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. I was the foremost theoretical anthropologist on Mars, having been the first to theorize about societies after the impact, and had a better understanding of the Times Square artifacts than anybody. Also, the Senate Exploration Committee liked me. That probably mattered more than my actual qualifications, since they determined MASA's funding.

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

"Yes sir."

"Your vitals spiked."

Even with such recommendations, 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.

Normally, MASA wouldn't even consider a theoretical anthropologist for the first Earth mission. My lack of technical expertise was unique among the candidates, most of whom had some background in neural engineering and the physical sciences. I was a soft-science professor who happened to have the right security clearance, whose dissertation described *ante impulsum* cult movements. But the circumstances were far from normal, and MASA wanted me there.

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

"No idea," I said. As usual, Jared talked like studying human religion made me an authority on divine actuality.

"I'm serious."

"Oh." The problem was Jared Wu believed in God, but he didn't always act like it. Religion 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, 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."

"Now, that's a cheerful—"

The roar of the engines cut him off.

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

On the other hand, God has good reason to dislike Martians in general, not just me for my misgivings. 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 coasted over the Earth. If my pod had a window, I would have seen the ocean's curve wrap around the horizon, with more water than Europa station could harvest in ten thousand years. Deeper than Mariner Valley, and every cubic kilometer teemed with life.

"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 supercapacitors 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 gone 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

[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 ever figure out how to build an artificial womb.

[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 have to leave Earth like Neil Armstrong strapped to a fucking firecracker.

turn his great deeds to dust? Our greatest endeavor, the terraformation project, practically spits in the face of Genesis.

Jared thought I was joking. "Nice. You should say that, instead of 'one small step.'"

"Thanks. You know I'm still nervous about it."

"You'll do fine."

Months ago, we had decided that I would leave the lander first. According to tradition, this meant my first words on planet Earth had to mark the occasion. But I couldn't think of anything. 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.

There had been considerable fuss when we decided the walkout order. In some ways, I remember 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 ancient Roman 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 MASA knew it. They assumed Kepler Erikson would take the first step, 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 news anchors, she asked MASA to abide by the crew's decision. If history only remembered one of our names, it would be mine: Rosalind Lee, the "first human on Earth."

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

"You know, they say Neil Armstrong came up with 'one small step' on the spot," Jared said. He was distracting me from the panic of reentry, and I was grateful.

"He said that himself," I said, "but I don't believe it."

"Really?"

"I think his wife probably came up with it, and he took all the credit."

I switched off the channel, cutting off Jared's laugh. I didn't want 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 exists? 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 humans endured. We beat back the four horsemen like a tennis player returning every serve. 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, 2482, God called his greatest warrior onto the field. Impact rode War's red horse, and he carried a sniper rifle loaded with extrasolar bullets. His shot struck the North American continent dead center.

"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, burning. The surface of every continent reached 600 degrees, and twenty billion people cooked inside their homes. One

million Martians simply watched. If God exists, I think Impact was His last horseman, and He resents every man, woman, and child who survived.

—

"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 a step, and then I took another. 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.

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. Idly, 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 lost his footing and practically stumbled onto the Earth. Recovering gracefully, he set his helmet on the concrete, winked for the camera, and said, "It's a little bit chilly outside, isn't it?"

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 isn'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

MASA built Olympus Base using a fleet of Essential Labor Vehicles, or ELVs. These were the same general-purpose robots that built New Plymouth's homedomes and maintained our infrastructure, comprising the entire industrial workforce of a multi-planetary economy without consuming any resources themselves. Humans, by comparison, are notoriously expensive. We require living quarters, crops, and entertainment in order to stay healthy. We need social centers, health care, child care, education, and years of experience before we begin contributing to society. Thus, New Plymouth only employs humans in roles that robots can never fill, as writers and artists and engineers—as thinkers, basically—and leaves the burden of physical industry to herds of whirring actuators much like cattle.

Thus, by the time we stepped out of the lander, Olympus base awaited us. Being designed by Martians, the compound consisted mostly of underground quarters, with a central dome serving as a common area and concrete passageways that broke up the regolith here and there. Offices and living quarters nestled in the topsoil as far from the launch pad as possible, next to an industrial-sized garage which housed our heavy equipment and transportation vehicles. The core of the compound covered a geothermal power plant and graphene power bank, the latter of which stored enough potential energy to flatten a soccer stadium. Two acres nearby served as a small farm, next to hydroponic tanks where spider-like ELVs already

harvested our dinner, unconcerned with the violent manner of our arrival. All of it, from the anthropology archive in my workspace to the Samson rocket which would take us home, was built from raw materials mined on faraway asteroids and dropped from geostationary orbit like care packages from God.

We quickly settled into the new space. John Kumar ran diagnostics on the solar array, hydroponics, and ELV silo, while Dr. Mason checked her instruments on a hilltop half a kilometer away. Jared began working through the latest data on the local eco-graph, trying to understand the specialized systems that had emerged in the aftermath of two major mass extinction events: first the anthropocene, then the impact. Disentangling the two would inform future terraformation efforts on Mars, to better understand which species are well-adapted to human civilization, other than rats and squirrels.

Meanwhile, I retreated to my lab, reviewing the artifacts that ELVs collected from overgrown charging stations and dilapidated roadside restaurants. No matter how many excursions the robots made, they always seemed to have missed something interesting: a reverend's journal from the days leading up to the impact, a safe full of family documents—birth certificates, passports, laminated fifth-grade diplomas—a printed photograph. Most of the items were interesting not just in of themselves but also because of where the ELVs found them, these private possessions left strewn about in public places, as if in place of tombstones.

Commander Erikson, for her part, disappeared to speak with MASA. I imagined she must have had good reason to put up with twelve-minutes' latency in both directions, from the lightspeed limit.

Erikson called a meeting later that day. We gathered in the compound's main room, underneath a familiar-feeling dome where natural light bathed the minimalist furniture in afternoon orange. The pyschologists optimized this space for community and wellbeing in their simulations. They thought we would be spending a lot of time there.

Dr. 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?"

Erikson didn't waste any time. "The Pegasus picked up something unusual, closer to the city. MASA wants us to check it out."

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

"It's some kind of artifact. Basically, they aren't sure what to think, and they want to justify the six billion dollars it took to send us here. So I'm going to do an in-person check."

I frowned. The Pegasus could count minnows in a creek from geostationary orbit, and MASA's server farm could process a petabyte of image data every second. If MASA didn't know how to interpret this "artifact," with all that information, then it might be worth our time.

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

"Yes. MASA will deliver new timetables as soon as they're ready. This involves everyone, even though you may not work with Earther artifacts directly."

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 smiled at the thought. The psychologists thought we should eat meals together as much as possible, to promote group bonding. It was an old-fashioned ritual.

"That may have to wait. Rosalind, can you brief everyone on Times Square? MASA changed their minds."

"Really?" I said. "Did something happen?"

"What's Times Square?" Jared said.

"The need-to-know has changed." Erikson sighed. "MASA isn't exactly happy about it, but I managed to convince them. Everyone has Times Square authorization, or they will soon enough."

"All right. Are you sure you don't want to do the briefing?"

"No, you've done it before, and I need to go ahead with this in-person check. MASA's getting anxious."

John Kumar gave me a strange look. “Does this have anything to do with your top-secret project?”

I nodded.

“Oh, well in that case,” he grinned. “Let’s get to it. I’ve always wanted to know what goes in those closed-door senate briefings.”

“No one’s supposed to know about those.”

“Yeah, well, secrets are harder to keep than you think.”

Erikson cut in. “Rosalind, brief them. I’ll call you when I know something.”

“Sounds good.”

“John, I’m taking ground transport and leaving you with the hellhornet in case the situation changes.”

“Yes, sir. So we’re calling this a situation, sir?”

“Not yet. But possibly.”

“Yes, sir. Noted.”

I got to my feet. “All right, well, this is exciting. If everyone could come with me, I think the archive is best for this sort of briefing. This way. After you. It’ll be a little tight, but we’ll manage. Thank you.”

—

Today, you can visit the Olympus Base Museum and see the much-famed landing pad where I took that first breath. The Samson ascent vehicle still stands erect, having never been used, and a replica of the lander sits in its original spot, with the original moved to the main hall of the museum. You can tour the compound, where the tour guides give stirring speeches about the brave crew members of Odysseus One, who returned to a barren world. You can peruse the common room and recreation areas, the fitness center and the dining room, which we never used. You can even see our private quarters, but you cannot enter the anthropology archive. The door to my former workplace is unlabeled, and its contents have been removed.

I palmed the archive door and gestured for the others to go ahead of me.

"This wasn't in the mockup," John Kumar remarked.

"Neither was the hellhornet."

"Fair point."

Before shipping out, we spent two months living in a near-perfect duplicate of the compound. The psychologists said to establish routines in a familiar environment, but I think they wanted to make sure we wouldn't drive each other crazy.

Inside, my workspace was crisply laid out, with a standard lab bench and several rows of compact storage. The air was dehumidified, and the lights were a comfortable sepia tone. With the door shut, we had just enough room for me at my desk and the three of them standing where they could see my panel. I briefly wondered whether the media room would have been a better venue for this briefing.

"Driver," I said. "Please, confirm John Kumar, Jared Wu, and Belle Mason are authorized for the Times Square artifact."

The computer chimed helpfully. "Confirmed. They are also cleared for any Aragorn IV classified information."

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

"And now, you're part of a small group of people who know that didn't happen. Driver, pull up the Times Square photos."

"Who are the other fifty?"

"MASA higher-ups," I said, enumerating the list with my fingers. "Two graduate students, a handful of faculty at NPU who are my former students, the Senate Exploration Committee, and Mayor Daniels' wife, who found out about it by accident."

"Hold on." Jared raised his hands. "Why do you know about it? As an anthropologist, I mean. If it wasn't a battery failure . . . "

Shrugging, I pointed at the panel behind me, where the computer had pulled up a series of photos. "Because of that, mainly."

They leaned in to look at the images. At first, they didn't understand what they were looking at. The busiest intersection on Earth was barely recognizable, with the buildings draped in ivy and topsoil replacing the pavement. A wild apple orchard sprung up in the shadows of skyscrapers. The twisting branches made a dense canopy speckled with red, casting the whole scene in a wash of color. Yet it was definitely Times Square. The old ticket booths topped with red bleachers still stood, overcast by the long-dead billboards of the plaza hotel. The windows where true New Yorkers never shopped had long since shattered, but the concrete cutouts remained: of news studios and toy stores and fast food restaurants, their once-bright colors faded.

Yet Times Square itself merely provided a recognizable backdrop for the photos' dramatic subject. The world's busiest intersection had become its grandest graveyard: the final resting place of a massive beast, whose bones could not be buried.

"What was that?" Dr. Mason said, breathless.

"An adult sperm whale," I said. "Eighteen meters long. Fifty thousand kilograms."

The whale looked even more out of place than the apple orchard. Its skeleton cast ribbon-like shadows on gnarled tree trunks. 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 fins, leading to a long trail of vertebrae which would have manipulated a powerful tail. It was a monster of Biblical proportions.

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's a sperm whale?" said John Kumar.

"It's a kind of aquatic mammal," said Jared, also stunned. "One of the deepest ocean dwellers."

"A whale. Right. Sorry, this may be a stupid question. But how did it get there, exactly?"

Jared straightened, avoiding my gaze as he guessed the only possible explanation. "It swam in, right? The city flooded after the impact, before sea levels dropped. So it's at least three centuries old. It probably got lost in the buildings after a storm, trapped by the tide."

"What about the pictures? On the bones, there. See?"

I cleared my throat. "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* . . . "

"A group of survivors, yes. 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 some of the most intensely scrutinized research in centuries, theorizing about the anthropology of an entirely unprecedented society. It was thrilling.

"How?" John's voice sounded strange.

"Nobody knows. Almost every apartment building in New York has a bunker which could have survived the initial impact, but we thought that the subsequent disasters were too much. I have a theory about a survivalist cult, which would explain the pseudo-religious imagery."

Dr. Mason tilted her head. "How so?"

"Well, leading up to the impact, these movements formed around the idea that they could guarantee salvation for their members. There were two types, and only the second

one is all that interesting. These cults made *practical* promises, with actual infrastructure to back up their claims rather than a promise from God. They had sprawling, underground compounds in New Zealand or Antarctica, where the environmental effects were thought to be less severe. And they had money. Millions of followers, donating their entire savings for the chance of survival, driven by a charismatic leaders who wanted to restart civilization on their own terms instead of God's."

"Did any of them actually make it?"

"Well, yes." I pointed to the panel. "The Times Square survivors."

These words sunk in slowly. I felt the atmo in the room shift subtly, as an internal paradigm shift took place, and I observed the faces of my fellow crew members with interest. For most of our history, Martians have imagined ourselves as 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 Trojan refugee Aeneas, who fled across the sea rather than rebuild his hometown.

Staring at the screen, Jared crossed his arms tightly. "Reminds me of Jonah."

"Who?"

"From the Bible, tale of Jonah."

John Kumar frowned. "Like in Sunday school?"

I winced. "Sunday school" was how my fiancé referred to my department at NPU. My ex-fiancé, I should say. Still getting used to that.

"I forget. What happened to Jonah?"

"That's an interesting comparison, actually," I said. "Jonah survived three days in the belly of a whale, after being lost at sea. God sent the fish to save him, even though Jonah disobeyed God's command. He was supposed to go preach in the city of Nineveh."

"That's all? Why didn't he go?"

"The Israelites were prejudiced against the Ninevites. Would you want to preach in Xin Beijing? Same difference."

"Hm."

Jared pointed to a particular carving. "This one has them inside the whale," he said. "Look, the skyscrapers are on fire, like the impact."

"Yeah, well, we think the Jonah group borrows heavily from Judeo-Christian themes." I knew the picture he pointed to in detail, as it had been the subject of many papers. "If they have any cultural memory of the impact, it would represent a major event in their history. 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."

