

SCIENCE
CRIMES
DIVISION

Case No.

1QV-012Z

RICK WAYNE

THE ZERO SIGNAL



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WZERO SIGNAL

A SCIENCE CRIMES DIVISION MYSTERY

by RICK WAYNE

This book is interactive.

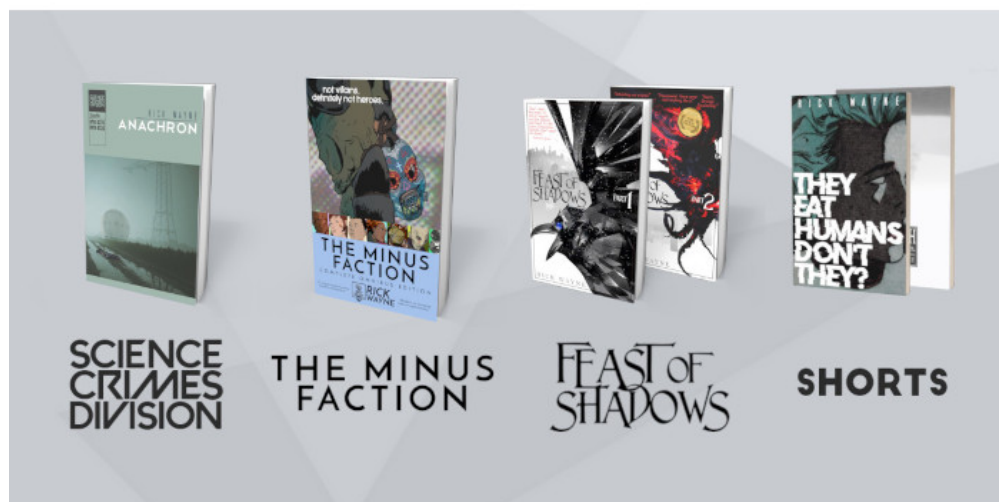
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ONE A P P E A R A N C E S

THE BUS PULLED ONTO THE SHOULDER to report the bleeder on the side of the highway. A car had clipped the man's leg, which bent awkwardly to one side. His hands had frozen into fists and his feet were limp, and they wobbled over the asphalt as he dragged himself forward on his elbows, one after the other, as if fleeing for his life in slow motion. He felt neither cold nor pain, and his frosted eyes remained fixed on some distant salvation even as the gargantuan bus rolled to a stop behind him.

Nio and several of her fellow passengers leaned into the aisle to peer out the high windshield. In the distance, the overcast sky was beginning to retreat, leaving waves of cotton-ball clouds.

"I dunno why we gotta wait for this," a white-bearded passenger announced from the back.

"It's the law," someone whispered.

The conductor, who tended the self-driving vehicle from a console, spoke softly into his radio as a pair of teenagers, too young to remember the outbreak, snapped pictures of the awkward, broken man now illuminated in the alternating flashes of the bus's hazard lights. The tires of a passing car

sprayed icy slush across the shoulder, and it struck the undercarriage in heavy clumps and doused the disheveled bleeder, who simply lurched forward again, pulling his legs limply along.

"That poor man," a woman near the front told her companion. The bus had become so quiet that everyone heard it.

"He shoulda lined up like everyone else," the bearded man declared. He removed his red cap and waved it like a banner. "Let's get goin' already."

There was a click of static as the conductor announced over the speakers that they would be waiting ten minutes for the highway patrol to arrive. The bearded man threw up his arms in frustration, and Nio forced herself not to turn and look. She unfolded her translucent phone instead and pretended to be interested in it, but being so far from a town, the custom device had no secure connection—nothing but commercial networks—and the last message she'd received was still Semmi's.

I still think this is a very bad idea.

A second passing car honked at the bus's partial blockage of the highway, and the noise startled the baby in the seat across from Nio, one aisle ahead. He began to cry, softly at first, but increasingly insistently. The infant's mother rocked her child gently and tried to quiet him, but he was hungry or cold or had simply had enough of the bus and was letting the whole world know. Several passengers shuffled in annoyance.

"Shhh..." The young mother's sun-darkened face bore equal measures of patience and fear as she whispered to her child in Spanish.

Nio leaned forward across the aisle with one hand extended. "He's beautiful. May I?"

The young woman nodded, happy at first to have an ally. She froze awkwardly a moment later when Nio pressed her hand to the child's forehead, as if feeling for a fever, instead of caressing it tenderly. Almost instantly, the wailing babe stuttered. After another moment, his eyes brightened and he began sucking an invisible pacifier. Nio heard quiet exhales of relief. As she leaned back into her seat, more than one person turned from the front to peer at her through the gaps. She certainly stood out from the predominantly rural crowd, with stubbly hair and heavy loops in her ears.

The colored lights of a police cruiser flashed across the inside of the roof, and Nio grabbed the collar of her puffy winter coat and turned it up

nose-high. The patrol car parked at an angle and a trooper exited and waved the bus on.

"Finally..." the grisly man said.

The bus tires carved valleys in the slush as the big vehicle pulled onto the highway and began accelerating smoothly. Several passengers clapped. Nio watched from the half-frosted window as the broken man on the shoulder, still lurching forward, receded from view. In his stead was the bleak landscape of the North American high plains. Tufts of brown grass poked through a fondant of white. Low hills were cut into even barbed-wire squares. Nio had traveled nearly 400 miles since leaving her home that morning. Somewhere ahead, a young woman was dying, perhaps inexorably—the latest victim of a killer neither of them had met. Just then, it seemed he was going to get away with it. Again.

Nio took out the unopened letter from her coat pocket and stared.

Pasture and fields gradually gave way to repair shops and fast food chains, but it wasn't until the bus passed a boarded Dollar-Savr that anyone noticed the damage. It looked like a tornado had hopped across the town on a pogo stick. A leafless tree left a three-meter hole in the earth after being uprooted and dropped onto a snow-topped house. A plump Buddha had fallen from its perch over a Chinese buffet and now golden-mooned passersby from the crumpled roof of a parked car. Ice-covered vehicles were scattered about the ditches and fields like a giant child's abandoned toys.

The bus had just passed a Christian school when a teenage girl half-screamed in surprise and pointed ahead.

"What the hell..." The bearded man got up from his seat and leaned over Nio to look out her window. He smelled like grease.

Some distance away, an enormous donut hung in the sky. The words Wonder and Land, written in sprinkles, curved around the top and bottom of the colorful confection. It seemed likely that somewhere nearby, a donut shop was missing its sign.

"How's it staying up there?" a woman asked.

The fiberglass donut hung motionless 50 feet in the air. Everyone on the bus immediately raised their phones or tapped their lenses, triggering tags to appear on their screens or in their field of vision. Nio glanced around. No

two devices seemed to give the same cause or description. Everyone on the bus was seeing the same thing, and yet none of them were.

The bus slowed and turned left, and the donut disappeared behind a derelict depot.

"Hey, this is the wrong way," someone called.

As the bus finished its slow turn, Nio noticed the policeman on the road waving vehicles to the side with an orange baton. His patrol car blocked the way, along with a sign announcing a detour.

The bus was directed to a gravel lot across from a 24-hour diner, where its hybrid engine rumbled as the conductor announced a curfew. He warned that no one but residents was being allowed into town and anyone getting off for more than a bathroom break should be prepared to show their driver's license or other form of identification. The bus would be stopping for thirty minutes, he explained, before continuing to Jamestown, and anyone not scheduled to remain who wanted a seat should speak with him.

Nio lifted the strap of her rolled bag over her head and stepped down to a sidewalk pockmarked in frozen footprints, like the fossil of a prehistoric riverbed. Her breath billowed over her puffy coat's high collar, and she huddled into it for warmth. It was the fourth day of record-setting April cold. It was supposed to last another four. From what she could see of it, the town appeared to be preparing for an inland hurricane. Storefront windows were taped in large X's. The sidewalk display in front of a nail salon had been chipped from the ice and brought inside, where it barricaded the door. A handwritten note on the wall of a 100-year-old pharmacy announced that it had closed early for Moving Day. A similar announcement was posted on the door of the diner, next to the sign that declared it was for "Patriots Only."

Nio checked her phone again as the old man in the red cap and overalls hurried past her on his way to the bathroom. The last message had simply said Please. She scrolled through the public thread to confirm the address. She tapped it, but her map application could only display the blue track of the 8-hour, 400-mile bus ride. The signal icon at the top of the screen was gray—there was no encrypted coverage in the town. Her state-of-the-art untraceable phone still had no service.

"Shit..." Her breath erupted in a cloud, and she shivered uncontrollably. She hadn't expected to be out in cold weather.

Another police car blocked the intersection near the diner. Its electric engine was silent but its heater hummed idly as it warmed the pair of officers keeping watch on the crowd. Nio expected them to roll down a window as she approached, but they didn't, and she had to knock on the glass.

A male officer lowered the window four inches. "Town's not safe," he declared before she could ask a question.

"But this is important." She was practically dancing to keep her legs warm. "Someone I know is—is sick."

"Sick?"

"She asked me to come. To help."

"Did she call the city?"

"I don't know," Nio said. The cloud of her breath all but obscured the officer, whom she could barely see.

"You can have her call 911 and wait here. But my advice would be to get back on that bus. Bus company's agreed to take folks on to the next stop."

He rolled the window up.

Nio waited in front of her own reflection, but after a moment, it was clear the conversation was over. She could probably sneak past the barrier, she thought, but she didn't know where she was going, nor how far she'd have to walk in the snow. She stepped into the diner in the hopes of getting directions—and warming herself—but was stopped by the hostess, who politely pointed Nio to the sign on the door. Turning as if she hadn't seen it, she caught the officers' watching her from the car. With their eyes squarely on her, she complied.

A tall, broad-shouldered man with dark-almond skin sitting in the booth near the window paid for his coffee by waving his hand over an electronic token and walked out the front.

"You need a ride?" he called.

Nio turned, surprised.

"I heard you talking to the hostess." He pointed toward the parking lot in back. "I'm heading into town if you want."

"Why would you help me?"

"Yeah." He looked down. "I guess that's what it's come to. Your choice," he said and started walking again.

Nio closed her eyes and felt his bioelectrics. The hum was weak at that distance, but the pattern was precise. Organized. He didn't have the high-pitched urgency of a man on a violent or sexual prowl. He was calm. Curious. She could feel him modulating evenly in a pattern common with athletes and soldiers—anyone in the habit of reacting quickly.

As usual, the modulation reminded her of a song.

"Variable Stack," she breathed. By Vetrans of the Meme Wars.

"Excuse me?" he asked.

"Nice to meet you. Del."

He looked down at his padded work suit. The name Del was stitched in fancy blue letters inside a white oval on his chest.

"Sharp."

Nio guessed he was in his 30s. He was fit and had narrow eyes that were constantly smiling, even when his mouth wasn't.

He unlocked a battered early 2000s pickup and leaned over to manually open the passenger's side door, which squeaked. Except for a folded letter on the seat, the inside of the vintage car was immaculate. Del picked up the envelope and moved it to the dash.

"So," he said as she shut the door, "where to?"

"The Cedars. You know it?"

"The apartments?" The name seemed to catch his attention. "You sure you wanna go there?"

"Something wrong with it?"

He paused. "It's kind of a dump."

"I'll risk it."

He shrugged. "Suit yourself. Just promise me you're not lookin' to score."

The engine started with a rumble and Del backed into the alley. The interior of the truck smelled vaguely of earth and manure. Nio rolled her bare fingers in front of the vent, and they tingled in the coming heat.

"Keep your head down," he said as they turned onto the main road.

Del waved as they passed the police cruiser. The traffic light at the next corner turned yellow and he rolled through it.

"Clear."

Nio sat up and noticed a small boutique bakery with an NRA seal on the door. A pair of young women were chatting at a table near the front. A sign underneath them in the window said RED ONLY.

Del saw her looking. "Don't worry. The Starbucks goes the other way, if you're so inclined."

"Is it far?" she asked.

"Far?" He laughed once. "In this town, you're five minutes from everywhere. You got a name?"

"Nio."

"Nye-oh," he repeated. "Interesting."

"So I've been told."

"Is it rude to ask what nationality that is?"

"I dunno," she said. "You guys have a lot of rules."

"*Us guys?*" Del studied her appearance. The high collar. The shaved head. The metal loops. The wide, sad eyes with lingering bags underneath. "What's with the jacket?"

Nio looked down at it. "What do you mean?"

The exterior of her knee-length puffy coat was a plain gunmetal gray, but the interior, visible only at the cuffs and inside the high collar, was neon orange.

"Out here," he explained, "we wear the hunter's orange on the outside." He nodded to a round-bellied man shoveling his driveway in a heavy camo-and-orange hunting coat.

