted in time.

"On June 7, the object lands just outside the Midwestern city of St. Louis. Their Gateway Arch reportedly rips itself apart from the initial impact. Can you imagine? Nineteen kilometers wide. Enough kinetic energy to crack the Earth's mantle like an egg. Major earthquakes circle the globe. Seawalls break and skyscrapers splinter like dead trees. New York City sinks underwater. And yet, the worst comes after.

"When it burrows into the Earth, the impactor ejects inner-core material behind it, all the way to low-earth orbit. It's like dropping a solid stone in water. The collapsing crater forces material into a jetstream behind the impactor. Shards of frozen magma surround the planet. This causes an ablation cascade through our man-made satellites, cutting of Earth-Mars communication. After a few hours, a mixture of frozen ejecta and satellite fragments reenter the atmosphere with enough energy to increase the surface temperature by 500 degrees for almost ninety-six hours. The land of ten thousand lakes begins to boil. Forests in the Antarctic archipelago catch fire. Human beings burn alive on the streets of Beijing, London, New Delhi. They cook themselves in swimming pools, unable to escape.

[7]First spotted by Richard Dowel, an Australian amateur observer, in January, 2483.

Out of twenty billion, we think only ten million survive."

As I spoke these words, the Havians hardly breathed. When I paused, it was so quiet you could hear a mosquito on water. They had no idea. Listening to me, they experienced for the first time what every Martian grapples with from the moment they exit the womb, a new human being in a post-apocalyptic age. I had to make it real. I had to convince them what happened wasn't some giant eagle's revenge on an overbred population.

"It could be worse," I mused, in the silence. "The object broke apart before touching down, and only a fragment actually struck. The whole thing could have come raining down, shattering the mantle entirely. like a glass bulb."

"You say ten million survive," Cynic said. "How?"

. . .

"Emerging from their bunkers, these first survivors face a planet more hostile to life than Mars. Major storms continue to tear across the continents. Soot and dust particles in the upper atmosphere cause a modern ice age. For decades, we imagine, those who survived slowly starve, as their food stores diminish and fertile land freezes over."

. . .

"Where do babies come from?"

"Why," I said, perfectly composed despite my uncertainty. "They come from Cal'forna, of course."