"Yes, but think about the perception that creates," I said, gesturing with one hand. " 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 more than just tunnels and domes. It makes us a people, a culture."

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

I turned to him. "Because our political creation myth is more complicated. Democratic ideocracy 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 vital thing that you learn that history before engaging in a society built on top of it. But if you can separate a society's founding narrative from its actual history, and if you can manipulate that narrative—"

"Then society's a blank canvas," said Dr. Mason. She stared up at the ceiling, thinking deeply.

"Right, exactly."

I fell silent, aware that I was rambling. Although I had given this briefing on multiple occasions, I consistently forgot to reign in my theorizing and focus on the facts. I was used to bouncing ideas off of grad students, not holding hands with fragile ex-marines and

experimental biologists while they came to grips with a whole new society. I didn't know what to say.

"Do you want some coffee?"

Dr. Mason looked back down to Earth, nodding. The others didn't move.

"All right, one cup. Jared, John?"

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

"Sure, me too."

"I'll put some on."

"I'll come with you," said Dr. Mason, which surprised me. We left the men alone with their brooding and made our way back to the kitchen in companionable silence.

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. New Plymouth 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 in orbit. One satellite shattered into ten thousand nuts and bolts, each of which smashed 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. If anyone looked up from in between the trees, our mechanical eyes never saw them.

In the kitchen, Dr. Mason already knew how to use the coffee machine. She showed me where the beans hid and where to dump the old grounds for compost.

"You're taking this rather well," I said. "Compared to those two, I mean."

"Hm." Dr. Mason watched while I filled the machine with water. After a minute, she said, "Do most people not take it well?"

"A little."

"Why?"

"They don't know. MASA hired a psychologist to find out. You met Dr. Rhine, right? Problem was, they had to tell him, after which he wanted nothing to do with MASA."

"What do you think?"

"Hold on." I started the coffee grinder, which halted any conversation in the meantime. When it was finished, I transferred the grounds to the machine and pressed "start."

Dr. Mason waited.

"Right. Why do people react?" I folded my arms. "Well, I can tell you what I was thinking, when MASA told me. I was the first person, outside of the Aragorn team and congress."

"I didn't know that."

"Yes, well, I was already using the Aragorn data for my dissertation, since I was interested in the survivalist cults, like I mentioned. You know, it's funny. Before Times Square, no one cared what I was interested in. I could write a paper, and my advisor would read it, maybe his colleague. Now, I don't know."

"Do you miss it?"

"Maybe a little, yeah?" I had to think about that. " No, actually. If it weren't for Times Square, I wouldn't be here. I'd just be analyzing video shot by some ELV, back on Mars.

It's a lot more exciting to be here."

"What were you thinking?"

I sighed, trying to remember the chaotic first days of the Jonah project. "At the time, I guess I didn't have much time to think," I said. "There was so much to do, so many questions. Do you ever get that way?"

Belle Mason nodded, understanding. "My wife says I get distant."

"Distant, exactly."

"But really it's just because I'm thinking about some new problem."

The coffee machine interrupted to let us know it was ready. Wordlessly, I distributed the contents into four thermoses and handed two of them to Dr Mason.

"Thanks."

"Sure."

After the collaboration with Xin Beijing ended abruptly,[1]MASA shifted its focus to land-based missions. The first Aragorn mission landed in Los Angeles, the second in London. Aragorn III roamed the streets of D.C., and we discovered how President Wallace died in his bunker, apparently the victim of a military coup. He had spent the months leading up to June 7 insisting the asteroid would miss the Earth, with no evidence.

Aragorn IV splashed down just outside New York City. After coming ashore, it navigated the broken streets until it reached Times Square. It found the whale bones. It photographed the carvings. But neither Aragorn IV nor any of the prodigal missions ever spotted the Times Square survivors. For forty years, MASA's mechanical eyes have circled overhead in vain.

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 tried to contact them directly.

The computer chimed as I entered, signaling a new message. Jared perched on a stool with one knee against his chest. His shoulders hunched. He splayed his fingers. John Kumar stood with his arms crossed. Neither of them moved.

"Got you a cup," I said.

They lifted their heads.

"Right, yeah. Thanks."

"Thanks, Rosalind."

"You all right?"

"Yeah."

"Sure."

I handed the coffee over.

Watching them, I remembered some of the grad students I had briefed. MASA was reluctant to expand the information circle, but I convinced them that I needed students, if I was going to get any work done. One young woman had burst into tears, muttering "We're not alone," over and over again. Another candidate, without missing a beat, suggested that the Times Square 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. "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.

"That's a good question for MASA, actually."

"What do you think?"

I sighed. "I don't know. Officially, MASA is concerned about Xin Beijing intelligence. They want to establish a permanent settlement on Earth, and they didn't want this to

become another flash point."

Jared looked up. "And unofficially?"

"What do you mean?"

"I don't think that's the only reason."

Everyone looked at him.

Jared shrugged, as if it didn't matter. "Kepler said to give you a call. She found something."

"She what?"

"Found some—"

"Driver, call Kepler Erikson."

The computer chimed an acknowledgment and placed the call. While it rang, 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.

"I'm outside the Lincoln Tunnel entrance. Are the others with you?"

"Yes."

"We're here commander."

"Good. Listen, there's an interesting artifact here. It could be post impulsum."

My heart skipped a beat. Ever since the whale in Times Square, I've anticipated MASA finding another artifact in New York, speculating about burial grounds or repurposed places of worship. But the prospect was always hypothetical. It was easier to think of the Times

Square group as having vanished long ago, like that early American colony on virgin shores, which disappeared one Winter, man woman and child, leaving no trace except a hand-carved message for history to ponder. The whale bones felt like that mysterious word, "Roanoke," which could have meant anything: a cry for help, a warning for future colonists, a curse to strike them dead. Yet here, Erikson said, "post impulsum," and with those words lit a fire in me. I had to find out what happened here. I needed to understand.

"What did you find?"

"Hold on." 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, probably no more than ten years old.

I set my coffee down. If I was right, that meant the Times Square group had survived. Possibly another group, but most likely the same. Were they nomadic? It seemed unlikely that they would stay in New York City, given the limited resources, rather than scavenging across the continent.

"Definitely post impulsum," I said.

Dr. Mason whispered next to me. "From just after?"

I shook my head. "No, it's more recent than that."

Jared leaned against the wall, having adopted an odd expression that said, "I told you so."

I ignored him. "I'm coming out there, COmmander. Can you stay on the line? Has anything moved, since you got there?"

"No, everything's the same. 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—"

"Bring everybody," Erikson said. "I need to go."

"Right." I hung up.

I looked back at the others. John Kumar was pacing. I couldn't tell whether he was confused or excited. Dr. Mason stared up at the ceiling. Jared Wu rubbed his arm with one hand.

"How soon can we take off?" I asked them.

There was an awkward silence. Dr. Mason smiled to herself. John Kumar sighed. Jared Wu looked up and locked eyes with me. "Give us a second," he said.

I detected the animosity in his voice, and I didn't know what to think. "Sorry, um, it's just . . . " I trailed off. How could I explain how important this artifact was, if he didn't understand already?

John Kumar stopped pacing, and placed his hands on his hips, looking between us. "Rosalind's right, Jared. We need to help the commander ASAP. We're losing daylight sitting here."

"Survivors," Jared said. "Do you get that? All this time, and we just left them."

"It doesn't matter, Jared."

"What?"

"We're here now. Are you going to get your gear or not?"

Jared looked helplessly at me, but I didn't understand what he was saying. My thoughts raced faraway, theorizing about an active society here on Earth. Where were they hiding? What would they think of us? But Jared grappled with our own past. I didn't know what to say to him.

So I said, "Come on. Get your gear."

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. 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.

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 twenty years.

Unfortunately, the hybrid hovercraft's exterior stood out like a Christmas ornament on Earth. The anodized red panels on top would have blended perfectly into the color of Martian soil, but they painted a merry portrait against the pine trees' green. From below, the craft's black underbelly might have concealed us in the night, but at present we rode a dark chariot across the mid afternoon like Apollo.

If the Times Square group had survived, what would they think of the hellhornet? Cer-

tainly, we were breaking that prime directive formulated by Roddenberry: the explorer should observe and not interfere. Anyone could spot the hellhornet from kilometers away, let alone the entry burn of our lander. Then again, Captain Kirk ignored the directive at almost every opportunity, so at least we were in good company.

"On approach," Kumar said.

"Hm." I stared absently at the ceiling.

Left of me, Dr. Mason scrolled through the transcript of Erikson's report, which she transmitted for MASA ten minutes ago. I was intentionally avoiding reading over her shoulder. I wanted to form my own impressions.

Jared sat on the opposite bench. He hung his heads and wrung his hands, and he said no word that wasn't "Fine."

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

"That's right," I said, surprised that he knew that.

Jared looked up. "Wait, why?"

"Ruben took me to the range, a couple times." My ex-fiancé must have told Kumar about that. They served together on Deimos Station, during the war.

"Right," said Kumar. "Well, there's a locker there. Feel free."

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 difference may seem small to the average Martian, who has never fired a gun, but just one tenth of a degree can turn a stray bullet into a headshot. 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. I toyed with the security clasp, only to find it retract at my touch.

Jared looked surprised. Kumar glanced back at the sound. "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 them for everyone, just in case."

"I guess that makes sense."

I shifted under Jared's gaze. "I think I'm good, John."

"Suit yourself."

I shut the locker and joined Kumar up at the front of the cockpit. We were decelerating rapidly, rustling the trees below. 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. Her motor-bike was parked next to her. One of the ELVs tracked us with a camera on its forelimb, for posterity.

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, starting to get excited. "Is the scene still undisturbed?"

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

"Good, that's good," I said. "Is there any sign of traffic? Maybe a footpath or broken tree limbs. I don't know. It could be a gravesite, like a fallen soldier. Have you scanned the ground underneath?"

"You'll see. The flagstaff is bolted to the pavement. I don't think it's a grave marker."

"Bolted? Really?"

"Yup."

While I puzzled over this piece of information, the rest of the crew stepped out behind me. Jared had his hands in his pockets. Dr. Mason was still reading Erikson's report. Following after them, Kumar had one of the rail rifles slung over his shoulder. He was supposed to have the weapon on him at all times outside Olympus base. Standard operating procedure.

"What's the word from MASA?" I asked.

"They want to know if this group is still out there, as soon as possible. Do you think

you'll know that?"

"Probably not by tonight."

"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 scene, and then we have to decide how much value there is in preserving everything. Ideally, we'd keep it the way we found it."

"That might be possible. MASA will have to sign off. What needs to happen tonight?"

"What time is sunset?"

"Two hours from now. We can get some stage lights and hook them up to the hellhornet. No problem."

"Right."

I realized the others had gathered around me. "Commander," Kumar 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 with 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 people headed to work. Perhaps they were all emergency responders—or traders who couldn't get the day off.

I approached the flag. 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.

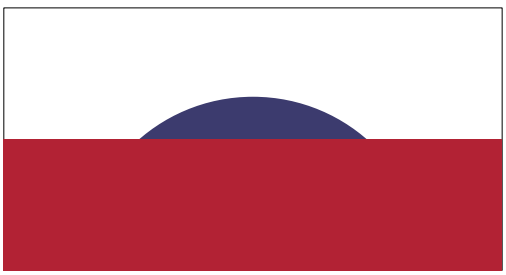
I reached for my camera. The flag itself had been sewn by hand from multiple layers of bed sheet. The fifty-three stars were cut and sewn out of a blue pillow case in the upper left. I counted the right number, although their arrangement was more scattered than the official standard. Thirteen red stripes 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.

"Wow," I said, stepping back. I felt the excitement growing in me of questions unanswered. Pure curiosity filled me to an extent I hadn't experienced since seeing the whale in Times Square, piercing through my obligations to my crew mates, MASA, even my settlement, and leaving only a primal drive to understand this Earther culture. My subconscious raced ahead of my conscious mind, making non-obvious connections while my awareness gleaned only the surface-level conclusions.

Without knowing exactly why, I whirled on the spot to face the tunnel. 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 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.

[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 has the same colors as America's.



"What are your thoughts?" Erikson said, coming up behind me.

I turned back to the flag. "It's incredible," I said. "Can you believe we found this? Look at that. The thread is newer than the flag. I'll need Jared to analyze it, or someone, but it looks hand-made."

"What does that mean?"

"That they mended it, recently. This flag is important—not as important as the whale, maybe, but still. I'm thinking they're probably a nomadic society, and that's why we haven't spotted them. Maybe they visit New York to work on their shrine, or worship it."

"So they're not here now."

"Probably," I said. "Unless we're very luck. By the way, how did MASA 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."

"That seems . . . "

"Stupid?"

"I was going to say 'unnecessary.'"

"Yeah, well, here we are now. So you think they might be hanging around?"

I gazed down the tunnel, noticing a line between the rusted shells of autonomous vehicles, which could serve as a path. "Look. They use the tunnel to get in and out of downtown."

"All right. That's enough for MASA to confirm ongoing survival. You're sure it's the same group as Times Square?"

"Ninety percent, I'd say. It's more likely than an entirely independent group."

"That's good enough for me. I'll tell MASA."

I nodded. "And tell them we need to make first contact. We'll learn so much more from talking to them, rather than whale bones and a tattered flag."

"I'll do that."

"Good. And I need a field kit, with the spotlights."

"I'll take the hornet back to base, see what I can pack. Do you want to make a list and send it to me?"

"Sure."

"All right." Erikson started back toward the hellhornet, muttering a report into her mic, which the computer automatically transcribed and formatted for MASA. I needed to do the same. It might be the most important document I ever wrote.

After she was gone, John Kumar approached. "You think they use this tunnel to get in and out of the city?" he said.

"That's what I was thinking."

He peered down the scope of his rifle, into darkness. After a moment, he spoke again. "It's sort of spooky."

The flag fluttered in a steady wind, coming out of the tunnel. "What do you mean?"

"It sort of reminds me of the Apollo site."