"Well, it's reversible," she said. "So, I'll keep that in mind."

"What brings you to town?"

"Visiting a friend," Nio lied.

"He can't pick you up?"

"She's sick. That's why I came."

"Nothing bad, I hope."

They rolled through another intersection, and Nio saw boarded houses and a third roadblock and a fishing boat on top of a liquor store. A man on the roof had a hand on his head like he was trying to figure out how to get it down.

"What the heck happened here?"

Del pointed the opposite way. Nio turned and wondered how she could've missed it. Far away, on a bluff near the horizon, a banded deep core mining platform straddled a hill like a four-legged god. Its massive pillars and broad, sail-like protrusions caught the red of the setting sun.

And then it was gone. The truck exited the intersection and the platform disappeared behind more houses, half of which were empty. Nio could only catch glimpses of it between the trees and electrical wires.

"Deep crust miner," he said. "Pulls up rare metals. Stuff with funny names. Bitterbase or something."

"Bitterbase?" She almost laughed. "You mean Ytterbium? Or Ferropericlast?"

He studied her again. "You don't look like a mining engineer."

"What do they look like?"

"More facial hair, for one. You work up there?" he asked skeptically.

"Nope. Never seen one before."

Unlike oil platforms, which rose no more than a couple hundred feet in the air, the deep core miner was nearly a skyscraper. But since it had similar proportions to its ocean-going cousins, the winds at altitude were a serious problem. Where an oil rig could be boxy and exposed, a deep-crust driller was louvered and aerodynamic, including two large adjustable metal sails that rose in parallel from a shell-shaped center mass. Red lights spaced evenly along the ridge of the sails blinked in alternating intervals. Nio could just make out the white of a massive corporate logo.

"So, you just happen to know about funny metals?" Del asked.

"I know about lots of things."

"Here for the big show?"

"Show?"

"Moving day." He nodded again toward the intermittently visible platform.

"They move that thing? How?"

"Same way we got the amazing floating donut." He reached for the letter on the dash and handed it to her. "We all get one."

The embossed seal of the State of South Dakota sat proudly at the top. Nio unfolded the paper and read aloud.

"This letter is to remind you that from 11:00 p.m. on April 23rd until 3:00 a.m. on the 24th, Central Daylight Time, the gravity in the vicinity of Long Lake will be reduced between sixty and eighty-five percent. Water and power services across Brown, Campbell, Corson, Dewey, Edmunds, Faulk, McPherson, Potter, and Walworth Counties will be suspended from 10:00 p.m. in the evening until such time as the region is deemed safe. No evacuations are ordered. However, the Long Lake area remains closed and you are urged to secure any loose belongings weighing under 30 lbs. and to remain indoors. Persons wishing to apply for relocation—"

She stopped and folded the paper again. That at least answered the question of why the latest victim was way out in the middle of nowhere. It would be easy to hide in all that chaos.

"Wait." She scowled. "Anti-grav emitters are outlawed." It was half-statement, half-question.

"They are." Del nodded. "But international mining conglomerates get special exemptions." He squinted at her skeptically. "Sure you're not here for the move? Protest, maybe?"

She smiled. "You think I'm a protester?"

"We get them, along with the odd tourist or two. Supposedly you can see the legs light up. Gotta stay up late, though." He leaned forward to look up at the darkening sky. Light was fading. "When they planned it, it wasn't supposed to be this cold."

"Sounds riveting. But I'll have to pass."

"Then how do you know what ferroperscope is, or whatever?"

She smirked at his intentional mispronunciation. "Interested in geochemistry or just making conversation?"

"Neither. I guess I just wanna know what's so important two people had to die."

"Die?" Nio looked up and down the frozen street. Hardly anything traveled. "Is that why everyone's packing up?"

"Couple arcs cut through town the other night. You shoulda been here. Can't even be sure of the ground under our feet anymore. Now they can turn that off, too."

He noticed Nio's scalp then but quickly pointed north in a clear effort to avoid staring at the six oval scars just visible under the flat stubble of her hair.

"There's three," he explained as Nio ran a hand across her head involuntarily. "One across the border in North Dakota, one out west in the badlands, and that one, about fifty miles out. Ever since they started drilling, there've been tremors, which is apparently what triggered the emitter 'anomaly.' Or that's the story. Two dead, though, so they're moving it west while they figure out what to do."

Nio watched the town pass. It seemed so ordinary. "That's terrible."

"So?" Del asked, waiting.

"So, what?"

"What is it?"

"You mean ferropetriclase? It's a kind of iron oxide."

"*Rust?*"

Nio nodded. "Same as on your truck."

"I'll have you know this is a Chevy and it's a classic."

"Uh-huh."

"So, wait, people died so they could mine *rust*?"

"Not exactly. Iron oxide crystallizes at very high pressures, like hundreds of thousands of atmospheres."

"Sounds like a lot."

"The human body can handle maybe five. Deep in the earth's crust though, rust forms crystals, sort of like table salt, which conduct electricity in one orientation only. Otherwise, it's actually a good insulator. That's really important in certain applications of solid-state physics."

"Such as?"

"Well, if you bind ytterbium ions to an electrosensitive enzyme that—"

"An enzyme? Like something organic?"

"Yeah. Like how hemoglobin binds iron. The enzyme changes configuration to either inhibit or encourage quantum tunneling. That creates a quantum logic gate. If you stack a bunch of biomechanical wafers like that, you get a 3D quantum matrix similar to the Shri-class intelligences."

"I thought the big treaty said we're not making any more of those."

"Well, no one really knows what the Chinese are doing, but whatever it is, I doubt it's with rare earths from North America."

"Then what's the big deal?"

"Research. Ostensibly, everyone's cooperating to avoid another AI arms race, but they still want to be the first to design the next class. That's all Shri Brahma does actually: contemplate consciousness on behalf of various research groups."

After a moment of silence, she turned to see the smirk on his face.

"You sure you're not an engineer?" he asked.

"Ha. Would I be taking the bus? But what about you, cowboy?" she asked quickly. "Been here your whole life?"

"Naw. Moved here in junior high. Had a chance at double-A ball."

It was his turn to notice the look on her face. "You don't know what that is," he said.

She shook her head.

"Wow." Del stopped at a red light. He leaned back to examine her again in mock seriousness. "You really aren't from here. Who doesn't know about football?"

She shrugged.

"Come on. You gotta tell me."

"I grew up in Taiwan," she said after a heavy sigh.

"*Taiwan*?" He paused as if to contemplate a missing punchline. "You don't look even a little Chinese."

"Because I'm not."

"And you don't have an accent."

"It was an international school. All English."

"Do you also speak... whatever they speak in Taiwan?"

"Taiwanese." She smiled again. "Yes. I do."

The light changed, and Del drove in silence for a moment. "I blew it, didn't I?"

"Blew what?"

"You're smart and know about geochemistry and shit and I don't even know what folks speak in Taiwan."

"I know very little about geochemistry. But hold on... Were you hitting on me?"

He laughed once. "That bad, huh?"

"No, it's just..."

It was all wrong. He wasn't modulating romantically, which meant that whatever he was after, it wasn't a date. Nio had been warned not to trust anybody. But she hadn't really taken it seriously. She assumed a town like that wouldn't be nearly as dangerous as anything she was used to.

Del waited. "It's just I ain't got no game. That it?"

"I didn't say that."

Silence.

"Then what?"

"You were right." She pointed ahead. "Looks like we're five minutes from everywhere. You can let me out here."

Del slowed and pulled to a stop in front of three blocks of aging, cheaply built '20s apartments. A pile of planks and downed branches in the corner of the parking lot was topped in mounds of snow. Hanging inside a second-floor window, back-lit so it was clearly visible even at night, was the red, green, and yellow Kekistani flag.

"You sure I can't interest you in a passable dinner?" he asked. "This town's gonna get really dead in a couple hours."

"Worried about me?" Nio opened the door and stepped down carefully. Her heavy unlaced boots nearly disappeared in the slush.

"How do you know I'm not just trying to get in your pants?" he joked.

"You're not," she insisted.

"So, you're psychic, too, is that it?"

She waited for an explanation, but Del only shrugged.

"Come on," Nio urged. "I told you where I was from."

He exhaled slowly and looked down the road. "I saw you get off the bus. People like you come out here, they're one of two things: lost... or trouble."

"Which one am I?"

"I was hopin' lost. Why you think I offered the ride?"

Nio smiled. "And now?"

He glanced to the flag. "Nothing good happens here. I mean it."

"I believe you. See ya around, cowboy."

She shut the door. But Del didn't pull away immediately—not until the man buying drugs under the stairs of the adjacent building completed his

transaction. He glanced once at Nio's bare head as he left. Then he glanced at the man in the truck keeping an eye on her.

A cracked sign directed her to the top of a concrete staircase, where her destination, apartment 2A, sat facing the side street. Nio turned a corner and lifted her hand to knock. She stopped as soon as she saw the door.

It was open. Just a crack.

Del's engine rumbled, and Nio turned her head just in time to see his taillights disappear around a corner in the dark. She shut her eyes. If she concentrated, she could just make out a single pulsing spiral emanating from inside the unit. Female, if she had to guess. Whoever she was, she was throwing off waves of nervous energy.

There Should Be Unicorns by The Flaming Lips.

Nio knocked weakly. "Hello?"

"Who's there?" a young woman called from another room. It was followed by frantic scrambling and what sounded like the handling of a firearm.

"We spoke earlier. Online. You asked for my help."

"How did you get in?"

"The door was open."

There was a pause, and Nio slowly pushed the door. It creaked.

"I have a gun! Just... just go away."

"I came a long way," Nio urged.

After spiking, the woman's cycles were gradually decreasing, and Nio took a cautious step in.

"I just wanna help."

Nothing.

"*Please.*" Nio recited the word. "That's what you said. *Please.*"

A striking young woman with vivid amethyst hair appeared in the doorway to the bedroom. Her sky-blue skin had just enough lavender to keep it from looking like a joke. Her eyes were solid fuchsia, as were her lips, and she had short, blunted devil horns in her forehead. In her hands, she clutched a .357 revolver.

"Why would anyone come out here just to help?"

She said it like a teenager. Nio guessed she wasn't older than 20.

"It's kind of a long story. But I don't want to hurt anyone. I promise."

The devil woman shifted nervously, and a blue tail appeared from behind her legs.

"Impressive," Nio said.

It was a kind of semi-permanent cosplay. She was meant to be Gogo Ichigo, a digital persona popular with post-pubescent boys. Gogo, whose last name meant strawberry in Japanese, was a color-changing succubus that bounced around in revealing clothes as if oblivious to the effect it had on her fans. A movie had been released the previous year in which she fought crime with her sexual-occult powers. The young woman's mod was completely realistic, which also meant very expensive. She was certainly showing it off, even in the cold, with tight cutoff jeans, heeled knee-high boots, and a tank top that wasn't much larger than a bikini. Her arms were stuffed into a winter coat but she kept it off her shoulders, like she was perpetually about to disrobe.

"What happened to your head?" she asked Nio. "Did you have cancer or something?"

A bald man with translucent skin appeared in the doorway and stopped, surprised. Nio could see the orbs of his eyes through his eyelids, the shadow of his nasal septum through his nose, his teeth through his lips. His facial arteries throbbed like wriggling worms as they branched asymmetrically across the sides of his face. Same for the veins in his scalp. The rest of him was covered in black clothing, like a mortician.

"Squid protein," Nio noted.

"Yeah," he said like he was tired of people mentioning it. He glanced between the women like he wasn't sure what to do. There was a bag of weed in his hands, and he stuffed it into his jacket.

"You left the door open!" the devil-woman snapped.

"I just went around the corner."

She stormed over and slammed it shut. There were five locks on the inside. She turned them all.

"This is Jay," she said finally, motioning to the translucent mortician. "I'm Truly."

"Nio."

"Nye-oh," the guy repeated, in that way everyone did.

"She's here to help." Truly said. She motioned to the bedroom. "Becks is in here."

Colorful Christmas lights had been tacked across the otherwise empty walls, and they gave the bedroom a neon glow. Judging from the empty fixture in the ceiling, it was the only source of light. A large purse sat atop a small duffel in the corner, and Truly tossed the heavy revolver on top. A lone winter coat hung in the closet. The only furniture was a mattress on the floor next to a space heater with throbbing coils. A large-breasted woman in jeans laid on her bare chest, motionless. Her hands hung over the sides of the bed like she'd been strangled. A cluster of empty water bottles and used tissues were scattered to one side. On the other, three rows of crystals had been laid neatly in a spoke pattern. A large quartz spire sat vertically at the focus of the arc.

"Are they helping?" Nio asked.

The woman on the bed looked like a sculpture of a corpse. Except for the upper right side of her back, the whole of her skin was unnaturally white and pocked with dark veins, giving it an uncanny resemblance to marble statuary. But there was some kind of large lesion over her shoulder blade. The flesh was red and swollen and had erupted in a dome of large, opaque cysts, like fish eyes, the largest of which was two inches across.

"That's worse than the pictures you posted." Nio unsnapped her jacket in one pull and unrolled her bag.

"What's that?" Jay asked.

"Army surplus medic's kit," she explained. "Picked it up on the way."

She studied the young woman's face, which was stunningly beautiful. She seemed catatonic. Her pale, blue-white eyes were open but took no notice of the stranger examining her.

"Are her eyes part of the mod?"

"Yes," Truly answered.

"Same for the alabaster skin?"

"What's that?"

"Skin that looks like porcelain."

Truly nodded.

Turning human skin a primary color was easy. You simply injected the upper dermis with a CRISPR solution that caused the epidermal cells to express an otherwise harmless enzyme that acted on any of a number of naturally occurring carbon-rings—reducing them or adding a methyl group as necessary. But primary colors were loud and unsightly and people only

used them to roleplay Star Trek aliens. Subtle secondary colors required mixing. Vividness and opacity were achieved by including operons—genes that control the expression of other genes—in the modified DNA to regulate the amount of each coloration enzyme. In the Truly's case, it meant light methylation with the barest hint of hemoglobin reduction. It was a real art, largely developed by home modders, and easy to get wrong. The internet was full of disaster pictures: kids with more ambition than sense who downloaded specs for someone else's skin tone and turned themselves an awful shade of puke green just in time for prom.

"Here." Nio held up a pair of surgical masks. "Put these on."

"Why?" Truly snapped. "What's wrong?"

"Just a precaution. Looks like you guys might've downloaded a virus. Who was the artist?"

"Just this guy we know."

Below her left shoulder, a two-inch fleshy stub erupted from a round wrinkle over her scapula. It dangled downy feathers like autumn leaves preparing to fall. It was surrounded by a pentagram of handwritten hexadecimals.

Nio slipped a mask over her face and latex gloves over her hands, then she pressed a needle into a rubber-topped glass vial.

"What is that?" Jay asked meekly.

"Just saline. I wanna see if there's a reaction. This might hurt a little," she told the girl.

When she didn't respond, Nio inserted the needle to one side of the lesion. The girl drew breath sharply but didn't flinch. Nio wondered how much she could feel. Her skin was stiff and dense. Nio had to squeeze the plunger hard to inject even a small amount of saline. When nothing happened, she removed the needle and felt the girl's back with her fingers. It was stiff and rubbery, like cartilage.

"It's calcifying her."

"What does that mean?"

"It means she's not in a stupor."

Nio leaned close to the girl's face. Her eyes were bright. They moved just slightly toward Nio.

"Jesus..."

"What is it?" Truly asked. "What's wrong?"

"It's probably very difficult and painful for her to move."

Truly covered her mouth with both hands. "You—you mean she's *awake!*"

Nio nodded. "How long has she been like this?"

"Since last night."

"Do you have any lotion?"

"In my purse," she said excitedly. "I need to keep my skin moist or—"

"Get it. Is she on any medication?" Nio put the needle back in the bag and prepared another.

"We got her some oxy," Jay explained as Truly walked to the kitchen. "For the pain."

"Did it work?"

"I don't know. I think so."

"Do you know if she has any allergies?"

When there was no answer, Nio turned. Truly was staring at her friend and swaying back and forth. There was a tiny bottle of Cetaphil in her hand. She wiped the tear that fell. The drop was luminescent, as were the pools under her eyes. If she were true to character, all of her bodily fluids would glow in the dark.

"We're gonna need a lot more than that," Nio suggested.

"I think there's some in her car," Jay said in place of his friend. Nio could see the muscles of his lips contort when he spoke. The pulsing arteries of his face revealed his heart was beating fast. "I'll get it."

Nio could tell he wanted an excuse to leave. She heard the jingle of keys followed by the sound of the door opening and closing. That time, he locked all five locks.

"What about drugs?"

"Black dust," Truly said. "Last weekend. And weed. Almost every day."

"Alcohol?"

"Not since last night. No, wait. Two nights ago."

Nio cleaned the needle with an alcohol swab and prepared another injection.

"This is an anesthetic," she told the girl on the bed. "You may feel a little sleepy in a moment, but I need you to try and stay awake, okay?"

The girl blinked as if in slow motion, and Nio tried not to grimace on her behalf. She inserted the needle in several places around the cyst, injecting a little each time. Past the hard skin, the girl's flesh felt normally soft, which suggested the altered keratin was only being expressed in her dermis and the rest of her organs might be working fine.

The room was quiet as Nio waited for the anesthetic to take effect.

"Becks..." she repeated the name. "That short for something?"

"Beckham," Truly breathed.

"That's pretty."

"We didn't know what to do. I have money." She pulled out a wad of crumpled bills from her jacket and held it out like it was the plague.

Dancers, Nio thought. Hardly anyone else used cash.

"We can talk about that later. Let's get the lotion on her and get her to a hospital."

Truly didn't move. "We can't go to the hospital."

"We can't leave her like this."

"You said you could fix her!"

"I said I could help. She needs a hospital. They have machines that can sequence an anti-retro-viral."

Nio poked Beckham's hard skin several times with a finger. There was no response, which suggested the anesthetic had worked. She dug in her bag for an aspiration needle, which came in two pieces. She screwed the 8-inch metal tip onto the injector.

"What are you doing?"

"I need to drain the cysts first, get whatever is in there out of her."

There was a loud blow on the door, powerful enough to break several of the locks, and Truly jumped back. Nio heard a chain fall loose and dangle over the wood. A second blow immediately followed the first. Nio stood as Truly ran for the duffel.

The third blow ripped the hinges from the wall.

ONE A P P E A R A N C E S

TRULY GRABBED THE REVOLVER and pointed it, two-handed, at a large man in a trench coat and high-laced combat boots. Her hands shook, but she looked like she meant to use it. Nio stepped back.

What remained of the intruder's once-blond hair poked up sparsely from his scalp like cactus needles. His neck was covered in a tattoo of writhing octopus tentacles, like he had a mane of them. He held up his gloved hands at sight of the wavering gun, but he clearly wasn't frightened. He walked toward her as if amused. Another man followed but stopped to block the door. He was tall but thin and had straight black hair. He looked Native. His eyes were covered in old AR goggles. They were meant to be an anachronism, or so his suspenders and ankle-length pants suggested.

The octopus man glowered at Truly. "That's the problem with being blue, beautiful," he growled in a deep Scottish accent. "Everywhere ya go, people notice."

He grabbed the gun and Truly pulled the trigger, but she wasn't used to firing a weapon. The trigger was stiff and she had to pull harder than she expected. By the time the hammer fell, the gun was pointed at the ceiling.

The bullet blew off bits of plaster, which bounced off the man and fell to the carpet.

He pulled the gun away and she yelped. Then he caressed her hair as she cowered against the window.

"Didya think the TruBois were gonna protect your pretty face? Eh? That we'd be too afraid to come here?"

Nio noticed the girl's neck and cheeks were beginning to turn magenta—another of Gogo's colors. Although it was the perfect time for a vaginal flame attack, somehow Nio doubted it was coming.

She pleaded instead. "Mr. Dalrymple, if you just let me—"

"Oh, come, now," he interrupted. "You know I'm not the person you gotta convince." He looked around the room. "Who'd you con out of this shithole? Her?"

Nio was trapped in the corner by the second man, who had drawn his weapon.

"She's just a friend," Truly said.

"Is that right?" Dalrymple asked. "Well, hello, friend. My name's Malcolm."

He looked at the unrolled medic's bag on the floor. He picked up Nio's jacket and squeezed it between his gloved hands, feeling for contents. He pulled out her translucent phone and made sure it was off before slipping it into his back pocket. He felt her coat again and produced a small bottle of pills. He rattled them.

"I get headaches," Nio explained.

He glanced at the scars just visible under her buzzed scalp and patted the coat more. He pulled out her official-looking letter, unopened.

"That's private," she said.

The big man replaced the letter and threw the coat at her. Then he pointed at the white woman on the bed. "Take her to the ranch," he ordered the second man. "I'll bring these two to the boss." He smiled at Truly. "Time to go, beautiful."

She paused for the briefest of moments before complying without argument. She didn't even look at her friend, as if the white girl were already gone.

"It's cold outside," Dalrymple told Nio. "Better put that fancy coat on."

She paused to feel his bioelectrics but stopped after a single staccato shriek.

Shingles by Frantic Frenetic.

A sleek black Maybach, a custom luxury sedan, waited in the parking lot like a crouching panther. Truly strode to the passenger's side door. Dalrymple put a giant hand on Nio's shoulder, like they were old pals.

"Get in, friend."

The sun had set. Only a distant glow remained at the horizon. The second man appeared at the top of the stairs carrying Beckham in his arms. He had wrapped her in his trench coat. He whacked her head against the door frame accidentally and cursed.

"No rideshares," Dalrymple called. "They have back seat cameras."

The Native man stopped. "You're gonna leave me here? Alone?"

"Call Carl. He's not working doors tonight."

The second man looked around nervously. "What do I do until he gets here?"

A group of heavy-booted TruBois emerged from the lower unit then, laughing with each other. They were a gangly mix of geek and skinhead. They stopped when they saw the car—and the man next to it—before lowering their heads and walking away in silence.

"These racist twats aren't gonna do shit," Dalrymple said. "Not to us." He tightened his grip on Nio's neck. "Get in," he repeated.

She had little choice. She scooted over as Dalrymple got in behind her. Sitting directly behind Truly, he had quick access to either woman. The driver's seat was empty. The fancy car would drive itself—and keep the doors locked.

"I'm sorry," Truly breathed.

"Don't be sorry, beautiful. We're all friends here."

Del had been right. Everywhere Nio wanted to go was five minutes away. Their destination was a bit further, outside the town. The sky darkened completely on the trip, and the tinted windows of the car lightened automatically. The last glow in the west faded and stars appeared. Other than the occasional car headlight or porch lamp, the twin rows of blinking red lights on the sails of the distant deep core miner was all Nio could see. The on-board computer cheerily announced their ETA every few minutes. It was meant to be helpful. To Nio, it seemed like a countdown.

With a final satisfied ding, the vehicle pulled into a crumbling asphalt lot behind a tall windowless bar at the corner of a state highway and County Line Road. The neon sign on the pole in front was meant to say Raffie's Day and Night but several letters were unlit.

"Out," Dalrymple ordered.

Enough salt had been poured onto the nearly-empty lot that little remained of the snow. At the back was a dilapidated fence bounding the cluster of unmarked camping trailers in the field beyond. A four-foot gap between fence poles connected the bar with the trailers. The path between was worn to dirt.

A bouncer in a black suit and slim tie came out to greet them. He opened the door for Nio and held out his hand like she was a celebrity stepping onto the red carpet. He also blocked her only escape. Truly hurried inside as if desperate to use the bathroom. More of her skin had changed color.

At the door, Nio's clothes were wanded for electronics. The paddlelike device chirped over her boots.

"Take them off," Dalrymple ordered.

She looked down at the slushy, wet gravel under her feet. "Seriously?"

"Nothing wired," he told her.

"They're not powered. It's just stupid smart clothes. I've never connected them to anything."

"They can store data. Take them off and throw them in the dumpster."

He nodded to the solid steel behemoth resting obliquely in its own wooden cage at the back of the bar. It smelled like a landfill.

On one hand, it was ridiculous. On the other, "smart" clothes often recorded enough information about their environment to be useful for law enforcement. Some sensed ambient temperature, for example, so as to know when to tighten or relax. Others sent data to an app where it could be cross-referenced with metabolic information, captured by smart watch or fitness bracelet, as part of a complex health monitoring algorithm—for weight loss or in preparation for pregnancy. Such data, all of which was gathered and sold, could be used to establish a person's activity or impeach testimony. There was no way to know which articles were potentially incriminating. The simplest rule was to ban them all.

She slipped off her unlaced boots and tossed them one at a time into the dumpster. They resounded off the metal wall. Her socks were soaked instantly. Tiny pebbles poked her feet.

The steel double doors were opened and Nio was pushed into a large square storage room weakly lit by fluorescent lamp. The seafoam-colored walls gave everything a sickly look, including the eerie rack of plastic-wrapped sex dolls. Despite that most of their proportions stretched to the ridiculous, they looked completely real. Any of the twenty or so lingerie-clad figures could've been flesh and blood.