"Hm. Interesting." I felt a vague uneasiness at this comparison, realizing that, since the Earthers staked the flag, that made them like Armstrong. We merely stepped foot on their territory, like alien tourists, or Columbus on the New World.

Behind us, the hellhornet's rotors spun up to a dull roar, lifting the red and black behemoth into blue sky.

—

After Erikson left, I set about examining the flag in earnest. I recorded audio notes, speculating 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 poked through. Was it possible the flag served some religious function? Or was it rather a *memento mori*, planted here to dignify the unmarked tomb of ten million New Yorkers? The flag could be just a flag, raised to honor the men and women of the country it represented. That would contradict much of my work 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 unnaturally still. His weapon hung at his side, and his 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. Now, that awkwardness stretched like a gulf between us.

I thought about asking if Ruben ever said anything, after it ended, but I decided against it. If Ruben had won his way, I wouldn't even be here. I wouldn't be the first woman on Earth, and I wouldn't get to work on the most exciting anthropology research in centuries. I didn't know whether John had any opinion on the matter, but I would rather not know, if he did.

Dr. Mason entered into the conversation, as soon as she saw an opportunity. She had a level of enthusiasm which was rather uncharacteristic of her, as she peppered me with questions about the flag, the whale, the Times Square group. Where did they live? What did they eat? How did they survive the winter without wood fires, which 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 (but never published). For most of her questions, the best I could do was guess. If they weren't nomadic, 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 said. "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. We would

[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."

see the smoke."

Eventually, Dr. Mason ran out of questions for me. She contented herself with the answers I could give, still pondering the rest. I was pleased at this change in our dynamic. I always felt like an outsider in the Odysseus crew, not having as strong a physical or a background in one of the hard sciences. Dr. Mason's obvious interest in my work was a welcome change, now she was authorized to hear about it.

At length, Erikson returned with the hellhornet, and she distributed equipment for everyone. I asked John to help me set up the field kit around the flag, while Dr. Mason took temperature readings and measured the humidity. Night gradually fell.

Jared avoided conversation while he worked. He collected inner core samples from the nearby 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 would 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. I didn't fully understand why he was upset, but I felt his frustration directed toward me, at least in part.

After much more correspondence with MASA and one of my grad students, I reached a decision about the tunnel. "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. The harsh LEDs cast unfamiliar shadows in the forest, making my back hair stand on end. 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.

I suppressed the uneasy feeling, rationalizing it as my brain's reaction to a strange planet.

"Did Erikson have the ELVs check out the tunnel, like she said?"

"Yes. First thing she did, when she got here. Why?"

"I wanted to see if there's anything inside. It's a little strange how the flag is the only artifact here. At Times Square, we found lots of other artifacts, tools and things. If this is the same group, I would expect the same thing."

"Well the ELVs didn't find anything."

"Right," I said. "But they won't look for something unless they're programmed to, and they have to know what it looks like beforehand, right? So, no, no, I have to see it myself."

Kumar hesitated. "Can it wait until morning?"

"Not really. I want to see if I'm right, for the report."

"All right. I'll get some spotlights and come with you."

I paused. The hellhornet was gone. "Where's Erikson?"

"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."

"I'm fine," I said. I felt like I could stay awake for days.

"Yeah, well, that's all right for you," Kumar said, smiling. "The rest of us are starting to feel it."

"I'm sorry. Can you still check out the tunnel with me?"

"What? Oh, yes. Let's go."

He offered me a handheld spotlight, which he had retrieved from the tool bench, and directed two of the ELVs to follow us. The robots were required by MASA at all times outside Olympus, at least one per crew member. Thus, we journeyed into the dark subterra, flanked by two cold-rolled Hulks with enough combined strength to lift a garbage truck.

Twenty meters into the tunnel, a headache I hadn't noticed disappeared. Perhaps being in open atmo for so long had stressed my Martian brain, so used to enclosed homedomes and tiny pods, until it culminated in a migraine. Lincoln tunnel offered a respite from that

endless sky.

Although Earthers built tunnels, they never occupied them as Martians do. The first colonists set up 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. Today, they house the majority of New Plymouth's life support and transportation infrastructure, but they continue to influence our architecture, which favors compact, highly-planned spaces over the sprawling openness of lofty penthouses.

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."

I stopped to absorb the piece in full. 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. Even so, I felt the idea of a paper prickling inside me, unformed, like an itch that needed scratching. I would have to

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

"It's a celebration of the macabre."

"Exactly. Imagine painting that when the world's about to end. It's sick."

"No," I said. "It's defiantly optimistic. Look, the artist signed her name. Why do that, if she thought no else one would see it?"

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

"Well, you're right about that."

We reached a fork in the tunnel, about a quarter of the way through. A plastic crash cushion protruded out from the concrete, a vestigial organ from the early modern era of

manual transportation. When humans drove their own vehicles without even tracks to guide them.

"Which way?" Kumar asked.

I wasn't sure, but the right hand side looked interesting. There was a clearer path between the rusted shells of self-driving cars. "There," I said. We continued on.

After a few minutes, Kumar 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. "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. "But 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.'"

"Maybe," I said, reconsidering.

The lieutenant was quiet. I turned around to say something. He held up a hand, listening intently. I shut my mouth.

"Did you hear that?" he whispered.

"What?"

"Shush."

I listened. Night noises from outside echoed down the concrete walls: rustling wind, clicking cicadas emerging in the night. The sounds of nature were unsettling, compared to the comforting hum nof Martian machinery, but that didn't make them a cause for concern.

"What is it?"

"Eyes 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 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. Crack of the gunshot echoed after, so they had traditional weapons with chemical propellant, rather than rail rifles. But where did they get the bullets?

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 prioritized my safety and shielded me with their bodies, but the agile robots weren't designed to act as barricades. Their agile limbs bunched up in a defensive posture and only offered so much protection.

"Where?"

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

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

"Not that kind of bar fight," Kumar said. "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 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.

"So I guess we're killing them," I said.

"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. "Get her to a secure point, lieutenant. Hellhornet is fifteen minutes out."

"Yes, sir. Over and out."

I chanced a look around the ELVs. The attackers crouched behind a row of vehicles, about a hundred meters ahead, revealed by the tips of their rifles and knees poking out. At that moment, one of them happened to pop into view. She locked eyes with me. The woman had thirteen vertical lines tattooed across her forehead, like prison bars, that captured my attention. She was fair-skinned with sharp features and dark hair, tied in a bun. A tight kevlar vest covered her torso.

I realized with sudden clarity that she was one of them, from Times Square. I felt sick. I had only just learned this group still existed, and now they were shooting at us. Did they see us as a threat? Or were there multiple groups of survivors, which they warred with regularly? I had so many questions for this woman, who gazed back at me from the darkness, memorizing my face.

"Rosalind, get back," John hissed.

The woman hoisted her rifle, taking aim.

I ducked, coming to my senses. The shot hit the ELV.

"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. I think so."

"All right. 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 had forgotten how to let go.

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, increasing current through the electromagnetic rails to deliver armor-piercing kinetic energy from practically point-blank range. A split second after the shot, I heard the unmistakable *ka-chunk* of a bullet entering one side of a vehicle and exiting the other, shedding hardly 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. 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 woman, still behind us, with those strange tattoos and wide eyes.

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

"Just a little further," said John.

"Wait," I said.

"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. It didn't register with my Martian mind, so accustomed to safety protocols and automatic sprinklers but never witnessing the flame itself. 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.

"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. I didn't know that at the time. Shrilly, someone screamed, "Ulk'halla," as the lieutenant slumped over. I didn't understand the word, but it seared into my memory.

Without thinking, I tried to drag him to safety. Fuck, the former space marine weighed about as much as a fridge. There was no way.

"John! Get up, you have to get up. I can't move you. Come on."

He came to, coughing and spluttering, and jerked his legs to help. He tried to talk but ended up gurgling blood.

"What?"

"Return fire," he managed by whispering.

I remembered the gun in my hand. Without thinking, I fired into the flames, still half-

dragging John out of the line of fire. He slumped against a vehicle helplessly, trying to look round but struggling to breathe.

I pressed on his wound, trying to staunch the bleeding. "What do I do? Do I press here? Can you breathe? Just breathe, John."

The man shook his head. He tried to say something, but once more his breath caught in blood.

"Don't try to talk, just wait. Erikson—"

Where was Erikson? Still back at Olympus. She wouldn't be here for fifteen minutes, even with the hellhornet. Too long. John wouldn't make it.

"Rosalind," John managed.

"Don't try to talk."

"Run. Other tunnel. Go."

I froze. I couldn't leave him here, not like this.

"Go!"

He pushed me forcefully, and I staggered upright, dumbfounded. In the open.

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. I clutched my arm and bolted to my feet, back down the tunnel. Gunshots echoed in front and behind: the traditional rifle fire in hot pursuit, the electronic whir of a rail gun up ahead. I caught a glimpse of John's face one last time, which had adopted an expression of relief.

I ducked and weaved my way. Hot blood pooled in my elbow. First, close off the wound, I knew. I had taken the first aid test too many times to forget that now. Feet racing, I stripped the sleeve off of my wounded arm, a motion that would have been agonizing if adrenaline didn't saturate every nerve. My fingers slipped on the blood, more blood than I'd ever seen before.

I tied a tourniquet and pulled it tight with my teeth. Was the gunfire over? 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 their assault rifles and their tattooed faces. Probably with knives in their teeth and baby skulls braided into their hair, I couldn't help but imagine. I was panicking. The darkness fed on fears I didn't know were in me.

When I reached the fork, I turned left. If the natives had overpowered our ELV, they would emerge from the right.

I needed a plan. There wasn't any other way back to Olympus, unless I wanted to trek across 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. "No signal," flashed in the corner. The camera had a stronger antennae, but I must have dropped it 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, I'm alone," I said. "Fuck, I'm alone." I kept running.

Chapter 4

Sub-terra

I've never felt scared for my life before. Everyone reacts differently in stressful situations, and I just got lucky. My response to fear kept me alive. But that didn't mean I knew what I was doing. I just panicked, and I left John like he told me. Self preservation won out. Maybe a better person would have stayed. At least I could have left him the nine millimeter. Fuck. If Erikson didn't arrive quickly, that second shot would kill him. I felt sick. I couldn't believe I left him.

Before I realized what I was doing, I found myself praying. Something like, "Let me live." I don't remember, exactly, because the prayer only lasted for a flashing thought. I stopped myself because I didn't believe in God.

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 had shut down the signals from that region, focused on keeping me alive while I escaped a gunfight. Now, as I stumbled into the labyrinthian sub-terra of Manhattan, nothing prevented wave after wave of pain from washing over me. Pure adrenaline can only carry you so far.

My knee smacked into something hard, 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 set it down before the fight, I think. Instead, I had John's sidearm tucked into my belt. Unbelievingly, the weapon had no smart-lock or locator built in, like the rail rifles. It didn't 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 seemed to have stumbled onto Bruce Wayne's lair.[1]

The flying mammals unnerved me, but I didn't think I could go any further. 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 a fraction of a second. 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

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

Plymouthers.

I grimaced at my arm. The bats' clicking intensified, curious little buggers. I leaned back. "Just one more second."

What were the natives doing in the tunnel? The attack had been a coordinated effort, well-timed so that the group in the woods could open fire just as a second party emerged from Lincoln tunnel. They had known where we were. Was the flag a trap? That didn't seem likely, since it had been there so long. But they could have seen what we were doing. It was clear that we would be there a while. Did they wait for the commander to leave? If John had Erikson to help him, and they both had rail rifles, it would have been an even fight.

If they hadn't pinned us down, maybe. If we had waited to explore the tunnel—if *I* had waited—John might still be alive.

"Don't think that," I told myself. "He's still alive."

But I knew, somehow, he wasn't.

"Okay," I said, collecting myself a little. "Take stock, Rosalind. Where are you?"

The space was probably a multi-car elevator shaft, with the platform at tunnel-level. I had been lucky. If the platform were anywhere else, I would have fallen to my death. The shaft probably accessed even deeper tunnels, underground parking, et cetera. Maybe God was looking out for me after all.

I needed to get my thoughts in order, needed to make a plan. That's what Ruben always said when we were together. "You need to make a plan." Getting shot wasn't part of the plan. "You need a new plan."

Coming to Earth in the first place, that was never in my plan. I just happened to be studying anthropology when a MASA rover named after a fucking fantasy character rolled into Times Square. Everything after that—well, I just wanted answers. Who carved the whale bones? They were clearly religious decorations, but what religion? Did they have a god, or did they worship nature itself, which had displayed such awesome power?

Who was the long-haired woman with the kevlar vest and face tattoo? Where did she get the kevlar? Was the tattoo personal or traditional? Why did she shoot at me?

In spite of everything, I almost wished Ruben were here. At least, he would have known what to do. "Always the boy scout[2]," I said enviously. "Space marine. You're probably watching the panel right now, wishing you could help. And saying 'I told you so.'"

He'd be right, of course. Ruben viewed the Odysseus mission from a military perspective, and in that light his objects were quite rational. We were dropping into uncharted territory, he said, and we had no backup. The next crew wouldn't arrive for two years, but MASA kept insisting that they had the area under control, that it was safe, one hundred percent. Ruben thought that was bullshit. Whoever MASA relied on for their information, he reasoned, must have been stupid.

Unfortunately for our relationship, MASA happened to rely on me—or rather, my reports. Assuming the Times Square group still existed, I theorized that they were primarily hunter-gatherers, adhering to a pseudo-Abrahamic religion, and organized according to familial structures. With the evidence I had, these conclusions were perfectly reasonable. Violent weather patterns made traditional agriculture all but impossible in the post impulsum climate. It would take modern processes to farm reliably on Earth. Meanwhile, the detailed carvings captured by Aragorn IV depicted numerous religious ceremonies: animal sacrifice, meditation, and what looked like infant baptism via blowhole. As a result, MASA was confident that the New York region was either sparsely populated by a tribe of peaceful zealots or completely uninhabited.