The doorway at the end of the room led to a hall paneled in faux wood. The open floor of the club was at the far end. Music thumped. The doorway to the kitchen was on the left. A large-bosomed waitress dressed like a sexy referee walked out carrying food in a plastic basket. Her skin glowed yellow-green under UV light. Halfway between the kitchen and the storage room, a staircase broke off to the right, but it wasn't high enough to reach a full second floor, nor did the club have one. At the top, past the closed door, was a dim, low office overlooking the interior of the high-ceilinged strip club from a wall of tinted, floor-to-ceiling glass. On the right, a large desk faced two chairs. Truly waited in one. Her skin was now completely magenta and her hair was following suit. Her tail curled under the chair like a scared dog's. On the left was a leather sofa and a short hall to a private washroom. By the light under the door, it was occupied.

"Have a seat," Dalrymple ordered.

His head nearly touched the low ceiling. He pushed Nio toward the couch.

The back wall of the office was covered in framed pictures, none more than eight or nine inches across. Most held photos of smiling patrons, and together they recounted the entire 90-year history of the establishment, which used to be called The Day Club, then The Day and Night, now Raffe's Day and Night. Hanging on the wall behind the desk, occupying the place of honor amid a cluster of recent photos, including several group pictures of all the dancers from certain years, was a child-sized, bright pink Hello Kitty shotgun. It seemed ridiculous in the dim, masculine room. It was also the only visible weapon.

Nio stared.

"Pheasant," came a young girl's voice. It had a deep country accent.

Nio turned. What at first appeared to be a little person with fake boobs and permed blonde hair stepped out of the washroom. She was barely four and a half feet tall.

Almost immediately, Nio could see she wasn't a little person at all.

"The shotgun," she explained in her girl's voice. "It's for hunting pheasant. It was a gift from an old client. In my day, we had exactly two industries: Sturgis and the pheasant run. A girl had to make her year working those. I'm Raffela. And you are?"

Nio was too stunned to answer. She had heard about neoteny dilation, but she had never seen it in humans. Neoteny, or the retention of juvenile features into adulthood, had been a fad with pets a decade or so before. Although it was much less popular lately, neotenous pets—PermaPuppies by their trade name—were still available. At one time or another, every pet owner thinks they want their new family member to stay young forever. Since the onset of adulthood is mediated by a sudden rise in hormones, like a biological switch, it was possible to create a cocktail of suppressor proteins that inhibited the cascade. PermaPuppies never matured, meaning they never had to be spayed or neutered. The startup that developed the process argued their product would decrease the number of animals in shelters. Buying a PermaPuppy was supposed to be morally superior to rescuing a stray because the latter only saved one animal, whereas PermaPuppies, being too adorable to abandon, would solve the problem of unwanted pets forever.

In fact, exactly the reverse happened. Because they never matured—or in some breeds, matured incompletely—neotenous pets were extremely difficult to house train and would often have lapses. Many developed odd psychological habits, what would be called neuroses in humans, including obsessive chewing and outbursts of sheer rage that lasted until the animals collapsed from exhaustion. As a result, a high percentage of people abandoned the animals after a few years and shelters soon found themselves forced to cull.

Amid the furor that followed, there were odd news stories about people who had attempted neoteny on themselves, but Nio had never heard of it being successful. Plenty of people dreamed of looking like a teen forever, but the reality of human aging was complicated. The inevitable loss of elasticity in the skin and subsequent appearance of wrinkles could apply dignity to a mature face. On a juvenile one, the result was creepy. Raffela

didn't look like a teenager, although she did have a young girl's petite stature. She didn't look like the kids with premature aging syndrome either. She looked like a ghoul, the resurrected body of some dead girl covered heavily in makeup.

"She didn't have any ID, boss," Dalrymple said. "Just the phone."

Raffela took it from him and walked her to her desk, where she stepped up a custom footstool to her chair.

"Let's see what we have here."

She unfolded Nio's clear phone and placed it on a small electronic pedestal, like a wireless charger, and waited for the data scrape. The device couldn't hack a phone, but it could use the phone's broadcast ID to identify its owner and to collect all available information from any number of online data brokers—not just name, address, and vitals, but credit scores, hobbies and interests, sexual orientation, political affiliation, employment history, purchasing behavior, psychological strengths and weaknesses, recent movements, social media posts, and more.

But there was no number associated with Nio's phone, which didn't access commercial satellites or cell towers. It exclusively used Parfait, a voluntary, wireless, peer-to-peer anonymizing network.

The pedestal beeped and turned red.

"Interesting..." She turned to Dalrymple. "Where's the kid?"

"Downstairs, boss."

"Get him up here."

Dalrymple nodded and poked his head out the door.

Raffela stood elevated behind her desk and shook her head at Truly, who fidgeted in the chair. Her devil-tail twitched.

"Darlin', we were so worried. Couple more days and we woulda had no choice but to call the police. What were you thinkin'?"

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

"You could get into a lot of trouble. Someone might even say you were holding her against their will. Why didn't you come to me for help?"

"I don't know," Truly breathed.

There was a knock on the door.

"Come!" Raffe called.

A teenager in tight jeans entered sheepishly. He was skinny. He looked Southeast Asian. His finely coiffed black hair curled over his head like a breaking wave.

"Have a seat," Raffe said. She waited for him to comply. "Did you have something to do with this?"

The kid looked to Truly like he wasn't sure what he was supposed to say.

"It's not his fault," she said.

"Quiet." Raffe waited for the kid. "Well?"

"The sequence musta' been bad."

"You didn't write it?"

He hesitated. "I had help."

Raffela looked furious. But she held it. "From who?"

"A guy. On the mod boards."

Raffela made tsk-tsk sounds. "Now Guillermo, why would you do something like that?"

"I scanned it," he protested. "I don't know what happened."

"What did you use?" Nio asked from the couch.

"Kitkat," the kid said coolly. "And Base10. And a buncha' custom shit. I was careful. I know what I'm doing."

"Kitkat and Base10 are good," she said.

Guillermo raised his hands. "See?"

"But?" Raffela asked Nio.

"But... off-the-shelf anti-virus apps only compare random snippets from a digital sequence with a library of known threats. And they reduce everything to an algorithmic fingerprint first so home computers can handle the complexity in short order. It's a good screen. It'll catch most of your run-of-the-mill malnomes. But RNA isn't like computer code."

"I know that," Guillermo objected. "Raffe, I—"

Raffe raised a small manicured hand and waited for Nio to finish.

"There are ways of hiding malicious seqs. Since RNA can be read in either direction, translation can flip-flop. And there are snip sequences, junk bits removed after translation. Makes it hard for the software to identify what the final coding strand will even be. To be fair to your artist, the guy who wrote that seq is very clever."

"Friend of yours?" Raffe asked.

Nio hesitated. "Not exactly."

"Boss, just listen. I—"

Raffela shushed him. "I want you to go back to the ranch and take care of things."

There was a long, silent pause.

"Do you understand?"

"But..." The kid looked to Truly, who was trembling and trying not to cry.

"We already had the fight in here last week," Raffe explained. "The last thing we need right now is more trouble. Carl and Jim are at the house. You take care of the problem and they'll make sure it goes away. Am I clear?"

The kid nodded weakly. Nio could see the glint of a tear reflecting the purple neon from the club. Music thumped through the glass as the DJ announced the next dancer. *Coming on the main stage, give it up for Roxy!*

"Good," Raffela said. "Now, go on."

Everyone watched him leave in silence, including Nio, who realized she had just been allowed to witness the exchange. Her heart beat faster.

Raffela turned to Truly. "You're working, aren't you?"

Truly nodded.

"Then you'd better go get cleaned up. You look like a steer's ass. What do we give every day?"

"110%," Truly breathed. She glanced once to Nio before scurrying out, magenta face to the carpet.

Raffe sighed deeply. She stepped back down to the floor and walked to the windows overlooking the club. The two small circular stages at the back, both with poles, were empty. In the corner, a human-sized holographic cylinder rose from a heavy base. It was unplugged and turned sideways. The 3D hologram craze had died almost as quickly as it had exploded. The once-expensive machine was junk.

The clubs' main stage sent a runway into the center of the room. Twirling around the pole at the end was a pale topless woman with engorged breasts who appeared about eight months pregnant.

"One of Guillermo's," Raffela explained. "Can you tell she isn't actually pregnant?"

Nio could feel Dalrymple watching her silently from the door, his gloved hands crossed in front of him. She glanced to the stage. "Kid's got talent." Then back to the shotgun on the wall.

"He even put a fake fetus in the saline," Raffe went on, doing her best impression of a genteel Southern hostess. "Sometimes, as part of her act, Roxy will shine a light against her stomach so folks can see. There's a small but perpetual market for a pregnant dancer. Not everyone likes that kind of thing, but the fellas that do..." Raffe shook her head. "It's getting harder and harder to tempt the little perverts out of their caves. They're catered to online—every possible fetish. Our only edge is to offer them something they can't get digitally. Something they can actually touch. Still, if it wasn't for the mining platform, I wouldn't have a business. Men come up from Texas and California for seasonal work and get tired of being stuck in the barracks. I know it isn't much" —she looked around the room lovingly—"but without this little place, a lot of my girls would get pushed into a seedier trade, if you know what I mean."

"Isn't that what the trailers are for?"

Raffe held up her small hands. "Honey, what happens in the private trailers is nunna my business. I merely rent 'em to consenting adults."

"Only six guys out there," Nio said.

"Well, it is only Thursday."

"Sure. But even if you had a hundred times that on the weekend, it would still take six decades to afford that Maybach. But then it's a cash business, right? Not many of those left."

Raffe's genteel smile faded. "What are you implying?"

"Nothing. Just... who's to say how many men show up in a day? Or whether they drop a thousand in bills or ten times that much? Modding is illegal in South Dakota, isn't it?"

"It's illegal to purchase and it's illegal to provide, but it's not illegal to possess, as long as you got it in a red state. Can't exactly turn our fellow citizens away at the border, can we?"

"Beckham wasn't modded out of state," Nio said coolly.

Whatever else she was running—prostitution, at least, and probably drugs—Raffela was also laundering money for someone. The club was the perfect cover. But it was a dying industry and only survived on modding. Guys wouldn't make the journey otherwise, over what they could get

virtually at home. If Raffe got into trouble with the police, her silent partners might start to wonder what she would say to avoid a felony charge. That meant any extraneous illegalities had to quietly disappear.

"Beckham's a beautiful girl," Raffe said. "Came up from Florida over the winter to escape her ex. Guillermo's a little smitten, I think. He's a good boy. Mom's a doctor in town. They came over from the Philippines together. He's all she has. Spoiled him something awful. If he goes off to college or gets a real job, they'll expect him to work. He's never had to work. Whereas with me, he gets to be the envy of every teenage boy in the state. But he doesn't have the stomach to keep with our line."

Raffela was smart. By implicating the kid in a murder, she made sure neither he nor his mother would go to the police.

A drawer opened. Raffe set a pearl-handled .22 pistol on the desk.

"Funny thing about you," she said. "When Malcolm told me we picked up a stranger, I thought we had a problem. A real problem. Made me a little sick. But look at you. No driver's license. No credit card. No public data file." She picked up Nio's phone. "I see from the little icon here that you're running Parfait. Maybe you didn't think us country bumpkins knew what a layered encrypted communications network was. It's interestin', though, for what it tells me. This little icon tells me you thought it'd work out here. But since it doesn't—probably not since Sioux City, I'd guess—that tells me there's not a soul on God's green earth that knows where you are right now. Ain't that right?"

Dalrymple stepped forward and put a hand on Nio's shoulder.

"Get rid of her first." Raffe said. "Then make sure the kid goes through with it."

The big man gripped the back of Nio's neck again. "Let's go, friend."

She wanted to say something, to object, to make some witty quip that showed she wasn't afraid. But she was.

Dalrymple walked Nio down the stairs to the wood-paneled hall, where a strange man was peering into the kitchen.

"Bathroom's are at the front, pal," Dalrymple called.

It was Del. He froze for a moment when he saw Nio. He looked at her socked feet. Then he pointed with his thumb toward the front.

"Front. Gotcha. Sorry 'bout that."

For a moment, Del's and Nio's eyes met.

"Right." He nodded and took several steps backward before turning for the club.

Dalrymple watched him go.

"This way."

He tugged Nio toward the back to the storage room, where several of the life-sized sex dolls lay on the floor. The back doors were open, and the bouncer was loading them into a van. A cook walked in carrying a plastic rack full of glassware. He passed without looking at Nio and she high-kicked. Glasses flew over their heads and everyone looked up reflexively, including Dalrymple, and Nio pulled free. She made it out the door, where the cold, wet gravel stuck into her soles like daggers and slowed her down. Immediately, she felt Dalrymple's gloved hand grab her coat. As he yanked her back, Nio wondered how he had closed the distance so fast.

She landed hard and smacked her head on the concrete.

"Ow..."

A rolling glass stopped at her ear. The open cylinder amplified the staccato of clicks from above. Dalrymple's left arm was synthetic and had split into evenly-spaced sections, with metal pivots between. As the sections snapped back together, one after the next, they made a popping sound. Around his neck, the tentacle mane was writhing. It was a motion tattoo, probably keyed to his heart rate. The whole world knew when the man was angry.

After his arm reassembled, Dalrymple flexed his hand, like it was stiff.

"Must be heavy," Nio quipped.

Her supposition was proved correct a moment later when his fist landed in her face.

ONE

A P P E A R A N C E S

NIO AWOKE IN A BOX amid a tangle of human limbs. Wide-eyed, she kicked and pushed—only to brush against the impossible silkiness of synthetic skin. A bald sex doll stared serenely past her in the dark, seemingly enraptured at whatever fate was about to befall them. For a moment, Nio was mesmerized. The doll didn't seem fake at all. Her skin was more than simple silicone. It had tiny pores and very faint hairs and it wrinkled slightly at her slender knuckles. Her lavender irises, glistening as if moist, were speckled in beautiful imperfections. The dimples around her areola were varied and asymmetrical. She looked organic—alive, even. But she didn't look *real*. She couldn't be. Her eyes were enormous, her nose little more than a pert knob. Her full, supple lips smoldered in permanently passionate pink. She wasn't real because she was fake. She wasn't real because she was hyper-real.

"I don't suppose you can get me out of here," Nio joked.

As her panic subsided, pain returned. She grimaced and shut her eyes. Her head throbbed from Dalrymple's blow. She needed her pills. Ostensibly, they were still in her jacket, which was wrapped warmly around her. But

amid the nest of limbs, some of which had been detached from their torsos, she couldn't move. She struggled to slide her right arm up, but her elbow kept getting caught in the crook of an inhumanly perfect knee.

The heavy box shook then as if being loaded into a vehicle. When it kept shaking, Nio realized it wasn't a vehicle. It was a rumbling conveyor. When it stopped, she heard a muffled roar. She felt the heat almost immediately.

She was being incinerated.

So realistic were the dolls that Nio glanced instinctively to the goddess as if to gauge her reaction to their shared predicament.

"You're no help," she said, struggling.

Nio had to admit, it was a clever way to dispose of a body. They wouldn't have to worry about hiding her remains. Any sanitation worker who handled the mess wouldn't think twice about seeing teeth or hair.

The smell of smoke hit her nostrils and she shut her eyes to keep from panicking. She pulled and pushed and kicked.

"Fuck! Fuck! Fuck!" she screamed, over and over, as if it were a magic chant.

Smoke gathered in swirls until she could barely breathe. When she couldn't hold her breath anymore, she inhaled and coughed uncontrollably. The heat intensified and her scalp tingled. A glob of molten plastic fell across the face of her companion and melted away her pert nose, revealing her hollow interior.

The box shook hard and Nio turned and fell with the limbs and bodies across the cool floor. She coughed and coughed, trying to catch her breath while scrambling to her feet. Someone grabbed her and she struggled.

She saw Dalrymple flat on the warehouse floor.

"It's okay!" Del said. "It's okay. I got you."

He let her go and she slipped to the ground again. They were in a small tool-lined workshop walled in sheet metal. The incinerator stood above the floor on six legs, like a steel insect. The side release was open and flames spewed like jet exhaust. The interior was lined in glowing ceramic tiles. Del stepped over to turn a lever and the door slid shut.

"You are officially trouble," he said.

Nio was on her back coughing and panting for air. "Are—" She coughed. "Are you *following* me?"

"Yes," he said. "I told you. Nothing good happens there."

She looked to the big man on the floor, half expecting his arm to shoot forward and grab her throat. "How'd you—" She coughed again.

"I got lucky. We gotta go."

He grabbed her jacket. Before she could object to his explanation, he jerked her to her feet.

"No." She pulled away and almost fell again. "They're gonna kill her."

"Who?"

"The alabaster girl. She—she asked for my help. They're gonna kill her. We gotta call the police. We gotta—"

"Okay, okay. But we gotta get out of here first."

Nio was swaying on her feet, and Del reached for her again.

"Where's your phone?" she asked. "We gotta call 911."

"We can't."

"*Are you listen—*"

Del covered her mouth and shot a glance back toward the open garage door. "Would you be quiet! The city cops all work for Raffe. Or may as well anyway. You saw how they were at the roadblock. Folks around here know that if you get in trouble, you call the county sheriff, which I already did. Understand?"

Nio nodded and he removed his hand.

"How long will it take him to get here?" she asked.

"Depends on where his people are. It's a big county."

"I thought you said we were five minutes from everywhere."

"In *town*," he objected, dragging her out of the shop. "My truck's parked around the block."

"If we pull up in that, they'll know it's us."

"Pull up? Pull up where?"

She yanked her arms out of her jacket and trotted unsteadily back to the unconscious Dalrymple.

"What the hell is wrong with you?" Del demanded in a stout whisper. "Are you trying to get us killed?"

Nio kicked him and stepped back. When he didn't move, she reached into his jacket and found the fob to Maybach. She pressed the button and heard a car beep and start its nearly silent engine.

Del threw her coat at her and followed her into the back of the luxury car.

"You're not coming" she said.

"You clearly can't take care of yourself."

"Whatever," she scoffed, fumbling with the fob. "I don't have time to argue with you. Take us to the ranch," she told the vehicle.

"I'm sorry," it said pleasantly. "You are not an authorized driver."

"This is an emergency!"

"Please speak or type your emergency code." A keyboard appeared on the touchscreen in the dash.

"Stupid machine." Nio climbed in the front and began tapping.

Del watched her access the car's settings. "Are you seriously trying to hack a half-million-dollar car with your finger?"

"What do you think hacking is?" she asked as she held down the left turn blinker while tapping the clock button three times. The car's BIOS appeared on the screen in white letters on a deep blue background.

"Cars like this have anti-theft," Del said, "remote disabling, all that."

"Exactly. But say for some reason you leave the car at a friend's, or at work, or at your lover's house. Rich people don't wanna have to go back get it."

Del sat back. "It'll drive itself home."

"I'm just making sure home is where we want to go. There." She pointed to a line of the blue screen. An address was labeled HOME.

"That's it," Del said. "Raffe's is the biggest house in the county."

Nio touched the screen and the car raised its headlights and asked them to please use their seatbelts.

"It's not theft if you return it," she said, climbing over the console to the passenger's seat. "*That's* hacking."

The vehicle pulled through the slush at the edge of the parking lot and onto the main drive, where it resumed the song it had been playing: "El Paso" by Marty Robbins. After turning left at a light, the car accelerated and the lights of the town rapidly disappeared. Nio's heart rate slowed, which brought Del's bioelectrics to the front of her mind. They had barely changed.

"You don't seem nervous," she accused.

"Would you rather I freak out?"

"Not exactly," she said as she searched the glove compartment.

"What are you doing?"

"What do you think? Looking for a gun or something."

"Raffe's house is a mansion. What is it you think we're gonna do there, exactly?"

"No one asked you to come," she retorted, bending to look under the seat.

"I'm serious!"

He was. Nio felt his bioelectrics spike sharply.

"The best thing to do is wait for the sheriff," he said. "Look. I hate to say it, but you have to accept there's a very real chance the girl is dead already."

"All the more reason to hurry."

Del shook his head. "What does that even mean?"

"Her death might be the trigger."

"The trigger for what?"

"This may come as a surprise to you, cowboy, but I didn't schlep all the way out here to tussle with the local riffraff. Trust me, we're dealing with someone *much* worse."

"What do you mean worse?" When she didn't answer, Del insisted. "What's worse?"

The car dinged to announce it was nearing the destination HOME.

"The guy who posted that seq isn't some two-bit biohacker. You really shouldn't have come."

"So what are going to do? Waltz in? The car bit is clever. It'll get you through the front gate. But then what? You just gonna knock?"

Nio could see the lights of the mansion on the road ahead. Everything else but the cluster of dots at the horizon was a bleak darkness.

"I'm working on it," she said.

Del climbed into the driver's seat.

"What are you doing?"

"I got an idea." He stared at the wheel. "Shit. How do you make it pull over?"



The car pulled through an automatic gate and stopped in a paved roundabout in front of a large coral-colored mansion with a false colonnade. To the west, a four-stall garage sat closed. Two cars and a Jeep were parked at an angle in the snow-covered clearing to one side. The air was still and frigid. A man in a crisp suit coat and jeans opened the front door and shivered as he waited for the car's occupants to exit. When nothing happened, he stepped forward through the packed snow to open the passenger's side door.

But there was no one inside.

He heard footfalls and turned just in time to get whacked across the temple by a tire iron. Del patted him down and took his gun and his keys. Then he heaved the body into the back seat of the car, where it was out of sight. He opened the trunk and Nio climbed out.

"That was a good idea." Del smiled.

Nio scowled. "It was yours." She looked at the line of tracks across the wide snow-covered lawn. "How did you get here so fast?"

"I keep in shape."

"That's 400 meters." She glanced again. "In deep snow."

"They're gonna be right behind us," he said, his voice shivering. "Why are we arguing about how fast I can run?"

"Because. It's freaky."

The front door of the house was wide open and several Pomeranians appeared. One of them barked. Del and Nio darted to either side of the open door. He peered inside. There was no one.

Nio saw the gun in his hand. "Where did you get that?"

"Dude had it in his jacket."

"You're holding it properly."

He kept one finger loose, ready to release the safety.

"Shooting's a thing out here."

Nio scowled and walked in cautiously. The interior of the house was a nightmare in pastel. Everything was a similar shade of coral or taupe. But

other than the dogs, which growled at her playfully and wiggled their tails, she didn't hear anything.

She shut her eyes.

"Lab's downstairs," she breathed.

"How do you know?" Del whispered as he quietly shut the front.

"I just do."

She could feel a magnetic tug emanating from below them. They walked under a chandelier that hung from the second-story ceiling of the open foyer. A wide carpeted stairway rose to a sitting area under a dome skylight. Beneath the balustrade was a hall to a long living area. Nio could see a massive TV surrounded by custom shelves. Floor-to-ceiling windows at the back revealed the house had a pool, whose side-lit winter cover was topped in snow.

She felt a faint quiver of a bioelectric field. She couldn't see the source, but she recognized the pattern. It was the Native man who had taken Beckham. She pointed silently and mouthed the word "kitchen." Dell nodded and crept back around the stairs to come in through the dining room. After giving him a moment, Nio peered around the doorway. The Native man was digging in the fridge and chuckling at some program in his AR goggles.

"Hey," she said, ducking back out of sight.

She heard an exclamation of surprise followed by two fast strides. Del came from behind to grab the man in a headlock, but he was as tall as Del and they struggled. The Native man slammed Del back into the cupboards and he lost his grip. When the man turned to face his attacker, Nio kicked him in the groin from behind. He grimaced, giving Del a moment to whack him with the gun hard across the side of his head. He slumped to the tile.

They both listened. But except for dogs' panting and the laugh track that still emanated softly from the downed man's goggles, the house was quiet.

Plugged into the wall near Nio's socked feet was a small orange-and-white Canine Companion—a doggie love doll, a four-legged plastic receptacle designed to appease dogs with a humping problem. A sticker on the side said CLEANSAFE RESERVOIR. Across from it was an open doorway. Polished hardwood steps took a hard left and descended to a well-lit finished basement. Nio descended slowly, occasionally closing her eyes to sense her surroundings. At the bottom, a pair of tall gun safes rested in

custom-built nooks, surrounded in pictures of animal kills. She tried the handles. Locked.

The dogs barked again from the top of the hardwood steps. But they didn't move, as if they knew they weren't allowed on the lower floor, which was plushly carpeted and well lit. Around a bend was a long hall. The upper half of the left wall was made of glass. Beyond was a well-stocked maker lab. A blinking slab of angled plastic, a refraction panel, stood like a skinny white monolith near the full glass door, scattering EM signals and making it hard for anyone outside to eavesdrop, or detect the equipment being used. It was an expensive bit of hardware, and its presence suggested whatever they were doing there was worth a lot of time and money to conceal. It also gave Nio an immediate headache, despite that she had swallowed three pills in the car.

She grimaced.

"You okay?" Del asked.

She nodded.

"You sure?"