Instead, we had Amazon women wielding assault rifles. Where did that fit in?

I lowered myself onto the concrete, using my good arm. I needed to rest. I would go into shock if I wasn't careful. How much blood did I lose?

Sitting down, it slowly dawned on me: I had really screwed up. My predictions had turned

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

out to be dangerously inaccurate, and my fellow crew members, including John Kumar, had paid the price. Theoretical anthropology? What a joke. It all amounted to guesswork from a bunch of overfunded professors justifying their existence when they had so little evidence to work with, let alone the society itself to interact with. A proper scientist doesn't reach *conclusions*, based on some abandoned whale bones in an apple orchard.

But what was I supposed to do? I needed to learn what happened to these survivors, and that had to happen here, on Earth, in the field.

When I told Ruben, he implored me not to go. We had one more fight; then we didn't have any. He told me to keep his mother's ring, and I said that was ridiculous. I returned it just before launch.

"You know," I said aloud. "It's actually more annoying when you're right, not less."

I half expected Ruben to interject. Maybe I would start hallucinating his voice, because of the arm.

"And that's the thing, you wanted me to see things from your perspective. You'd be alone in our pod, watching the panel on a light-delay, not knowing if I was dead or alive for two whole years. But what about me? What about my perspective?"

In the silence, I asked Ruben's question for him. "What did I want?

"Well," I answered myself, "I've done nothing but think about this giant whale for ten years. I have literally pages of questions, an entire probabilistic web. I've told you. Now that's all thrown out, basically, because it turns out they're not peaceful or nomadic: they're native and aggressive. What's up with that? Are there other groups that they have to defend themselves from? And why are they here? Why not Appalachia or—I don't know—Florida? Why would they choose to live in the ruins of New York?"

He had wanted to start a family.

"And maybe that would have changed my mind," I said. "If we had kids. But we didn't, okay? We didn't. And now we won't ever, because you made it about us. That's what you said. It was more about us, and whether 'us' could survive two years apart."

I sighed. Maybe Ruben knew it wouldn't be just two years. If this mission had gone very differently, and we never found the flag at Lincoln Tunnel, or made contact with the Times Square group, then maybe my seat on the Samson wouldn't be empty. But now, if I managed to survive that long, I couldn't imagine being ready to leave in two years. I had too many questions for so short a time.

I felt a twinge of regret, thinking about Ruben. My decision was the right one, I knew, but thinking about him still made me sad. I remember he was so disciplined. Every morning, he woke without an alarm, before the UV-filtered dawn had crept inside our pod, and slipped away to meet his marine buddies at the gym. He never failed at this exercise, despite his day job teaching adjunct at the law school, and he always left a pot of coffee brewing, with perhaps a private note for me. He didn't drink coffee. He just knew the way I liked it.

Ruben would find out about John Kumar this evening, I realized.

"Stop," I said. "You're not helping yourself, Rosalind."

I needed to focus. Stop thinking about Ruben. Starting finding a way out of here.

I squinted in the dark, 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 tunnel's 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.

I tried 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, and there was an enormous floodwater basin deep under Central Park. But that would have filled up long

ago.

"There's a more reasonable explanation, obviously."

Then it hit me: the natives lived underground. MASA's drones had never seen any surface activity, aside from the whale. No cook fires. No gravesites. The tunnel was dry because the natives used it.

"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. It was the kind of heavy machinery that lasted forever, and anyone with a mechanical mind—not myself, obviously—could get it going.

"And diving equipment? They would have to clear out the deeper tunnels, so the pumps could reach that far."

Even as I spoke, counterarguments occurred to 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 dive just as deep, 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 Times Square 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. 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 and automatic weapons.

I had the sudden urge to take notes. I needed to get back to base so we could make a

plan.

"All right," I said to 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, according to safety regulations. If I traced the edge of the wall, eventually I would find it.

But I had spent too much time talking to myself. Suddenly I heard whispers behind me, amplified by smooth concrete walls.

"Cal'forna knows the every motion of her ardent soldier," the voice said. "Searching step and 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 stopped and listened. The chant felt like an old Catholic prayer, except it was in English rather than Latin.

"Cal'forna guides the hunter's righteous hand, upon her weapon resting, toward the unsuspecting prey."

Suddenly I remembered who they were hunting for. I stopped feeling for an exit and instead picked up the pace. Moving forward had higher priority.

"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 said. "They have electricity." Even though I had guessed as much, the sight of that glowing lamp where there should have been only darkness sent a shiver through me.

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

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. The upper part of his ear was doubly pierced by a sanded-down sliver of bamboo, and no tattoos adorned his forehead. He was of African descent, but he had much darker skin than any Africa-Martian I knew, as though he emerged not from a tunnel underneath twenty-seventh century Manhattan but out of a time machine from thirteenth-century Mali. He looked like a prince.

His deep brown eyes fixed on me.

"Do not fear, Ulk'halla's child," he said, keeping his voice low, hands raised. "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, which made him far more trustworthy than the alternative.

I decided to take him at his word, for now. "Where?"

The man pointed. "Out of sight."

A shadowed crevice was barely visible at the edge of the roadway, once serving 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 now I couldn't make out the words. There wasn't time to think twice. 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, 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 and safeguard soul. Upon the path with 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 both gods and men, as an example. If they found me, would they drag me before him for judgment?

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

My ears strained in the silence, trying to make out what was happening. I dared not lift

my head to look. Even if I didn't make a sound, the light would reflect off my eyes.

Finally, 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 her blood upon the pavement."

Had I left a trail of blood to my hiding spot? I felt my arm. It was still wet, but I didn't think it was actively bleeding. The tourniquet did its job.

"What blood? I see only moss."

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

Although I was terrified, I started taking mental notes on the natives' phrasing. 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 commands."

"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 wing. Pray, bookbinder, that your river never crosses such destruction as we witness here this night. Three delilahs died: Earna, Lithe, and Chrysanthemum."

A wave of guilt washed over me. John Kumar was dead, and I had left him alone. Jared and Dr. Mason were alive but captured by these "delilahs." I tried to imagine what lay in store for them. Confinement? Torture? Who knew if the natives had even heard of the

Geneva convention, let alone the intersettlement accord of 2675.[3]

The bit about a "winged demon" was encouraging. Erikson must have returned too late for a rescue, but soon enough to engage. If she had equipped the hellhornet's combat module, the delilahs would all be dead. Even without it, Erikson would have been untouchable. She could set the craft to hover, high enough that bolt-action rifles couldn't reach her, 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 Ulk'halla lurks in that darkness. If she does, why does she linger? She cannot seek the Havian way, for certain. She seeks the surface, where Ulk'halla's demon finds her. This night, she finds one of Cal'forna's blowholes, escapes to the open sky already, no doubt."

"Then she defiles Cal'forna with her hands," the delilah asserted.

"Ah, so you have much in common. Does she also consume the beating heart of a dolphin, or do you initiate her this night?"

"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? I doubted it. The woman in Lincoln Tunnel had been white. Yet they spoke as old enemies, maybe even leaders of different factions. The word "tur" stood out, either an insult or Cynic's title.

The delilahs all spat. I resisted the urge to poke my head up above the street, so that I could observe the encounter 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 twinged dully now, like a pile of embers which might flare up at the softest breath of wind.

[3]After the Asteroid War, the accord reestablished international laws for the treatment of prisoners of war, even for prisoners who refuse to declare their allegiance. This was necessary, as the conflict played out between unmarked battleships in the asteroid belt and never broke into all-out war[4]between the New Plymouth and Xin Beijing.

[4]All-out war, of course, would have threatened the terraformation project on Mars.

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

"Can't feel my arm," I said, worried.

He appeared in the gap with one arm outstretched. I took it gladly, and together we managed to hoist me onto the road without inflicting too much pain.

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

"Aye," he said. "Your wound is serious, and Cal'forna's road offers little refuge for Ulk'halla's children. Delilahs stalk you with a vengeance. I know a safe place."

"You said there are ways to the surface?"

"Aye, I say that."

"Where? How do I access them?"

He pointed down the tunnel a little ways. "Mark the door marked with eagle's wing."

I squinted. A depiction of a feathered wing decorated a non-descript patch of wall, which, upon closer inspection, indeed turned out to be a door. I probably would never have noticed it if not for Cynic.

"Where does that lead?"

The man shrugged. "Up. I forget which street and avenue."

"That's fine." I started for the door.

"You call for help from the surface?"

I stopped. "Yes. I mean, let me think."

I looked down at my watch. It was dead. Even if I reached the surface, I would have to signal MASA from the ground, which posed a real challenge because I didn't know how to start a fire and I might accidentally alert the delilahs in the process. On the other hand, MASA's drones would be circling the city by now, and the Pegasus was probably overhead. I could hide in the ruins until morning, when Erikson would probably spot me by eye, let alone the instruments aboard her hellhornet. That was safer by far than hiding underground, where delilahs were on familiar ground.

"I can get help."

"Aye, good."

I tried the door with my good arm, but it didn't budge.

"Here, let me." Cynic hurried over and gripped the handle, trying not to make a noise as he lifted the ancient portal on its hinges. The door creaked despite his efforts, causing both of us to wince. We froze, listening for the delilahs, but no sound followed.

I stood awkwardly. Through the doorway, I glimpsed a narrow concrete staircase, untouched by the centuries except for a fine layer dust.

"Thank you," I said.

"Oh." The man moved out of my way, holding the door ajar.

I squeezed myself through the gap, taking care with my bad arm. When I was through, I felt the stress of being hunted ease off my shoulders. I started for the stairs.

"Goodbye, Ulk'halla's child."

I stopped. My foot hovered on the first step.

What did he mean by that? "Ulk'halla" was the battle cry of the delilahs, I thought, and "Cal'forna" was their deity. Or was it the other way around?

I lowered my foot. I turned around.

How can I explain what caused me to stop? It has to do with anthropology. My entire field has had to reinvent itself, in order to understand the whale in Times Square. We use statistical models to simulate early societies, much like a cosmologist studying the Big Bang without ever actually observing it. The cosmologist tweaks the laws of nature in her simulation, justifying her initial assumptions by the resemblance of the simulated outcome with present day observations. We do much the same, fiddling with society's origin—personality traits, philosophies, et cetera—until the resulting group, stumbling across a bare skeleton in Times Square, decides to carve their bloody history. We justify our educated guesses by how closely they reconstruct the outcome.

Can you see the flaw? It seems so obvious now that I wonder how cosmologists stand it. Any number of guesses about the past might reconstruct the present, and the most basic

assumptions—the ones you don't even consider—bias the entire model. The natives weren't nomadic. They had electricity. What other assumptions did we make?

I took a step toward Cynic.

Confused, the man helped me squeeze through the doorway once more. He looked at me questioningly.

"You said you have a safe place," I said. "Can you take me there?"

"Perhaps." He folded his considerable arms. "If I lead, do you follow me?"

"I'm sorry, do you mean, 'will I follow?' It's just a strange way of saying it."

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

He spoke carefully, aware that I might 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 in 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 structure

over spatial awareness. To such minds, a "place" would not be defined so much by its location as its connection to other places.

"All right," I said, "I'll trust you, Cynic."

"Oh. You do 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 like Cal'forna's children, 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.

I looked up and spoke more carefully. "If you lead, then I follow."

Chapter 5

The Market Nestles in a Maze of Basements

The road, which Cynic called "Havian way," cut across the underbelly of Manhattan in a mostly straight line. When it did turn, the pavement tilted significantly outward, giving the impression of a high-speed racetrack built underground, as if for the inhabitants of Hades to ride on their chariots. Instead the financiers of Wall Street made their daily commute from Hoboken and Westchester.

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 bite. 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 labeled the tunnels with 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 planning on it," I said.

He glanced back at me. "You forget again. Do not say 'was' or 'will.' Speak about now."

I nodded, annoyed at myself for forgetting. It wasn't as though I had to learn a new language—although in some ways that might have been easier. At least I would know when I didn't understand something. As things stood, I might never realize if I had slipped up or missed some subtle change in verb tense that altered the meaning of an entire conversation. This shadow language collided with my own English, at once familiar and yet so slightly strange.

"I make no plan about it," I amended.

"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 go about our business. But nothing changes. Speak little. Walk quickly. Borrowers Market teems with laity."

"What about the others, the delilahs?"

"They seldom visit."

"Interesting."

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? What do you mean?"

"The blue eye on a burning red sun."

"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 gasp 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 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; 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 promise too much or presume 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? Will they notice me? Sorry, *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 burns."

"Healthy dose of Martian sun-block."

"What is sun-block?"

"Oh, it's interesting, actually. Before the impact, people used to tan . . . " I trailed off. At the word "impact," Cynic had straightened with alarm.

"We talk of sun-block tans another time," he said. "This night, we brave the market. So say little if you can, and nothing of Ulk'halla's fire."

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."

"Sure."

He opened the heavy door and I stepped past him into a dimly-lit corridor of brick arch-

ways and foot-weathered concrete. A distant 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 a 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 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 realized it was simply wood. I wondered how many precious trees had been felled to populate make this maze of basements.

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 experience. New Plymouth has always touted its cultural history, founded from the mixing pot of America rather than the comparatively homogeneous 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. Unbelievably varied, actually. It 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, someone had deliberately selected them.

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 piercing, to the sliver of bamboo I had noticed earlier.

"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 early nights, the market borrows from up above. Shopkeeps sell trinkets from before Ulk'hall's fire. This night, some of them still scavenge under moonless sky, but most make their own wares down below, in Cal'forna's domain."

"Huh, that's interesting."

"Indeed."

We continued onward.

One could never glimpse the whole of Borrowers Market. Each corridor twisted rapidly out of sight like the small intestine of a great beast through which we merely crawled.

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 money—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

makes the sky this morning, but Cal'forna forms the Earth this night. Half the world is one day old, the other half six hours."