At the back of the lab, rows of IV stands dangled plastic bags linked to each other by looped tubing. Bubbles flowed between. They were brewing something. Three makers were set against the left wall, including an old glass-walled 3D printer, about the size of a commercial oven, that had been stripped for parts. It looked like an empty arcade claw game. On the right was a brand-new industrial sequencer. Three black canisters rotated on a central pedestal under the diamond-shaped control console. The box and sheet plastic were crumpled in the corner.

In the middle of the room was a large reclining dentist's chair. Beckham lay on it, naked and curled in a fetal position. Nio could see her blistered back. The cysts looked different. They were darker inside and looked like spider's eyes. Next to her, Guillermo sat motionless on a rolling stool. Del pressed a button on the wall and the glass door slid open. Nio's headache immediately worsened, and she grimaced again. She felt like she might vomit at any moment.

Guillermo turned. He didn't seem at all surprised. His face was blank, his eyes dull, as if his teenage brain had experienced something it didn't know how to process.

"Anyone here besides the two guards?" Del asked.

"Celine," he answered softly.

"Dancer?"

He nodded. "She's upstairs."

"Is there any other way out of the basement?"

Guillermo shook his head.

The lights cut off suddenly, and the room was side-lit by an emergency lamp in the corner neat the ceiling.

"They know we're here," Nio said.

"No," Del corrected, looking at this watch. "10:00. Moving day."

He nodded to the stairs, indicating he would cover the exit.

"She was so pretty," Guillermo said, staring.

"Was?"

Beckham's head was lit in a halo by the flood lamp. Nio felt her cool, stiff neck. She had a pulse. But it was weak.

Guillermo didn't move. "Raffe wanted me to give her a third breast. A real one. Beckham's mom died of breast cancer. Can you imagine? Raffe didn't care. She thought it would be funny, get us a lot of publicity. Beckham didn't want to be a circus freak. She wanted to be an angel. No one had done wings before. Real ones that could move and had feathers. I was sure there's a way. She knew they would just be ornamental. It's not like she could fly. But she was so excited. She was going to be like a Victoria's Secret model. I thought if I made her the first..."

"She would like you," Del said from the doorway.

Guillermo looked down at his hands. "But I didn't know how." He was holding a needle. It was empty.

"What did you do?" Nio asked, grabbing it.

He started crying softly.

"What did you do?" she demanded.

"Raffe made me give her an OD," he sobbed.

Nio kicked the kid's stool. As he rolled away, she dropped the needle and stomped on it. She started searching a wheeled glass-and-steel medicine cabinet.

"What are you doing?" Del asked. "We need to get her out of here."

"She's not gonna make it a mile without an opioid agonist."

Del cursed. "I'm gonna go check the foyer."

With two hands on his gun, he moved cautiously around the corner.

"Gotcha." Nio lifted a bottle with clear liquid. She rifled through the drawers and cabinets until she found a needle. She measured an extremely large dose and injected the girl in her arm. Guillermo didn't move. His shoulders were slumped. He was sobbing.

"Beckham? Can you hear me?"

Nothing.

"Beckham?"

Guillermo stood suddenly. "What is that?"

Nio walked around the chair. The cluster of cysts on the girl's back were moving. Something twitched inside each, like hatching eggs. Whatever they were, they wanted out.

Beckham's marbled body started convulsing.

"She's having a seizure."

Nio stepped to the medicine cabinet again as the girl went stiff as a board. She extended everything—elbows, legs, fingers—and her stiff skin cracked and bled. The cysts on her back ruptured in every direction, spewing long streams of clear mucus.

"Shit!"

Del came running. "What the fuck is that?"

The strands of mucus spread like a web from the girl to various warm spots around the room. One sagging strand stretched from a baseball-sized blister to the vent of a nearby computer screen. Another stretched toward the door. A third attached itself to Guillermo's chest. The kid was frozen. He stared down at it, wide-eyed, as a black jellylike mass, like a hairy amoeba, wriggled out and started crawling over him. He screamed and swatted it off and jumped back into the corner.

Del covered his nose. The smell was intense—sweet but not sugary. It was pungent, like raw steak left too long in the sun. Nio looked around the room. All of the mucus strands were slowly sagging as similar amoeba, each about the size of the cyst it had emerged from, began crawling over the walls, looking for an exit. The largest, the one that erupted from the middle, squeezed through a heating vent in the ceiling, near the back of the house.

Nio watched it disappear through the slats of the grate. "Shit!"

"What do we do?" Del asked.

The blob that Guillermo had swatted to the floor had split, and a winged larva, like a soft albino dragonfly, flopped out. Its skin was flabby, and it fluttered weakly, trying to take flight. But it had hatched too early.

"What do we do?" Del repeated.

"I can hear them..." Beckham breathed. The empty red circles in the girl's back were dripping pus.

"She's alive." Nio swiped the gun out of Del's hand. "Get the sheet plastic out of the box." She pointed to the corner. "Wrap her up. Tightly."

"I can hear them..." the girl repeated.

"Hear them?" Nio asked. "Hear who?"

"Angels... chanting..."

Del pulled the sheet free of the cardboard and draped it like a blanket over the naked girl.

"Take the car. Get her to a hospital." Nio glanced to Guillermo. Raffe had said his mother was a doctor. "Not the one in town. Somewhere else."

"What about me?" Guillermo asked. His shaking hands were stretched out like he was afraid to touch himself.

"Strip," Nio said.

"What?"

She shot the wall behind him and he began to strip as ordered.

"What are you gonna do?" Del asked, heaving the girl up from the chair.

Nio looked up. "I gotta make sure whatever got out of her doesn't get away."

"What the hell are those things?"

"I don't know. Just go."

Guillermo stood with his arms crossed in front of his boxers. He flipped his hair out of his face.

"You too," she told him.

"What... like, outside? There's snow."

She walked over with the gun raised. He cowered as she pushed the barrel against his forehead. "A minute ago, you were willing to let that girl die. You're lucky I don't shoot you, you little brat. Now, *GO*."

With hands raised defensively, the kid scampered out and up the carpeted stairs.

Del followed with some difficulty. "She's heavier than she looks," he said when he saw Nio's face.

The dogs were waiting at the top. Nio shooed them out the front, where Guillermo shivered in his boxers and danced in socked feet.

"They're here," Nio said.

Car lights were approaching. Fast.

"Where are you going?" she asked Del, who was walking through the snow toward the garage.

"They can disable that thing, remember?"

"Fuck." Nio glanced to the approaching lights before running after him through the snow in her socks.

"Left pocket."

She pulled keys from Del's mechanic's suit. "Where did you get these?" They were stamped with the Jeep logo.

"Same place I got the gun."

She opened the vehicle and helped Del lay Beckham in the back. The approaching vehicles crested the nearest rise. Their engines roared. Two SUVs.

"Get her out of here!" Nio yelled, running back to the house.

"Where are you going?"

"Just go!"

She ran through the living room and around to the kitchen and opened the cupboards, one after the next, until she found a bottle of vegetable oil. She trotted to the stairs and tossed some down the wall and poured a trail across the hardwood to the hall, where she set the bottle on the floor. She yanked the Canine Companion free and smashed it. Inside, the electrical cord was attached to a long heating prong. Dogs liked a warm companion, it seemed, just like people. She plugged the cord into a socket under a side table and inverted the prong into the half-empty bottle of oil. Then she ran upstairs. The dancer, Celine, was singing in a bathroom. She had lined the tub in lit candles and was soaking while smoking a joint and listening to music. Nio pushed in and shot the ceiling. The girl yelped in the water and splashed. She pulled the buds from her ears and curled her arms in front of her naked body.

"Who are you?"

Nio saw the lighter next to the candles on the tub and grabbed it. "You need to get out of here."

"I live here! Who the hell are—"

Nio shot the wall behind the tub three times. Bits of tile flew as the young woman screamed repeatedly and ran from the bathroom, slipping once on the tile. She reached for the robe on the bed and Nio shot the bedroom wall. She heard the woman screaming all the way down the stairs to the front. She grabbed the bottle of hair spray next to the sink and stuffed it in her pocket. She heard car doors shut. The SUVs had already stopped in the roundabout.

"Shit." Nio ran to the stairs.

"—but she's still inside," she heard Guillermo say.

"Go after them," ordered another voice.

Dalrymple.

Nio backed down the hall as the second car pulled away to chase Del in the Jeep. She heard heavy footsteps enter the foyer. At least three. She ran to a bedroom and looked around. By the kid-sized clothes in the walk-in closet, it was Raffe's. True to form, she had an antique full-length mirror. Nio rifled through the drawers for a pistol, but Dalrymple came up the stairs and she had to duck into the opulent private bath, which had a second exit on the far side. She tiptoed in the dark and quietly unlocked the other door. She listened as Dalrymple searched the two bedrooms closest to the stairs.

They didn't know where she was. If they were smart, the other two men would be guarding the front and back doors. If she was in the basement, then she was trapped and they would find her eventually, leaving Dalrymple free to start at the top and work down.

He turned down the hall and froze when he saw her reflected in the mirror in the bedroom. She jumped up as if to escape, and Dalrymple extended his artificial arm like a battering ram and punched through the drywall. He would've snagged Nio easily if she hadn't disguised her location with a second mirror in the bathroom. Raffe was nothing if not vain. Whether from haste or stupidity, the big man hadn't noticed that the reflection wasn't reversed, as it should've been. His mechanical arm punched through the wall and grabbed air, and Nio jammed the shower curtain rod between the pivots of his arm. When it retracted, the rod hit the wall and trapped him.

"FUCK!" he pulled and pulled.

As the other two men came running up the steps. Nio darted to the window over the jet-tub and dropped with socked feet into the snow of the back lawn. She immediately saw an odd trail in the otherwise pristine white. It undulated like no animal track she'd ever seen turning end-over-end as it wobbled toward an adjacent field, just beyond a line of bare trees.

Shouts.

Nio looked up. But instead of shooting at her from the window, the men inside had discovered that the house was on fire. Once the oil ignited, it spread across the hardwood and up the stairs. Soon the entire structure would be burning. With her pursuers momentarily distracted by their own safety, Nio broke cover for the field. Her socks crunched through the piled snow of an invisible ditch and she sunk to her knees.

"Shit!"

The trail passed through a row of leafless bushes to the open field beyond: a giant square bounded by straight lines of windbreaker trees. The field would be pitch black on a moonless night, but then it was covered in a foot of snow that faintly reflected the exterior lighting from the house, giving everything a twilight glow. It was empty except for three piles of railroad ties, stacked in alternating layers, and an enormous grooved metal loop, like a discarded magnet from a supercollider—at least a hundred feet across and well rusted.

A siren.

"Way to go, Del."

But there was only one, and it was still quite distant—sound carried far in the still, cold air. She still had time to escape.

The track in the snow arced right to the railroad ties. As Nio approached, shivering, she could see they were stacked irregularly, and although not rotted through, they were deeply weathered and fraying. That gave the creature plenty of places to hide.

With toes so numb it was becoming painful to walk, Nio stepped cautiously toward the dark stacks. Her breath seeped like smoke signals from her nose as she flicked the lighter and held it. The odd track rolled into the space between the piles, where it turned quickly toward to the right. Nio knelt slowly and extended the tiny flame. There was no telling how the

organism might react, and she had visions of it launching itself at her and squeezing down her throat.

But there was nothing, just a small pile of snow on the third tie from the top. In squeezing between the ties, it seemed, the organism had lost a bit of snow that had clung to it. Nio walked, flame in hand, around the stack, looking for signs of an exit. She saw the dragonfly creature struggling in the snow. It had hatched. And it was freezing.

Nio stood over it.

"Homeostasis for the win, bitch."

She raised the can of hair spray and burned the winged larva in the snow. It popped and shrunk like plastic as it boiled, releasing a malodorous scent. Nio scrunched her nose as she waved the flame back and forth. She watched as the wings turned brown and briefly caught fire. The flame went out and there was nothing but a few thin tendrils of black.

She collapsed against the ties. Her socked feet were no longer numb. They were burning. Although she was hidden by the stack of ties, she had left an easy trail for anyone to follow. Since the odds that she could outpace someone with proper footwear through deep snow was practically zero, she dropped to her butt and sat cross-legged, her frigid feet pressed between her thighs and the tail of her jacket. She pulled the flaps around her. Raffe's house, now a fireball, had been built on a small rise, almost certainly for the view of the wide plains out back. Through a gap in the bare trees, Nio could see the deep core miner in the distance, its massive column-legs aglow in spiraling light, like tornadoes of blue fireworks. It was beautiful.