I detected a trace of sarcasm in his tone, 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, which Cynic called a "squarecase." Stripped wooden beams spiraled around a central axis, jutting into the walls to support the structure's weight, and provided a convenient fixture for electric lamps, hanging from their wires. I marveled that the Havians had built so much on their own. 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 not for my injury, 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 underground. Yet the wound steel was nowhere to be found. Only a frayed tangle of wires poked 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.

"Good, that's good. 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 and meet us in Viewings, with something to clean her wound."

While the astronomer hurried to carry out these directions, 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 cavernous 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 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. The single largest repository of physical documents in North America, possibly the largest anywhere now. 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 tubes carried the book to its final destination, zipping through the tangle of New York's pneumatic system until it reached 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 lives, with some local aggregation by subject matter."

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. She brings something for the pain."

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.

[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.

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 reading *Harry Potter* again. She reads those books twenty times, by now. Over and over. I tell her, if she insists on skipping class to read, she can at least tend the door."

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

"Aye, I do." 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."

"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 he visits the laity this night, and I don't trouble him with something so simple. Every tyro knows how to set a broken bone or by the age of fifteen. Except maybe Cynic, here."

I looked at Cynic, surprised.

"Made me queasy," he said. He did look uneasy, but it was hard to tell in that light.

"Aye, well, blood disagrees with his stomach. 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. Fuck, this was going to 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 said, honestly. "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 before "three." I screamed, and Cynic placed his hand over my mouth. Blackness encroached on my vision.

—

I woke 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?"

"In case I need to. To talk."

"Oh." 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 dad."

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

"No, I mean he 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 you have a father? 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 father or mother?"

"Of course not. My brothers and sisters raise me, as with every other tyro."

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

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

"Yes. I mean, no, but I want to know that too. I mean, where do Havians come from?"

"Well, which do I answer?" Fidget looked amused.

"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, 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. Christians believe in at least one such occurrence, for example. The Havians might have recognized some connection existed but attribute the baby's origin to Cal'forna, or they might have believed in divine conception as the universal cause of pregnancy.

"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 accidentally proposition

her again. I struggled when her questions turned to orbital mechanics and space elevators. Every Martian learns those equations in high school, but 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 during the day.

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. They even operated the library's ancient computer system. Fidget told me 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

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

wooden walls. They were numerous, I gathered, but unorganized and well-employed, so that the upper classes never felt the threat of revolution. The common people 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 often performed a hunting ritual, stalking small game and chanting a variation of the death prayer I had heard.

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

"We have something like delilahs," I said. "But bankers and soldiers 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 two 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 Linux 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 from the delilahs' perspective to suffer the existence of an academic aristocracy than to end them and

let civilization suffer.

"What is you Stacks like, on Mars?"

"New Plymouth University?" I said. "Well, it's actually similar. There's a minor homedome with an open quad, where students like to study. And we have an archive, much like Stacks, only smaller. Martians don't keep very many physical books; most of them are digital. To be honest, I spend more of my time in my office, modeling what Havians might be like. I'm really a theoretical anthropologist."

"What's that?"

"Just more computational than traditional anthropology. 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, 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.

"Where is Cynic?" I said.

"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 Cal'forna finished the world, before Ulk'halla starts."

"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?"

"It hurts a little, but not much."

"Good." She stood and gestured for me to follow. "You can sleep in my hammock, this night. No one bothers you there."

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 this one were specifically designed to withstand natural disasters, especially floods but also asteroid impacts. The entire vault was probably locked away 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 amid skyscrapers, 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 tyro to fetch it for me."

"Tyro, 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 tyro?"

"Six. The rasha raise them until then, of coures. We bargain for 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 any 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 looked like a tightrope 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 updraft of empty space below me. Fidget followed behind, 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 'tyro,' 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. So many great ideas begin with such a moment, but it splinters at the slightest touch like a thinly frozen lake.

"Rosalind," a voice hissed.

I stirred. My arm ached. I wanted to yell at Ruben for something he said in my dream. Or was that part real? 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. 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?"

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

I sat up quick. 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 act on guesses. Some dislike the taste. But you strike me as reasonable." 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. I decided I rather liked Fidget. Only decent, trustworthy people make you coffee in the morning. Or rather, evening. It was hard to tell 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 rocks my thoughts like tunnel rapids after a hurricane."

"Why?"

She shrugged. "So many questions pester 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 recognized it from movies.

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

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

It felt strange, drinking my first cup of coffee 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. 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 the question nags me now that you ask. I never think to ask questions like that."

"Hm."

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?"

My heart skipped a beat at those words. I nodded.

"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. Sanguine and I theorize that Ulk'halla's fire comes from outer space, rather than a bald eagle the size of Central. 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. Cal'forna only knows where that shark swims."

"What story do the rasha tell?"

"If you want, I tell the story."

"Yes, please. I'd like that."

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:

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, 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. 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 though by repetition, the words may supplant reality."

"Until yesterday, I never hear about Ulk'halla."

"Aye. 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."

"Aye." 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.

"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."

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

"An end of understanding. Delilahs know nothing of New Plymouth or Martians or your technology. They see only demons erecting habitats under the open sky, making a home for Ulk'halla's children, from which you overrun us. This night, they act out of fear: afraid of people they don't know and weapons they cannot make. And they seek vengeance for their comrades who fall to the demon—the airplane, you call it?"

"Airplane, yes," I said, deciding that sounded far less threatening than "hellhornet."

"Hm."

"What about the turen?"

She smiled. "Turen think different: understanding first, then action. We watch your robots building, and we wonder what they make. Scientific instruments, laboratories, work spaces. We leave infidel artifacts in their path, and they gather them up, like 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," I corrected. "Never mind. What did you think when you saw the lander?"

"Well, we think 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' account, and you see my injury. 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 get funded for many reasons, and not usually the ones written down.

"Our conversation echoes of my question," Fidget said, "which keeps me up all day."

"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. I spent so much time modeling theoretical societies that I seldom stopped to consider my own.

"You fall silent."

"It's a difficult question."

"Sorry."

"No, I mean it's a good question." I thought about it.

For the average Martian, Earth actually offered very little. We had self-sufficient agriculture and plentiful resources thanks to automation. The asteroid belt provided more resources than could ever be mined efficiently on Earth, let alone actually lifted into space. Moreover, we didn't exactly need room to expand. To someone unfamiliar with Martian culture, our cities might appear to be bursting at the seams, but they would mistake density for crowdedness. In fact, New Plymouth's homedomes are underpopulated, what with the recent exodus to Jupiter's moons, and the birth rate is only high enough for replacement. Developed nations on Earth faced the same problem: as a nation develops, infant mortality drops, lifespans lengthen, and people decide to have fewer children. Repopulating the Earth would make more sense if we had too many people for our own planet, but we didn't.

I looked at Fidget. "I suppose we come to Earth because there's nowhere else to go."

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

"Well, Mars is a mostly sterile rock, and we already have colonies on the moons of Jupiter. You wouldn't believe how far that is. A few years ago, I flew to Ganymede for sabbatical. Takes fucking forever. Sorry, I mean, I fly to Ganymede."

Fidget looked disconcerted. "What about the stars?"

"You mean, like other solar systems?" I shook my head. "It takes generations to reach the closest one, four hundred years at least. It's a suicide mission. Your children's children don't even reach the destination."

"Hm."

I could see the effect 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.

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

"Oh." Fidget looked up. "Including the tyros? 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 tyros, and the rest. It means she contributes newfound knowledge."

"Hm. At New Plymouth, tenure means you know which asses to kiss."

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

We discussed the university system on Mars for some time. Most Martians are no doubt familiar with New Plymouth University, even if they attended Musk or Stevens College. I described our campus, which has its own homedome, and the system of pods and walkways by which students can commute 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 auditoriums of the Kersten Physics Instruction Center, which tend to put even the most ardent undergraduate to sleep with faint dreams 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 and anthropology department (where I myself taught).

At length, Fidget returned to more pressing matters. "We need breakfast," she said, when a tyro raced beneath us. "The night falls."

"What happens this night?"

"Ah, good thing to ask. 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, in direct democracy."

"Interesting," I said.

"Aye, we believe strongly in democracy. 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—well, who knows how the rasha do anything. What form of government is New Plymouth?"

"Corporate plutocracy," I said, recalling a satirical essay from my early college years.

"Really?"

"No, well, you could argue that. But it's really a democratic ideocracy, just with all the flaws of any government."

"How does that work?"

"The people mainly vote for principles, not candidates. Nominees write an essay, which is then anonymized and distributed to voters. They select the one or two that they agree with, blind audition, for both homedome and settlement elections."

"What if I submit my work, but someone else copies it?"

"Well, that happens every once in a while," I said. "But it's very hard to pull it off, with all the anti-plagiarists working in government. It's a lot more work than just writing a decent essay."

"Hm." She nodded as if this made perfect sense. "Well, the turen write no essays, but we debate the issues at lodge."

"What does the lodge debate this night?"

She gave me a look. "You."

"What?"

"The lodge debates what to do with you: kill you, conceal you, hand you over to the rasha. Many think Cynic acts rashly bringing you here. Cynic himself might even think so."

I frowned. "Can I speak in my own defense?"

"Aye, although you must speak well. If not, then better to stay silent."

"What should I say?"

"The truth, if you can," Fidget said. "But also, guard your Martian secrets Too many truths can frighten tongues, and turen talk like otters in a lodge."

"Right. I can do that."

"Good."

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. Perhaps it was because, unlike the delilahs, Fidget understood what New Plymouth represented: a Type I civilization[1]with enough orbital firepower to make the impact look like Christmas.

I wondered whether MASA had any idea where I was. The historical record 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, if this turen lodge went badly.

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

"Aye?"

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

I hesitated. "Yes, I do."

"This night, I ask you the same."

"From Cal'forna?" I said, accidentally sounding uncertain. I got the feeling that this was the question nagging at Fidget while she slept. "I mean, they come from Cal'forna, as you say."

"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*

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

babies come from?'"

"From . . . women," I said slowly. It seemed like the safest answer, all things considered.

Yet Fidget reacted with surprise. "Really? You can have a baby, from your own body? Like a rabbit?"

I suddenly felt like an alien in her eyes, as if I had sprouted tentacles. Was I crazy? Where did babies come from, if not women?

"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."

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

I shook my head. "*Ex*-fiancé, I mean to say. But hold on. You think they don't come from women? You're not joking with me?"

"No, I speak seriously," she said. "Women. Hm. I hear that babies are born this way before Ulk'halla's fire. But no Havian women bear children. The rasha say only Cal'forna and Ulk'halla bring new babies into this world." She paused and looked at me thoughtfully. "I suppose, if you want to, you prove them wrong, since you come from Mars."

"How?"

"You have a child."

I made a face, which Fidget misinterpreted as an argument.

"But no, as you think, the rasha can easily discount this. 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. I felt relieved at not having to bear a child 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 chuckled. "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?

Another tyro raced overhead, and Fidget got to her feet. Changing the subject abruptly, she said, "Night falls! The lodge convenes in half an hour, by my guess. Let's make haste."

Chapter 8

The Turen Talk like Otters in a Lodge

Because I had entered through borrowers door, I had seen only a small portion of Stacks, mainly the outskirts. This area offered scant footbridges and platforms, being used only for navigation. Even 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 tyro to fetch it for them.

To my great relief, the inner 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.

The turen's lodge would take place in an auditorium, the same hall where tyros defended their theses and young turs fought for tenure. Fidget explained as much, leading me inward with the empty coffee mugs in one hand.

[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 tyros 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.

Another row was 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 life, and a flat counterweight sped upward as the carriage descended. The whole contraption

[2]An auditory entertainment device, which used analog discs as the storage mechanism for music or spoken word.

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 a specific reference on Mars, before speaking. I fear I miss the start. You fetch her?"

"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?"

"Just Rosalind," I said. By reflex, I added, "Rosalind Lee."

"Hm, two names! How interesting. You address the lodge this evening, no?"

Fidget interrupted. "Sanguine, the tyro's waiting."

"Oh, right."

The ten-year-old looked completely content to stay buried in his book, but he unburied himself obligingly and pulled open the wooden gate to admit us. The gate swung shut on a spring, and the tyro thumbed another button as he returned his eyes to the page. 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 room where five or six young tyros 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, every morning."

"Oh."

The tyro looked up from his novel, 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," instead of "impact."

The elevator jerked to a halt in an unfinished basement, where the original library's maintenance crew accessed the machines. 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."

"We have churches," I said hesitantly. "They're the same sort, but smaller." I wasn't sure what to say about them. "What do you find at the churches of New York?"

"Nothing holy. The pews burn black from Ulk'halla's fire, and worshipers' bones lie scattered in every row. So many come to pray, but no one listens. The infidels worship a strange god."

She trailed off, and a strange silence descended. I felt a gulf separating me from these Havians, not in our speech—the turen didn't really mind my slip-ups—or in my skin color, which they didn't even notice, but rather something deeper. What the Havians accepted as fact, that Cal'forna created the world that morning, made them fundamentally different. We might agree on some things, but eventually we would reach a conflict for which no resolution existed: one between alternative realities.

Sanguine broke the silence by steering the conversation into safer waters, asking Fidget about her research. I listened with interest to the young tur's description of a database of exoplanet observations, which she recently discovered among cold storage memory tapes, and her efforts to understand it. She had an idea for an algorithm to explore nearby star systems, which would maximize the likelihood of finding a habitable planet.

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 surrounded the stage, grouped into tables of two or three to facilitate conversation around repurposed oven coils, which served as space heaters. A second ring of plain folding chairs were arranged on an elevated platform, for the tyros. Up above, the lodge had no ceiling except for the library's massive arches, twenty meters high, and no walls except the old New York brick. It was not so much a "room" as an open-air amphitheater within the larger reading room of the library. I remembered a similar place in New Plymouth, where part-time actors occasionally performed Shakespeare in the park.

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. Con-

versations 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, unwilling to dismiss the delilah's tale of demons dealing death. I couldn't blame them. After all, we brought our finest weapons on this "scientific expedition."

Would they really call for my death? I had a hard really believing that. These turen seemed far too rational to be of any real danger.

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? Why?"

"I think you know. Sanguine visits your base of operations yesternight."

"Olympus, right."

"Olympus, like in ancient Greece?"

"What?"

"The palace of the gods?"

"Oh, right. Yes. I guess that says something about Martians, doesn't it?"

Fidget laughed. "Aye, that you have a healthy ego."

She scooched her chair closer to mine as the head of astronomy cleared her throat again. This time the lodge fell quiet. Beginning with the business of meeting, Sanguine called for count of quorum, the minutes, and finally the reading of this night's agenda, raising her head as she checked off mental boxes. 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 considerably when Sanguine changed the subject. As she described the ELVs at Olympus base and the sound of the hellhornet flying overhead, they stopped tapping their pens and listened, rapt with attention. I focused too. I had no idea what happened after the delilah's attack, but apparently Commander Erikson had returned to base and activated what little defenses we had—which was reasonable—while she consulted MASA. Four ELVs swept the perimeter at regular intervals, headlight blazing into the forest. The hellhornet circled overhead, equipped with a laser array capable of melting a man's skull from 2,000 meters.

Fortunately, Sanguine was unaware of the laser array or the ELV-mounted rail rifles. She also didn't know about New Plymouth's orbital strike capability or the squadron of berserkers currently being loaded into a hellscape lander. The hellscapes were designed to smash into not just atmo but also homedomes and Martian regolith, deploying six of the marine bots ready for combat. They never saw action during the Asteroid War, thank God, but the Navy never dismantles its toys. They're too good at hiding them.

Instead, Sanguine portrayed the Martians as well-equipped but ultimately peaceful explorers. True, we had technologies that Havians didn't understand—and which we used in self defense—but could a layman ever comprehend the turen's computer? Undoubtedly, the turen of a hundred years ago would recoil at the turen that night, out of fear of the unknown. Yet the turen must not recoil at Ulk'halla's children. There was too great an opportunity for all turen, if only they were wise enough to see it.

Here Sanguine paused. She let the word "opportunity" linger in the atmo, until every tur in attendance had breathed it fully.

"This brings me to Rosalind Lee," she said, "Chief Anthropologist of Mars and Commander of the First Mission to Earth."

The first title didn't exist, and the second didn't belong to me, but I appreciated the sentiment.

"If we protect Rosalind as one of us, then Martians know the turen as friends. They trade their scientific knowledge for our survival knowledge. Who uncovers the secret of hydroponic farming? Who else fashions the growing lights? Just as we have secrets, so do the Martians. If we teach Rosalind some of ours, her friends teach us some of theirs."

After she finished, Sanguine yielded the stage for open debate, during which more than a few belligerent turen made their opinions clear. In general, they viewed bringing me here as reckless, trusting me with their secrets even more so. Frankly, I tended to agree with them. Sanguine would have had a stronger argument if she only wanted to protect me, but it sounded like she wanted to start the first New Plymouth and Havia exchange program.

Fidget leaned over to me. "Now, you speak," she said. "Be brilliant, anthropologist-chiefly Rosalind."

"What, now? They dislike me even more than when she started."

"If you speak well, then strong disliking turns to stronger liking."

I shook my head at the craziness of it, arguing my own case in front of a jury with none of my peers on a planet where I had spent less than forty-eight hours. But there was nothing for it.

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 sea shell. 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.

I would if I could, but what the hell to say?

"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 their 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 nations mean 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 made me nervous. My thesis defense felt breezy by comparison.

"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 much history, 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 as they settled in.

"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[3]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 version of events. Hell, I was still getting used to the fact they had electricity.

I forged 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 sensed that I should wait as well.

"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 poetic 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 terrible that none dare use them, 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 pop-

[3]No reason other than the whale in Times Square, that is.

ulous 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."[5]

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 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 folded my arms. "Well, it's simple. Martian poverty cannot endure 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

[4]Tocqueville, Alexis de, 1805-1859. Democracy In America. New York :G. Dearborn & Co., 1838. Vol. I, Ch. XIII.

[5]I loathe to oversimplify. Suffice it to say, this pretty picture does not accurately represent one of the most turbulent periods in American history: the mid twenty-first century.

the native tribe,[6]but Mars has no such inhabitants to begin with."

Cynic rubbed his chest, pondering. "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."

"Aye," I said. "We have no such pleasures."

"Then how do the first Martians survive? Does Ulk'halla shelter you with his wing?"

I bit my lip, aware of how reckless this speech had become. "Perhaps. But if his wing shelters us, we never know 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,[7]supported by universal income, education, health care, and the rest. Thomas Jefferson would have called it utopia."
[8]

"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,[9]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

[6]Until King Phillip's War, that is.

[8]Not counting Xin Beijing, which negotiated for autonomous zone status in 2125.

[8]I feel that putting Jefferson in such a positive light would be irresponsible without also acknowledging the hypocrisy of his owning slaves.

problem, having plenty of problems on our 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. Gravity-based defense 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 touches down just outside the Midwestern city of St. Louis. Nineteen kilometers wide. Can you imagine? Enough kinetic energy to crack the Earth's mantle like an egg. The Gateway Arch reportedly rips itself apart. 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 turns to a 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. Out of twenty billion, we think only ten million survive."

The Havians hardly breathed as I spoke. When I paused, it was so quiet you could hear a mosquito on water. It was obvious they never knew what happened. Listening to me, they experienced for the first time what every Martian grapples with from exiting the womb to entering the crematorium: survivor's guilt from a completely random event. I had to make it real. I had to convince them what happened wasn't some giant eagle's judgment on an overbred population.

[9]First spotted by Richard Dowel, an Australian amateur observer, in January, 2482.

"It might be worse," I said, into the silence. "The object breaks apart before touching down, and only a fragment actually strikes. The whole thing could come raining down, shatter the mantle entirely. Like a glass bulb."

"You say ten million survive," Cynic said. "How?"

I nodded. "Good question. Lots of people have bunkers in their homes, deep basements meant for surviving a nuclear blast. In South Korea, New Zealand, California, all over the world. We even talk to some of them, for decades . . . but you can only store so much food. The planet struggles to recover, to support life. Soot and dust particles in the upper atmosphere cause a global ice age. Eventually, the known survivors stop replying. The fragile lights that we observe from space go out.

"Still," I added. "We know so little. We think no one survives, after so long. We have no idea that Havians even exist, until ten years ago."

"Hm." Cynic shut his eyes, thinking, and I fell silent. Even though I had more to say, the lodge appeared to have reached a point of decision, one way or the other.

"She speaks well," someone said.

"Aye."

"Much like a tur."

"I have one more question," Cynic said, "if the lodge allows me."

The massive room fell quiet. At some point while I spoke, a subtle shift had happened which brought them over to my side. Now they turned to Cynic almost reproachfully, but still with some interest in what he had to say.

"Yes?" I said.

"You say Ulk'halla never exists, and Ulk'halla's fire comes an asteroid?"

Sanguine stood up, interrupting the older tur. "Aye, Cynic, just as my theory states—"

Cynic held up a hand. "Aye, I know. Do you speak next, Sanguine? Your words inform the lodge greatly on these matters."

"Aye, I do."

"Good. Yet I harbor one more question, for you, Dr. Rosalind Franklin Lee."

"Ask."

He looked up, arranging his words. "Suppose the currents flow as you say. Suppose few of the infidels survive this impact, hiding in their bunkers, and let none store enough food to outlast a global ice age."

"Aye," I said, not sure where he was going. He sounded like a mathematician, laying out the assumptions at the beginning of his proof.

"Then how do Havians survive? You see us here, thriving. Winter takes a heavy toll, true, and the river freezes over, but it bothers us little. Where do Havians come from, in your story?"

The question caught me off guard, and I decided to continue with the truth. It had served me well enough so far. "I don't know," I said. "A scientist admits when she doesn't know something, and I have no idea."

"Hm, indeed."

"Yet the question begs for asking." I folded my arms and stared daggers into him, unflinching. "Where do Havians come from, Cynic of the turen?"

"Hah!" the black man laughed, and his booming voice startled several turen out of their quiet repose. Resting his hands on the railing in front of him, Cynic smiled broadly and seemed to look on me with newfound respect. He paused before answering.

Then he said, "From Cal'forna, of course."

—

After I finished, the lodge heard further testimony before they took a vote. They questioned Fidget, who tactfully avoided the subject of newborn Havians, and debated the evidence of the impact. At the time, this struck me as ridiculous, like when Americans "debated" the evidence of climate change. Yet the Havians had never seen those terrible images, transmitted live before the satellites cut out, of the St. Louis impactor burning through upper atmo and cratering the North American continent. The evidence literally surrounded us, but

it takes an act of wild imagination to picture that sixth great lake, collecting the Mississippi river in America's heartland to forever mark the damned spot.

Throughout these debates, I noticed that Cynic spoke not at all. He appeared not even to listen, with his arms folded and his gaze directed upward, toward the ceiling. He reminded me of my father, who adopted a similar demeanor when deep in thought, although Cynic was much younger.

They asked me to leave before they voted. I waited near the elevator, next to the boy reading *Flatland*, while my life hung in the balance. Distantly, I thought I heard Cynic's baritone, but I couldn't parse the words.

The tyro set aside his book. At length, he asked, "Do you come from another dimension?"

"What?"

"Another dimension. Do you come from the fourth dimension?"

"No, I come from Mars."

"Oh." The boy closed his book and pondered that.

At length, Fidget rushed out to inform me of the outcome. The lodge had swayed entirely in my favor, apparently, after Cynic gave an eloquent speech about "camaraderie among academics" and "forming new connections." They had agreed to shelter me, for the time being, and to keep my presence secret from the delilahs, who still searched Cal'forna's road. If they found out where I hid, they might twist the situation toward their benefit by stoking fears of Ulk'halla's children among the laity. Apparently, this danger concerned the turen far more than any question of my heresy, but Cynic made a much more convincing argument of the potential benefits of trading with the Martians than Sanguine had. He pointed out that the delilahs' firepower would matter little if the Martians were made the turen's allies.

As the rest of the turen crowded toward the elevator, I searched for Cynic's face among them. I wanted to thank him for speaking, but he was nowhere to be found. The man had gone.

Chapter 9

Like Looking Down On Backward Constellations

Those first twelve hours in Stacks stand out strangely in my mind, sharply outlined and yet unreal, like a reflection on still water. So much changed thereafter. I remember my fear of heights and my unfamiliarity with the Havian speech, even though Fidget rooted out the first and the second fades—or faded, rather. Even this night, I catch myself forgetting my tenses and my time, speaking of the past like beats in an ever-present story.

I fear I must admit that Jared and Dr. Mason's circumstances did not disturb me often, for I thought I had no power to help them. I had good reason to think so: first, that my colleagues were prisoners of the delilahs, with whom any influence among the turen mattered little, and second, that the delilahs controlled their territory even more strictly than the turen controlled Stacks. These reasons were sufficient enough for Commander Erikson; I trust that history will judge them likewise.

My reputation didn't matter outside Stacks because Havia wasn't a single nation; it was a people. Simply put, my reputation among Havia's strapping librarians didn't matter because Havia wasn't a nation; it was a people. The rasha, turen, and delilahs didn't acknowledge any collective order. They warred among themselves—like the city-states of ancient Greece,

who had no reason to unify until Persia invaded. That said, the most memorable battles in Havian history hardly amount to skirmishes, by historical standard. An encounter with more than five dead was a bloody massacre long remembered, since they had so little population to begin with. I heard the turen's telling of the great "Seige of Stacks," which occurred twenty years ago and returned eight turen to Cal'forna's ocean, in addition to six delilahs. It only ended when the rasha sided with Stacks, because of their desire for balance. They cut power to Foundry until the delilahs retreated, but they did not reconcile the two orders. Waver, the woman from Lincoln tunnel, summarized all delilahs' opinion of the turen when she called Cynic, "Fucking tur."

Even without a reputation, one might argue, I could have tried to reach Jared and Dr. Mason on my own, but anyone familiar with the delilahs would know the futility of such an act. The delilahs controlled a network of tunnels to the north, and they kept the exact location of Foundry, their home, secret. Like many guilds, they conducted all their business in Central, but unlike any other guild, they did so with armed guards watching.

Thus, I had as much power to free Jared and Dr. Mason in Stacks as I did in New Plymouth to free captured spies[1] in Xin Beijing. But that didn't stop me from learning as much as I could in the meantime, trusting that Erikson would figure out how to reach our captured crew.

Some time after the lodge, the turen's chief doctor sought me out. He found me drinking beer with Fidget—to "celebrate my not dying," as she put it—and, after a brief examination, declared himself satisfied with the young astronomer's care. He advised me to keep the wound dry and change my bandages every twenty-four hours, after which he hurried away with a portly gait.

"He keeps too many patients," Fidget told me, apologizing for the apparent rudeness. "The laity hold no guild of doctors, only him. I wonder that he comes, even to sit at lodge. Normally, he cannot spare a moment, except to teach some first aid to the tyros."

[1]Excuse me, "political prisoners."

I finished my pint. "The laity have guilds?"

Fidget got up and swiped my glass to pour me another. "Aye, fisher's guild and farmer's guild, grower's guild, et cetera. The turen start as one such guild, before we discover Stacks. 'Bookbinders,' they call us. Some still do."

"I hear one of the delilahs use that term."

"Hm, then she means some insult by it." Fidget drained her own glass and I returned the favor of filling it. The turen's bar had no bartender, except on very busy nights when Sanguine rose to the occasion.

"Where is Sanguine?" I said, remembering how the older astronomer supported me.

"She joins us if she can," Fidget assured me. "But she needs . . . to write a report. On your account of the impact, I mean. Come on."

"What?"

She got up from the bar, glass in hand. "Come on. I show you something."

I followed blearily as she led me back toward the elevator. A different tyro tended the contraption, this one somewhat older, and I asked her what she studied. The young woman only shied away from me.

"Chary," Fidget chided. "Show respect. Ulk'halla's child knows much of what you study."