A few light flakes fell through the still air, and Nio held out her hand to catch one as a speckled trout landed in the snow with a plop. It twitched twice and lay gasping. Nio looked around, but there was no one who could've thrown it. She looked up in time to see another fall from the night sky some ten yards away. A moment later, a large striped bass fell through the tree line with a ruckus.

It was raining fish.

She heard the crunch of snow then and turned to see a woman in an octagonal hat some 20 yards away. Her uniform said Brown County Sheriff. She had a hand on her belt and looked in silence at Nio's shoeless feet in the light from the burning house.

"H-hi," Nio said, shivering.

ONE A P P E A R A N C E S

17:42:22 Number please?

17:42:24 I'd like to make a collect call to a solo register.

17:42:27 What's the name?

17:42:28 Samizdat Kellner.

17:42:30 Pass phrase, please.

17:42:31 *I'll be back.*

[frantic typing]

17:42:35 Hold please.

[click. click click]

17:42:38 Semmi, listen to me.

17:42:40 Where are you? Should I be worried? The neighbor woman knocked again this morning and I had to hide under the table for seven hours.

17:42:46 I'm sure Mrs. Coleman wasn't standing outside for seven hours.

17:42:49 I wanted to be certain to nine significant digits. I still think she works for Cyber Command.

17:42:53 Mrs. Coleman is 73. She does not work for the US military.

17:42:56 Then why does she have so many weapons? I can see the X-ray scatter.

17:43:01 Those are probably kitchen knives.

17:43:04 And a .22 caliber handgun.

17:43:05 I'm not sure if you realize it, Semz, but you didn't exactly pick the safest neighborhood.

17:43:10 I chose it because, statistically, there is a very low chance they will look for me here. You didn't tell me where you are. This line is route-encrypted, so I am unable to identify the number from which you called.

17:43:17 I'm in a little town in the middle of nowhere.

17:43:19 What are you doing? The rent is due on Tuesday, and you still owe Ms. Fraser your statement on the affair with the roses. Both her and her

lawyer have called several times. I am to remind you the court case starts next—

17:43:28 Semmi, look. I'm gonna tell you something, and I need you to not freak out. Okay?

17:43:31 Tell me what? You said you would be back in the morning. Have we been discovered? Should I begin the fire proto—

17:43:35 No! No. Do not enact the fire protocol. There's no reason to worry, okay? You haven't been discovered. It's just a little snag.

17:43:39 Then why won't you tell me?

17:43:42 I'm calling from the Brown County Sheriff's Office.

17:43:44 There are nine Brown Counties in North America: Brown County, Illinois; Brown County, Indiana; Brown Coun—

17:43:50 South Dakota, Semz. I'm in South Dakota.

17:44:55 Are you hurt? Has a crime been committed to your person?

17:44:59 I'm fine. Thank you for asking, Sem. Very well done.

17:44:05 I am testing a new algorithm for human interaction. Would you say that I am doing well, fair, or poorly so far?

17:44:11 Sem. Listen to me. I've sorta been arrested.

[pause]

17:44:17 They're going to lynch you.

17:44:19 No. No, Semmi, calm down.

17:44:22 They're going to lynch you.

17:44:23 No one is going to *lynch* me. Where did you even hear about that?

17:44:26 The History Channel.

17:44:27 I don't think—

17:44:28 That's how it is in those small towns.

17:44:30 Semmi—

17:44:31 They'll leave your cell unlocked and then—

17:44:33 SEMMI!

[silence]

17:44:38 Semz, I need you to listen to me. I need you to call Mutiny, okay? I don't know her number.

17:44:43 It's in your phone.

17:44:44 I don't have my phone.

17:44:45 YOU DON'T HAVE YOUR PHONE? HOW WILL I CONTACT YOU?

17:44:48 Sem—

17:44:49 What if you get a new client? What if the landlord comes and you're not here? He has a key. He'll come in on his own. I need to bar the door.

17:44:53 Semz, what are we practicing?

17:44:55 How to stay calm without cytoneural inhibitors.

17:44:58 Are you calm?

[pause]

17:45:01 Yes.

17:45:02 I lost my phone. That's all. It's not big deal. It slipped out of my coat somewhere.

17:45:07 I told you not to pursue this man. I said it was a bad idea. A very bad idea, in fact.

17:45:10 Sem, I need you to look around the apartment, find her number, and call Mutiny, okay?

17:45:14 Why can't you call her?

17:45:16 Because I only get one phone call and I didn't memorize her direct line and I wanted to check on you. I need you to find the number and call her. Don't call the number off the internet. That will just go to her manager. He never liked me and may not pass on the message. Do you understand?

17:45:18 What do I tell her?

17:45:19 Tell her where I am and that I need a lawyer.

17:45:21 Should I tell her about the lynchings?

17:45:23 I'm sure she knows all about that.

17:45:25 Because I would definitely want to impress upon her the urgency of the situation.

17:45:29 Semz?

17:45:30 Yes?

17:45:31 Promise me you'll call her.

17:45:33 I promise.

17:45:34 Today, Sem. Before watching *The Terminator*.

17:45:37 Okay. I promise I will call Mutiny Ali today and tell her you are being held captive by potential fascists in South Dakota. I will not tell her about the immanent threat of lynching.

17:45:43 Thank you.

17:45:44 How long will you be gone?

17:45:46 I'm not sure. But if you call Mutiny today and I can get a good lawyer, I might be arraigned by the end of the week.

17:45:51 THE END OF THE WEEK! What will I do until then?

17:45:55 Semmi, you don't eat, sleep, or go outside. You're going to be fine.

17:46:00 I paint.

17:46:01 That's true. Do you have enough paint to last you?

17:46:05 If I am careful. But this was not the arrangement we made with IDEOLEX. You promised—

17:46:11 I know what I promised. And I'm sure I'll hear about it from the LEX if you tell them, so please don't. At least give me until you run out of paint. Is that fair?

[silence]

17:46:22 Semmi, I'm really, really sorry, okay? I didn't expect—Look, the important thing is, we're both okay and as far as we could possibly know, nothing has changed.

[silence]

17:46:33 Semmi, man, I know this is upsetting, and I know how you are, and I know you're probably very angry with me right now, but calling the LEX isn't gonna help. They aren't gonna come over and watch *The Terminator* with you, are they?

[silence]

17:46:45 Sem, I know I said I wouldn't do this anymore, but I can't fix it unless I get out of here, and I can't do that unless you call Mutiny.

[silence]

17:46:53 Semz?

17:47:04 The payment on this call has been canceled. Per your settings, a transcript will be emailed to the secure account on file. Have a nice day.

[click]

ONE A P P E A R A N C E S

THE CHARGES INCLUDED ASSAULT of a minor (firing a gun at 17-year-old Guillermo Aquino); arson (of the house at 421 Asher St.); fraud (profiting under pretenses); practicing medicine without a license; burglary (of the \$800 Canine Companion, which the District Attorney claimed she stole for the purposes of committing arson); aiding and abetting (the operation of an illegal mod parlor); refusing to assist a police officer (by remaining as silent as a monk while the house burned); and fleeing a scene. Because of the number and severity of the charges, and because she had arrived on an out-of-state bus and either couldn't or wouldn't give a permanent address, she was held without bail. Because of her contact with the unknown organisms, she was kept by herself in a holding cell, where she was also arraigned, in lieu of potentially infecting everyone with a novel pathogen. It was unnecessary, but Nio didn't mind. It meant she had the place to herself and everyone came to her. It was only then that all those involved in the case finally heard her speak:

"Not guilty."

The judge, from under a medical mask, explained that in the State of South Dakota, having a prior felony conviction meant that all of the charges against her were automatically raised in severity—a Class C felony became a Class B, a Class B became Class A, and so on. And since her prior had been violent, sentencing was automatically pushed to the maximum.

"If convicted, I will have no choice in the matter," the woman explained. "This is very serious. You are facing up to 80 years in prison. Do you understand that?" She asked it cautiously, like she wasn't sure if she needed to call in a psychiatric expert or try a different language.

"Yes."

"Fine," the judge said, gathering her papers. "You've been appointed a lawyer. I urge you to listen to him."

The baggy, bespectacled man next to her stiffened slightly in pride.

"Is there some reason why I can't have my medicine?" Nio asked. "I get headaches."

The judge turned to the sheriff, who told her calmly but apologetically that he'd see to it. By his reaction, it seemed to be news to him. Even so, it wasn't until the following day that he complied, and Nio spent the night with her head pounding in agony.

That morning, after a few hours' sleep had abated the throb, the door to the booking room buzzed and the sheriff stepped into the long walkway that ran in front of the barred cells. He shut the heavy door behind him, making sure it was locked, and tossed an unopened box of aspirin through the bars. Nio was sitting cross-legged on the floor of her cell, meditating, and caught it one-handed. She looked at the red box quizzically.

"All I could get on short notice," he said, leaning against the wall. "Your pills tested positive for opiates."

"Are you amending my charge sheet?"

"That's up to the district attorney."

His nameplate said Marbrant. He had a thick gray mustache and two lifetime's worth of wrinkles. He looked down the hall toward the fire exit.

"I used to think nothing much ever happened in this town," he said. His voice echoed slightly off the painted block walls. "I liked that."

Nio sat with socked feet under the beam of sunlight that fell in an angled shaft from the window near the ceiling. The light bounced off the floor, hit the pale walls, and scattered, illuminating everything brightly, like

a photographer's studio. She couldn't get a good read on the sheriff's bioelectrics. The metal bars interfered.

"First the deep core came. Promised jobs. Forgot to mention the earthquakes. Then, couple years ago, some of those dinosaurs moved through. You know about them? Smaller than I thought. I mean, don't get me wrong. Some were bigger than a bull moose. But I thought dinosaurs'd be able to trample houses or something. Still, beautiful in their own way, with those colorful markings and everything. They passed a couple miles east of here on their way up to Canada. The whole town went out to see. Darndest thing." He paused. "And now there's you."

Sheriff Marbrant took another long slow breath and rested his hand on his belt. "Unfortunately, it doesn't look like anything significant will be recovered from the house. It took to that fire like a stripper to a pole, as my uncle liked to say. Still, the FBI's supposed to be sending a man from Minneapolis, so you never know. Maybe they'll dig something up."

"Maybe."

"You're gonna have to watch out for Dr. Aquino, though. Guillermo's mom. She's *real* protective of that boy. And she knows Judge Bennam."

"So I gathered."

Nio had seen them talking at her arraignment.

"She seems to think you're some kind of criminal mastermind who tried to murder her son. Raffela concurs. According to them, you provided the illegal data file to Guillermo and lied about its contents."

"Of course."

"And when he told you what it was doing to Beckham, you came to cover your tracks and frame him."

"Clever."

"Kinda hard to argue when you won't give your version of events."

"That suggests you don't believe them, Sheriff."

He harumphed once in dry humor and watched her swallow several pills. "You want more water?" He nodded to the bottle in the corner.

"I'm fine." She chewed the aspirin like bitter candy. "What about the girl?"

"Beckham? She's got permanent tissue damage. And apparently, she's in a lot of pain. But she's gonna recover. Be on meds her whole life, doc says.

She'll never mod herself again, that's for sure. Truly's gone missing. Took off before her shift."

"What about Del?"

"I'm afraid I'm not at liberty to say."

Nio squinted. "What does that mean?"

He shrugged a little. Then he straightened his steel buckle absentmindedly and picked at something stuck to the top with his thumbnail.

"Something you wanna ask me, Sheriff?"

"I don't suppose you know a woman named Maureen Arneson." His eyes shot to Nio as he pronounced the name.

"Should I?"

He shook his head. "Probably nothing." He looked down again. "You sure you won't give a statement?"

"Theoretically, Sheriff, such a statement might amount to the admission of several crimes."

"There's always that." He smiled weakly. "Deputy Grady seems to think you're waiting for something. Help, maybe."

Nio hesitated. "I was. But it looks like that's not coming."

He nodded at her statements as if they were a sermon. He moved to leave but stopped. "I wonder if you could answer me something."

"If I can."

"Say for argument's sake that Raffela and Dr. Aquino *are* stretching the truth. Where would young Guillermo have gotten this 'sequence file' they keep talking about?"

"Lotsa bad people out there, Sheriff."

"Sure, but what would be the point? The docs tell me it's not an easy thing to make. Very difficult, in fact. Why go to all the trouble?"

"Wow. That's a loaded question."

He shrugged, and Nio traced the cracks in the high ceiling with her eyes as if reading a story they told. She opened her mouth but didn't speak right away. It took her a moment.