"You study anthropology?" I asked with sudden interest.

The girl, who looked about eighteen or nineteen, nodded in an undecided way. "Or history."

"We must speak, before long," I said seriously. "I have many Martian secrets, you know."

Fidget tipped her glass to cover a fit of laughter. "You sound drunk, Ulk'halla's child."

"Aye, what of it?"

"Nothing! You have good reason."

Chuckling, we left Chary to her duties. Rather than head toward the lodge, however, Fidget guided me down one door, then another, until we reached a gray service door, which was locked. Squeezing past it, Fidget led me through a recessed crawlspace and up a metal

ladder, which seemed to go on forever. Finally, we emerged onto a lattice of ceiling tiles, over which a metal platform allowed maintenance workers to walk safely.

"Another secret entrance," she said, with much self-importance. "Secret even among turen! Oh you never have a friend like me, do you?"

"Aye, never," I told the younger woman, climbing out onto the platform after her. I stood, too quickly, and the sight below took my half-drunk breath away.

We stood over the heart of Grand Central terminal—that is, Central Havia—but I hardly recognized it. In every photo I'd seen, the train station's main concourse contained only an information booth and an ant-like swarm of commuters on its polished marble floor. This night, the station hosted an unnavigable slew of wooden compartments, arranged in some semblance of a grid and in many places stacked on each other like haphazard tenements. Some of the apartments had roofs, but most didn't bother. From my vantage, I saw unclothed Havians lounged at the end of a long work night, trading conversation or listening to the radio set over drinks. A cacophony of crackling speakers covered the town like cicadas clicking. I strained my ears to listen to the program. All I could make out was eerie, alien music over unintelligible narration.

I looked up at the ceiling of Grand Central, which still bore the mural of constellations, once the only stars that could be seen from Manhattan. In those faded heavens, Orion faced off against Taurus, the legendary bull, against the backdrop of the Milky Way galaxy. I looked for Mars amid the patchwork quilt, but I couldn't find it.

Fidget noticed my gaze. "The painted stars are backward," she said.

"What?"

"The ceiling differs from the sky, reversed for some strange reason, as if the artist had another view in mind than this one down below."

I looked and saw that she was right. The constellations were flipped East to West, except for Orion. "Strange," I said. "I guess even architects can make mistakes."

"Cal'forna makes no mistakes," Fidget said soberly, but her eyes glinted with humor.

I looked back down at the sprawl. Below our vantage, a pair of men exchanged orgasms in a sweaty tangle of limbs, heedless of their open roof. They regarded the ceiling of Grand Central as if it were starry night, and the only eyes upon them belonged to God or no one. If the latter, then nothing mattered. If the former, then He observed their fucking with or without the roof, and so it made no difference.

I rested on the platform and observed them intently, curious about the Havians' lack of ritual surrounding sex. Eventually, one of the men departed. Wrapping his waist in a blanket, he made his way carefully through the "streets" until he reached another cubicle. Inside, a child listened to the radio and danced on her own. The man was African. His daughter was Central American.

Few of the households had children, I realized, and never more than a single child. These mostly consisted of heterosexual partnerships of considerable diversity, but there were also single parents and several same-sex couples, both male and female. Adoption was commonplace.

"Fidget," I said. "Who raises you?"

The woman settled down close to me. "You mean, among the turen?"

"Aye."

"Cynic takes an interest, actually, since I enjoy political philosophy. Sanguine teaches me to code when I grow older."

"But before that. Who cares for you as a young child?"

"Oh that," the astronomer yawned. "I hardly remember my time with the rasha, before the turen bought my life-debt. Come, morning sloughs upon us, and this night makes me sleepy."

—

As the early dawn pierced through pinpricks in the boarded up skylights, we crept back to Stacks. Fidget strung up another hammock, and we slept adjacent to one another in the midst of celebrity memoirs. Being more than a little buzzed, I didn't fret so much about the

heights.

When we woke, Fidget showed me where the turen kept their coffee. They had fashioned a home-made electric grinder for the beans, feeding into a mishmash of hot plates and condensers that served up a perfect pour-over. I learned which knobs to turn in what order to replicate the turen's brew. Let me tell you, the turen make the absolute-goddamn best fucking cup of coffee in the solar system, bar none.

"This night, you learn to navigate Stacks," Fidget said, when we finished.

"Aye, all right." I didn't argue. My fear of heights had returned with my sobriety, and I was anxiously aware of the sheer drop beneath us.

Fidget was an excellent teacher. First, she directed me to jump off the lower footbridges while holding the balancing line, to slow my descent. It was only five meters or so. Even without the line, I wouldn't have seriously injured myself. My brain understood that, but my feet didn't believe it. I hesitated at the edge like a schoolgirl on her first day of kindergarten.

"Come on," Fidget urged, spotting me from below.

"Shut up," I said. "Don't say anything."

"You don't mean that."

"I do. Fuck. This is freaky."

Eventually, I managed to trick myself into believing the bridge burned all around me, and the concrete below actually churned with deep water, to catch me. I white-knuckled the balance rope and tipped forward. The line stretched, as intended, and slowed my fall as long as I held on. It was awful.

Still, I practiced falling all night until grabbing the rope felt natural. Drifting off to sleep that morning, I jerked awake several times, convinced that my hammock had snapped and the concrete rushed up to greet me. This never happened, thankfully. The next night, Fidget forced me to jog, barefoot, along the narrow footbridges as fast as I could, like one of the little tyros who constantly raced back and forth like worker ants on treetop highways, fetching far-off books for the older turen.

I flatly refused. “No fucking way.”

“Fine. Clutch the line like an eighty-year-old with osteoporosis. Before this night, I think Martians very brave, for strapping into space ships and hurtling across the solar ocean.”

“I hardly represent all Martians,” I said. “Trust me.”

“Hm, but you do, Dr. Rosalind Lee.” She placed her hands on her hips, observing me from across the footbridge. “To the turen, you represent all of Mars.”

She was right. Steeling myself, I put one foot in front of the other. I balanced precariously, unwilling to let go of the line but gradually increasing my pace. The rope burned on my palm. I forced myself to jog, hardly looking beneath me as my feet connected with the perilously constructed path, one step after another, broken up by horizontal rafters connected to the rows on either side. The ground blurred beneath me. The bridge collapsed behind me, in my mind. I let go of the rope. Suddenly I sprinted, shaking with fear, and almost fell. Fidget caught me by the wrist just as I reached the platform, hauled me onto it.

“Fuck,” I panted, “you.”

The red-headed woman laughed. “Anytime.”

As soon as I felt comfortable following close behind her, Fidget showed me around the outer stacks. Because the original system organized books by popular demand, these wild-lands contained a seemingly randomized assortment of unpopular volumes lumped in with each other like a land of misfit toys: atlases, annals, and local high school yearbooks, out-of-date dictionaries, scientific journals, naturalist logs, and Ikea catalogs;[2]self-helpers, how-tos, and every Sports Illustrated[3]except for the swimsuit edition; recipe collections, bird-watching field guides, short-story anthologies, selected tweets of the twenty-first century, county ordinances, census records, blog posts, law-school textbooks, Toyota owners’ manuals, college papers, TV screen-plays, the works of Winston Churchill,[4]National Geographic, and endless

volumes of the Encyclopedia Britannica.[5]

Despite their unpopularity at the time of the impact, these assorted volumes were like solid gold to an anthropologist. For the better part of a week, Fidget and I headed out beyond the well-lit corridors of the inner Stacks, to the parts where not even narrow footbridges had been constructed. Instead, we strolled between the colossal shelves much like street-level New Yorkers in between the skyscrapers. Instead of elevators, we used dangling ropes to haul ourselves up to one bin or another, which Fidget had located on her computer. The books were invariably fascinating. Biblical commentary debated the merits of natural selection for over five centuries. Pornographic magazines reflected the taboo desires of the twentieth century, before such material went online.

I learned much more from Fidget than she meant to teach me. For instance, the running water came from the same aquifer pumps that once fed all of Manhattan, maintained by the plumbers guild. Stacks had their own boiler room, and so we took hot showers in a communal stall, but most of the laity used the public baths, built inside the terminal's restrooms, each with an entrance fee.

"The guild saunas freshen the skin," Fidget said, bent over while she squeezed water through her hair. "Feels *amazing*, but they want seven casings for it. Imagine that! Seven casings, just for getting clean."

"Aye," I said, just listening to her. It was the first time I had showered since landing on Earth, and I felt the last trace of Martian dust loosen its grip, like a painted costume peeling off and swirling down the drain. I rubbed soap over my arms. Despite the hot water, I felt chill.

[5]The Swedish furniture giant was ubiquitous in New York apartments long before its lightweight, ultra-compact designs filled Martian pods across New Plymouth.

[5]An example of the once-popular kind of paper publication called the magazine, which fell out of fashion as soon as the web browser replaced Gutenberg's press as the most up-to-date means of textual communication.

[5]A war-time British Prime Minister, who purportedly said, "History will be kind to me for I intend to write it." What he actually said, in 1948, was, "For my part, I consider that it will be found much better by all Parties to leave the past to history, especially as I propose to write that history," but history has a way of editing its heroes.

[5]Suffered the same fate as Sports Illustrated.

"Fidget?" I said.

"Aye?"

We were alone in the shower. "Thank you for all your help, showing me around."

"I take pleasure in it, anthropologist-chiefly." Her eyes twinkled when she called me that, like Ruben when he alluded to one of our inside jokes.

—

I gave an invited lecture toward the start of my second week, in the same amphitheater where the turen held lodge. The organizer, an older tur named "Advent," introduced me as, "the first ever visiting faculty member from New Plymouth University to speak at our Havian Historical Society," as if they had flown me here first class just to give a talk. Initially, I worried that I would alienate my audience with the usual material, which was meant for New Plymouth undergrads and faculty, but the Havian Historical Society proved a far more attentive audience than my students at NPU—and perhaps even more than my fellow professors. They leaned forward in their seats and took careful notes as I described the months leading up to the impact from an anthropological perspective.

The coming impact changes everything, you have to understand. A society on the brink of annihilation undergoes rapid, unpredictable changes. Churchgoers flock to nightly congregation while strip clubs and casinos preach a more persuasive gospel. Protesters march on Washington, becoming anarchists, Billionaires make a mass exodus to Mars, if they can bribe their way onto public rockets, while trillionaires fly private. The U.S. president struggles not to panic. Corporate leaders abandon their tight-fisted grip on the free markets. News anchors speculate how the whole situation might affect turnout in the midterms.

While I talked, my audience slowly grew. The younger turen, who normally would have focused on their own research, turned up in the back row, and even the tyros started peering in through the main entrance, unsure if they were allowed in. Cynic stood in the back row with his arms folded, barely visible because of the floodlights.

When I finished, the turen asked many questions. Most of these were of a familiar

sort, the kind of question designed primarily to display the expertise of the asker and only secondarily to facilitate the exchange of information. One woman inquired about the specific date of implementing martial law in New York city and whether that inflamed the riots that followed, while another brought up New Plymouth's restrictive immigration policy and whether it reflected systemic prejudice against first generation immigrants, derived from America's own prejudices. I answered these inquiries as courteously as possible, doing my best to avoid sounding like an undergrad in an oral exam instead of the foremost expert on *ante impulsum* society in the solar system.

One question, however, stood out.

"To my ear," Cynic said, "You speak of this past, this *ante impulsum*, as if that society influences your own, and possibly Havia too, this night."

"Aye," I said.

"Does it truly? Or do you speak with so much gravity because of personal interest? If so, take no offense. I ask out of mere curiosity."

"Not at all." I folded my arms to match his posture, mentally composing my answer. "I think all past nights influence this night, do you agree?"

Cynic shrugged. "Not necessarily. Cal'forna creates this night only hours ago. Why should she care, what causes infidels to riot during long dead nights before Ulk'halla's fire?"

"Aye, I see." It was an interesting question, albeit wrapped in a layer of Havian religion. "Let me answer with a hypothetical. Suppose you have a friend—"

"What, him?" someone said. Several others laughed, not unkindly.

I pressed on. "Suppose you have a friend. This night, you wake, and you have yet to drink coffee, and your friend says something you object to. But you finish your coffee before responding to it, by which time you all but forget the initial remark. You go about your night. The friend thinks you dislike him, because of how you ignored his comment. He takes offense. You perceive a change in attitude and alter yours to reflect it, without knowing why. Before long, the friend and yourself claw at each other's throats in conversation, completely

forgetting the start of the conflict, but nevertheless carrying it out to completion.

"Thus history flows," I added. "We carry scars from long forgotten wounds, habits enduring solely through inertia, and preconceptions formed by former generations. Even if we know nothing of these long dead nights, their shadow stretches over, inescapable. I seek to understand that influence, in all aspects of society, and especially yours."

—

Shortly after my talk, the turen gave me an apartment. Although the former occupant had passed three years ago, the turen had yet to clean out his belongings, which shed a layer of dust when I first opened the door. The man had been an avid cyclist as well as an electrical engineer. His stationary bike—which could have come from any New York apartment—occupied one side of the living room, in front of a hot-wired panel that insisted on playing a ten-hour loop of the rural Midwest. Recorded cornfields make a better view than solid concrete, I suppose.

Fidget helped me move into the space. Despite being new in Stacks, I had acquired more than a few possessions, which I previously kept in one of the lockers used by young turs. These included a small collection of books, two working journals (one full, one started on), a pen and ink, three changes of clothes, reading glasses, a rechargeable lamp, and a stash of dried fruit swiped from the kitchens, which I snacked on while reading. In the apartment, however, I found a fully-functional kitchen, complete with mini-fridge and freezer, next to a private bar with its own stainless steel mixology set. The bedroom doubled as an office space, with chalkboards on every wall and a spring-mounted bed frame that rotated out of the way, when I wanted room to pace. Professors often want room to pace.

With the apartment, I understood, the turen acknowledged my status on Mars as roughly equivalent to their own. The Havian Historical Society quickly invited me to give further talks, along with the Astronomically Interested Union—mainly Sanguine and her advisees—and the newly formed Committee on Extraterrestrial Societies. The last group, which included Cynic as a leading member, aimed to understand New Plymouth's culture and so-

ciety in general, although they had very limited means of accomplishing this goal without me present. Even with me, they but peered through a narrow keyhole into our world, for I knew a great deal about academia and intramural low-grav soccer and not much else.

Perhaps, if I had known that I would represent all of Mars, I would have tried to know more of it. But alas, we Martians tend to wrap ourselves in a bubble of familiarity, as all humans do. No woman, man, child is an island, but most are mere peninsulas with no real sense of the larger continent except for nearby coastline.

Chapter 10

[Tennis Club]

I spend so much time with Fidget, during my time with the turen, that I begin to wonder if she has feelings for me. Nothing obliges the young woman to assist me; she acts entirely of her own accord. Brews coffee and answers questions, literally shows me the ropes so I can navigate Stacks freely. She earns my trust. I hardly realize how close we come, until one night I catch myself openly discussing observations with her, as if she were a fellow colleague at New Plymouth and not a subject of those observations more than ten years my junior. She listens intently. She corrects my overeager assumptions. As I ramble about possible constraints preventing Havia from spreading outward, she gently twirls a lock of my hair.

We often end each night like this, in my apartment, staring up at chalkboards covered in Martian scrawl. I teach Fidget the New Plymouth shorthand, so she reads my notes without difficulty. She asks the same questions that first rocked her thoughts when we meet, but this night she asks them as I do, about Havia rather than Mars. How do Havians survive the impact? What causes a civilization to invest so much in one endeavor? And where do babies come from?

Excuse me. I have forgotten my tenses again. Speech infects consciousness, as conscious thought does speech. Recalling my time with Fidget, I slip into that existential mode of thinking which she embodied so effortlessly, with her Havian speech.

Yet I will strive to keep the past in place, both for your sake, dear reader, as well as my own. If I speak of these terrible deeds as footsteps still falling, then I fear my willpower breaks to speak of them at all.

She reclined on my fold-out bed, topless, sipping bourbon from a champagne glass, and remarking on the sedentary lifestyle of the Havians. I was trying to justify my earliest assumption about Havians, that they were a nomadic people, by listing the pros and cons of settling under New York, as they had.

"Con," I said. "Limited natural resources. You don't have easy access to fresh water, and you have to live indoors and underground because of solar radiation."

MASA knew about the solar radiation, which regularly reached New York because of how the impact had altered Earth's magnetic field. I had always skimmed over these reports as being meant for the climatologists, like Dr. Mason, but now I wished I'd read them more closely. The solar storms swept over the city at random, soaking the concrete jungle in a warm bath of cancer-causing gamma radiation. MASA built Olympus base under a layer of regolith specifically to shield us from these storms, but we had a reason to come to New York. The Havians emerged from their bunker—probably—and chose to stay.

"Pro," Fidget countered. "Abundant man-made resources. We tap the water lines, shelter underground in New York's subway. Why do we wander aimlessly, when the infidels leave us so much wealth?"

"The infidels? Cal'forna makes the underworld this night, no?"

"Aye, so the rasha say, but we know better."

"Hm." I added "infrastructure" to the list, but it seemed like a strange thing for survivors of the impact to care about.

"Also," she said, "Here we enjoy Cal'forna's light: to keep warm in Winter, cool in Summer, to light the lamps."

"Aye, but Cal'forna's light comes later, after Havians decide to settle. You don't have it right away."

"But we do."

"What?"

"Cal'forna's light always shines in Central Havia."

"Hm." I wasn't sure how much to trust this piece of information. Fidget certainly believed everything she said, but she also believed Cal'forna gave birth to every Havian.

The young woman tossed her hair and finished off the bourbon with a long swallow. The liquor had a reddish tint to it, reflecting her hair.

"Fidget," I said, crossing my arms and stepping back from the chalk board. I reached for my own drink, contemplating whether to ask her. The question had been brewing in my mind for well over a week now, but I didn't know how she would respond.

"Aye?"

"If I ask, do you show me Central Havia?"

"I show you Central Havia already."

"I mean, do you walk with me amid the streets, not gazing down above them. I mean, if I ask, can you take me outside Stacks?"

I expected the young woman to become nervous, but she sat up excitedly. "You want to sneak out?"

"Aye, I do."

She giggled. "Like a little tyro, Rosalind Lee sneaks out of Stacks."

"I want to see Central for myself."

"Aye, I know. Easy enough to sneak out, I suppose. The trouble is sneaking back in."

"And avoiding delilahs," I said.

"Oh, we avoid delilahs easily. Let me have ten minutes. I—"

A knock at the door interrupted her.

Fidget looked at me, surprised. "You expect another tur?"

"No, I don't work after dinner. They know that."

"Ah, but what do work hours matter, to a tur? They come with important questions,

which only you can answer, at that. Tell me, Rosalind *anthropologist* Lee, how do space tethers overcome the rocket equation? And what *is* the chemical basis for human consciousness, exactly? Does P equal NP? Please, explain."

"Oh, I actually know that last one," I said. "I forget the person's name . . . hang on, I come. I come."

Another rapid succession of knocks.

"Aye, get the door." Fidget laughed. "The biggest question of seven hundred years can wait."

"I forget, honestly." I left her lying on my bed and hurried over to the living room. I opened the door.

Cynic stood in dark silhouette. His dreadlocks sprang up wild around his eyes, which flicked over me, the door, my apartment, and back to me at about a thousand klicks. Sweat glistened on his brow. He wore the same outfit I had seen at dinner, but that had been at a distance. Up close, I noticed they were ruffled, probably because he had slept in them, and dirty with chalk dust. He had forgotten to shave.

"Cynic," I said, surprised. "Are you—"

"Are you alone?"

"I—"

"I need to speak with you." He glanced left and right, along the hallway.

I stepped backward, which Cynic took as an invitation. He hurried inside, but he stopped short when he saw Fidget, who had come out of the bedroom. She held her empty glass close to her chest.

"Hello," the younger woman said. "You come late."

The tur swallowed. "Fidget, hello. How—how do you?"

"Well, thank you."

"Fidget and I discuss Havia's history this night," I said. I did not shut the door behind him.

"Oh, I see. I see I interrupt something." Cynic rolled his shoulders, lost in thought. "I come back another night, perhaps next night? Are you busy next night?"

"Not until late after-midnight."

"Then I find you near dawn. Forgive my rudeness." He started to go.

I bit my lip, curious about what could inspire such urgency but also unwilling to give up the chance to explore outside Stacks. "Do you make plans this night?"

"Aye, a very serious engagement with a cup of decaf and a copy of *Discourses on Livy*."

"Oh."

"You read that text ten thousand times," said Fidget, making fun of him. "Try something more modern, if you want to understand democracy."

"Oh? Like what?"

Fidget giggled, leaning over the bar and letting her breasts dangle. "*Lord of the Flies*," she said.

This gave Cynic pause, and he seemed hard pressed to come up with a response. Eventually, he gave up and turned to me. "Next night, near dawn?"

"Aye. Come knock again."

"I do that."

With one more glance around the room, the black man departed. He seemed uneasy as he left, but he made no comment. I watched him hurry back to his apartment, thinking.

—

Fidget told me to meet her at the elevator. Apparently she needed to change, before taking me on a tour of Central, and she needed to fetch her purse. Thus, I had an opportunity to think, while waiting for my guide. This late in the night, the elevator had no operator, but it had been left on level with the apartments. This was lucky; otherwise we would have to climb many flights of stairs to reach the main exit.

Part of me couldn't believe that Fidget had agreed so quickly. I had been nervous to ask her, out of fear that she would check with Sanguine or Cynic, who might not approve of the

idea. It was too risky, they might say, because of the delilahs. But Fidget didn't think the tattooed warriors merited so much trepidation, and I tended to agree. They had relatively small numbers and were easily recognized by their tattoos. Moreover, they had not taken any action since the firefight in Lincoln Tunnel, according to the turen. After losing so many soldiers to Erikson's rail rifle, I didn't think they were eager for another conflict.

I folded my arms and decided not to dwell on the delilahs. The opportunity to explore Central Havia was too great to pass up, and I felt excitement building in me at finally doing so. Living among the turen was one thing, but they were just one faction amid the larger society—and a highly insular faction at that. I needed to see the rest of Havia for myself, in order to understand it.

Lost in thought, I didn't notice Fidget's approach until she was right in front of me.

"Hello," she said. "Ready?"

"Aye, I am. I like that dress."

She had changed into a comfortable-looking evening gown of a dark hue that matched her deep blue eyes.

"Oh, thank you."

"If you wear that, do I change as well?"

"No, you go as you are. Except for one thing." She beckoned me closer. Reaching up, she showed me a smooth sliver of bamboo cleverly carved to fit over the ear without piercing it. She attached the fake tur-ring to my left ear, brushing my hair out of the way with her thumb.

She stepped back to evaluate her work. "This night, you are one of us," she said, finally.

I fingered the bamboo thoughtfully. "Where do you get it?"

"I carve it myself. When I am a tyro, I also wish to sneak out of Stacks," she said, blushing gently.

"Are tyros not allowed out?"

"No, they are, but not near dawn. And the growers guild gives better prices to a tur."

"I see."

"Shall we linger here no longer?"

"Aye, let's go."

Fidget operated the elevator with an experienced flourish. While we ascended, I wondered aloud, "What do you think Cynic wanted?"

"Probably wants to discuss Martian civil law again. He interrogates you last week for over an hour, does he?"

"Aye, he does." A thought occurred to me. "You don't think he wants me, do you?"

She looked surprised and a little disconcerted. "What? I don't think so."

"To sleep with me, I mean."

"Aye, I know. But he wants something else. Not that."

Something in her voice sounded strange. I wanted to ask her about it, but I still didn't understand the Havians' attitude toward sex. In the past weeks, several turen—men and women—had propositioned me, either by asking, "Do you desire sex with me this night?" or by telling me that they desired me, with unexpected politeness. Their directness astonished me. They brought up sex as casually as another cup of coffee, but in a respectful way not at all like the harassment which plagued New Plymouth culture. Fidget herself had made one more offer, after the first night we met. This reinforced my impression of the Havians as pseudo-post-modern, not assigning much importance to the act beyond physical satisfaction. Possibly, though, I missed many subtle cues from which a different conclusion was obvious.

We reached the exit in short time, following a familiar corridor from the elevator. Fluorescent lights flickered as we passed under them. Paint chips flaked off the walls. It was the same hallway that Fidget used to get to the Central lookout.

"Someone's guarding it," I said, as we approached the door. A tyro sat in a folding chair next to the door, looking up from his book with large, interested eyes.

"Of course."

"Why?"

"To let us back in."

We reached the door, and Fidget reached into her purse. She handed the tyro two casings.

"How long do you go out?" they tyro asked. It was the same boy who sometimes worked the elevator. He had finished *Flatland*.

"Oh, a couple hours or so," said Cynic.

"Aye," Fidget agreed.

The boy sighed resignedly and unlatched the deadbolt. He returned to his book while we passed.

"What do you read this night?" I asked, before departing.

"*Stranger in a Strange Land*," he said.

—

Central Havia absorbed us completely. Stepping out from Stacks felt like leaping into a rapid river, which collected every branch, bottle, and broken boat that fell across its path, sweeping them so quickly away from their point of origin that neither the objects nor the river remembered anything other than flow. Central Havia had that same effect. Wood-built tenements formed tight-knit communities that loomed over the alleyways, reminding me of New Plymouth's most tucked-away pods. Shared kitchens and bathrooms dotted along the rows were reminiscent of our public facilities. Unlike in Stacks, where I had only begun to feel comfortable after several weeks, I instantly felt at home in Central Havia, as if I could have been in some unexplored corner of New Plymouth.

This similarity bothered me. Martians cultivated a culture of tiny homes and shared spaces out of necessity, because of how expensive the space was to build and maintain. This was the inherent challenge of inhabiting an uninhabitable world, but Havians had no such limitation. Despite unfettered access to all of Manhattan, they crowded into the world's busiest train terminal and made it their home. They boarded up windows and barricaded doors to make the aboveground hall as good as subterranean, even though the empty bunkers

of America's billionaires abounded nearby.[1]

Why did they stay? Why was Havia just one city, crowded under the ruins of New York, instead of a sprawling empire after centuries of unfettered expansion?

"We journey only a little distance this night," Fidget said. "Inside Central."

We squeezed toward the center of the concourse, past a hunchback farm worker caked with artificial fertilizer and a smiling woman with a raw fish over one shoulder on her way back from borrowers market. The laborer muttered, "pardon," gruffly, and the woman admired my dress.

"Thank you," I said, blushing.

A tangle of children played around the information booth. They kicked an oversized soccer ball in circles, clockwise or counterclockwise, with points for every revolution. As I watched, the possession constantly changed. If one made a successful turn, they progressed only halfway round before the opponents caught up with them by going the other way. And if the ball changed hands, the new team had to undo all the other's score before they could build their own. This resulted in a very tight game, where the tallies hovered around zero and no one was likely to make real progress.

A four-faced clock overlooked this game, once the sole resident of the concourse. The clock was broken. Its hands stuck at a quarter past four.

I caught the faint scent of marijuana as we passed a row of ticket booths. "The growers' guild," Fidget said, by way of explanation.

"Where do they grow?"

"Somewhere on the north side, we think. They guard the spot jealously."

[1]Built in the mid twentieth century, New York's bunkers were designed to withstand nuclear attack from the Soviet Union. They were largely abandoned in the early twenty-first century but regained popularity among New York's elite in the 2040s and 50s, when humankind's fossil fuel obsession caused frequent and catastrophic storms, threatening to flatten the city or crack the nascent seawall. Sub-terra dormitories provided some sense of security for every ten-million-dollar room-with-a-view, while penthouse apartments came with a fully-furnished suite below the bedrock.