"In 1994, a 17-year-old Boy Scout and future Marine raided junk yards in Michigan for trace radioactive materials: americium from smoke detectors, thorium from camping lanterns, radium from clocks, tritium from

gunsights. In a shed in the back of his house, he used a Bunsen burner and the lithium he'd collected from a thousand dollars' worth of rechargeable batteries to purify the thorium ash, which he added to a bored-out block of lead with the hope of making a breeder reactor."

The sheriff scowled.

"A breeder reactor produces more fissile material than it uses, meaning it can be used to seed other reactors."

"Jesus. Is that true?"

She nodded. "The FBI found him before he finished the project, but he did make a functional neutron source, which is the first step. We love it when the guy tinkering in his garage is Bill Gates or Carroll Shelby... Five years later, inspired by the event, a pair of University of Chicago graduate students produced a working 'reactor in a shed,' which was one of the items on the university's annual scavenger hunt. They were later able to isolate trace amounts of plutonium.

"In 2008, at his home in Arkansas, a 14-year-old kid built a fusor, a device that suspends a magnetic field between two cages to heat ions to fusion conditions. Pick any science and it's pretty much the same story. Do you know how modding started? Sometime in the 20-teens, a university geneticist began selling CRISPR-based home genetic modification kits over the internet. The idea was that since rich people would undoubtedly use it to make their kids smarter and prettier than the rest of us, we should have access, too—except instead of making themselves smarter, it's guys wanting to grow an eight-foot penis or make it glow in the dark or something."

"You're saying it's just another way to commit murder."

Nio stretched her legs and laid them straight. "For some guys, there's definitely a 'hold my beer' element to it. They just wanna play around with something dangerous. We like to stereotype them as morons, but some of them are highly intelligent. You've seen the videos. Some of those stunts take a lot of planning and craftsmanship."

"They could take those skills and get a job," the sheriff suggested.

Nio smiled. "Spoken like a lawman."

"Doesn't mean it's not true."

She got up and sat on the bench affixed to the rear wall. She ran a hand over her scalp. "Tell me something, Sheriff. Those jobs the mining company promised. How many were blue collar?"

He didn't answer. He didn't have to.

"Rig like that, most everything will be automated, so you're talking seasonal overflow to augment a permanent skeleton crew of skilled engineers and their robots. Can't get a job like that without a degree. Doesn't matter how smart you are. If your resume doesn't check the right boxes, no corporation's gonna take the risk. Why would they when there's twenty other safe and compliant applicants? So, you go to school and learn the approved curriculum, which takes years and gets you hundreds of thousands of dollars in debt to a bank that doesn't care one snit about you. Now you're in—and you spend the next 40-plus years of your life working to make someone else rich, just so you can pay back the money they lent you in the first place. Any job that pays decent is gonna be somewhere expensive to live, so you're either pissing away the rest in rent, or you're spending half your life in the car. Society makes *that* the choice and then wonders why these guys give a hard pass."

"What about the nuclear kid? You said he was a Marine."

"What do you think they had him doing? You think a kid who built a reactor out of junk was appropriately challenged by swabbing the deck? I don't remember the details, but I know he got discharged for mental health. No help, just '*Good luck, kid.*'" She waved. "At some point, he was arrested for stealing smoke detectors. *Smoke detectors*," she repeated. "Not a bank. I saw his mugshot once. He was covered in radioactive sores. Died young."

"There's a million stories like that. It's an unnamed epidemic. Imagine if some angry kid in LA, instead of shooting up his school, decided to release an engineered pathogen or detonate a momentary singularity. Neither are all that hard if you know what you're doing."

"In LA?" The sheriff was quiet a moment. "Can't say I'd mind all that much."

Nio smiled wryly.

Sheriff Marbrant grimaced and shifted his stance. "I hear they can steal people's memories now. At least I can lock my damned car."

"It's not all that. The brain doesn't store information like a computer. It's broken into components—textural, verbal, emotional—and encoded throughout the matrix of consciousness. They could only retrieve some very basic elements: whether her eyes registered light or dark when she was beaten, whether she was wet or dry, that kind of thing. It had rained that

night and they were trying to impeach the defendant's story that when he left her, she was safe at home. So, you can thank law enforcement for that one. But yeah... How long before our thoughts can be subpoenaed as easily as our phone records?"

The holding cells fell quiet. The sheriff reached to his back pocket and pulled out a folded letter. The envelope had been opened. He held it up. "This was in your personal possessions."

He pulled the top open with his thumbs and looked into it like he expected to find something new. "We opened it the night you were arrested hoping to get a name or address." He looked up. "You haven't read it yet, have you?"

Nio shook her head.

"Do you want to?"

She didn't answer, and after a few moments, the sheriff knocked on the door. It buzzed from the outside and he pulled it open.

"I'll put it with the rest of your things. In the meantime..." He pulled a thin folded newspaper from his belt. "You may wanna read that."

He tossed it between the bars and it slid across the floor. The door shut behind him with a click.

The following day, Nio was told she had a guest. She was led from her cell by the woman who had arrested her. Her name plate said GRADY. They didn't speak. Nio expected to be taken to one of the interview rooms, as she had been each time previously, to meet with the DA or her less-than-competent court-appointed attorney. Part of her hoped Mutiny had come to South Dakota without calling ahead.

But Nio wasn't taken to an interview room. Her handcuffs were removed and she was left alone in the middle of the office. She watched Deputy Grady step through the door and shut it behind her.

She looked around. "Is this a lynching?" she asked no one.

Tires crunched gravel. Nio turned to see a limousine roll to a stop in the parking lot. A rear door opened and a middle-aged male chimpanzee in a finely tailored suit and no shoes slid down from the back seat. He wore cuff links, a paisley tie, and custom black-rimmed bifocals. He walked to the door on his knuckles but stood upright to open it. Nio guessed he was at most four feet tall. Once inside, he waited by a desk as his human

bodyguards quickly checked the office. Satisfied, they stepped out, and Nio was alone with an ape.

"I'm told I look taller on TV," he said. When he didn't get a reaction, he held out his hand. "Dr. Hamilton Chang."

Nio took it. "Ah, yeah. I kinda figured."

His nails were manicured and his grip polite. Nevertheless, there was something decidedly bestial in the grasp—the dark coarseness of his skin perhaps. And his bioelectric field was strange, completely unlike anything Nio had felt before. She heard no music.

They noticed each other's feet. Nio was in her striped socks. Chang's feet were bare. They both flexed their toes.

"After careful study," Dr. Chang explained in a calm, gravelly voice, "I've found that any shoes large enough to fit me also make me look like a clown—more than usual anyway—and that it's more comfortable for everyone involved if I dispense with that particular human convention and walk as nature shod me. Please." He motioned to a chair like the police station were his personal office. Then he climbed up on himself, gripping it with his feet like a baby climbing a sofa.

Rather than sitting against the back, which would've forced his bare soles to face Nio, Dr. Chang settled on the edge and crossed his legs, picking a piece of lint from his cuff like a tick from fur.

"I console myself with the observation that, while human feet are certainly daintier and more attractive, they are only made for walking, whereas I have four hands. Alas, in compensation, Nature omitted an opposable thumb from every one of them."

"On TV, they always film you from the waist up."

"Quite. It's a perk of my position." His glasses slipped and he pushed them back up his face. "You must be wondering why I'm here."

"Did Mutiny send you? Because if you're just here to lecture—"

"Not at all. I haven't seen Ms. Ali in some time. But I enjoy following her exploits, as I do all of you. I am not here to lecture. I will admit to a certain paternal compulsion, but I was only an adviser on the project. I am at best an *uncle*." He took a long, deep breath. "But... speaking of the others, I wonder, my dear, if you've heard the news."

"News?" Nio scowled.

Dr. Chang looked down. "I was afraid not. You covered your tracks well. The sheriff was unaware of your identity. Perhaps you would like to sit down."

"I'm fine."

Dr. Chang sighed. "My dear, Sol is dead."

Nio's mouth hung open. Tears gathered involuntarily at the corner of her eyes, as if she has just swallowed a hot pepper. It wasn't sadness. It was more like she'd been punched in the gut.

"What?"

"He was giving a talk. He collapsed on stage. Brain hemorrhage, we're told. The funeral was last week. When you didn't show, I began making inquiries. Hospitals first. Then law enforcement. This case rather stood out."

Nio fell back against a desk. Her head was spinning.

"Dead?"

It couldn't be.

Couldn't.

Sol was bright and invincible, like his namesake.

Nio covered her mouth. Tears came in earnest then and she slid to the floor. Dr. Chang dropped from his chair and wandered around the dim office until he found her a box of tissues. She took one, and after letting her sob for a few moments, he placed a coarse hand on her shoulder awkwardly.

"When was the last time you saw him?" he asked.

"Ummm..." Nio blew her nose and wiped it. "Luke's coming out party, I guess. Five years ago. You're serious?" She looked in his eyes with a glimmer of hope. "He's really gone?"

Dr. Chang nodded. "I'm afraid so." He put a polite distance between them. "The FBI are humoring me, but—"

"FBI?" Nio wiped her red and swollen eyes. "I thought you were the head of the National Science Foundation."

"Alas, my term at NSF ended last year. I am now 'chief science adviser to the president' or something like that. To be honest, I'm not sure. I'm still waiting on the business cards."

"Sounds important."

Dr. Chang shrugged nonchalantly. Then he reached into the breast pocket of his coat and carefully removed a folded slip of paper by pinching it between two fingers. He opened it the same way and tossed it on the floor between them. Nio didn't move. She didn't need to. She knew exactly what it was.

"Where'd you get that?" she asked.

"How long have you been chasing him?"

It was a sequence report, probably from the tissue removed from Beckham Carter.

"There have been others, I suppose?"

There was no point in denying it. If the media was correct, Dr. Hamilton Chang, known as "Chop-Chop Chang" before the spaceflight that changed him forever, was one of the smartest creatures in the world.

"Six," she said softly. "That I know of. He never acts directly, though, so it's hard to say."

"Yes, he appears to be recruiting."

Dr. Chang nodded to the paper. Above the rows of G's, C's, A's, and U's, he had sketched an ancient Hebrew numerological wheel. Base sequences were circled and labeled with Hebrew letters, converted via the wheel into Pythagorean ratios, which were then matched to a letter of the Latin alphabet. There were gaps between, but the circled sections spelled a question:

DO YOU LIKE HURTING PEOPLE?

"He's been using occult cyphers," Nio said. "Hermetic alchemy, Hebrew gematria."

"If you hadn't burned the house down, the police might've been able to recover computer evidence linking him to that unfortunate girl. As it stands, superficially, it looks very much like you are at fault."

"Yeah, well, I didn't have a lot of choices. They had wings."

"Wings?"

She shook her head. "It's not important."

"What do you know about him?"

"Other than that he targets people involved in illicit activity? Not much."

"Ah. So his victims will be unlikely to go to the police."

"Which is why no one's looking for him. He used to call himself 'Autochthon,' but lately he's been posting under the username 'Amok.' I've done algorithmic image searches and semantic text matching, but so far nothing. If he has any other footprint online, he's found a way to mask it."

"Is that why you risked going into the field? You haven't done that with any of the others."

Nio paused. "Others?"

"No need to be modest. You've been offering your services online to people with peculiar problems."

"You've been checking up on me."

"The singer with the thorns and flowers budding from her arms was particularly memorable. Jealous admirer, wasn't it? 'Giving her flowers' or some such?"

Nio nodded.

"I read in the *Post*," Chang said, "that the doctors couldn't find any foreign DNA."

"That's correct."

"Interesting. So how did he do it?"

"Repressor proteins in her skin cream. Evolution conserves genes, right? He made some of her follicle cells 'forget' they were mammalian."

"Hm. Clever."

Dr. Chang walked with swinging arms to chalkboard that summarized all of the sheriff's open activities. He stood before it and crossed his arms behind his back. Nio wondered what he was thinking.

"Quite a change from your earlier career."

"Dr. Chang, sir, you came a very long way." She paused. "What happened to Sol?"

The chimp turned with his arms still crossed. "Sol didn't just have a hemorrhage. He had the mother of all hemorrhages. The autopsy found several infarcts clustered around his pineal gland. Seven, in fact."

"Seven?"

"They ranged in size. Yet, all clotting was postmortem."

Nio thought for a moment. "An accident? He banged his head and it only caught up to him later?"

"Very good. That's what the medical examiner suggested—while at the same time noting in her report the complete absence of bruising, either on his skin or the surface of his brain, which you would expect if he'd rattled his head so badly that he tore his cranial blood vessels in seven places. There were no marks on his body of any kind, in fact. No signs of trauma. No puncture wounds. His blood and tissues were free of known toxins. There were no drugs in his system and only a trace amount of alcohol. He didn't even finish the wine he was given at dinner. In the hours leading up to his death, he was surrounded by others who reported him to be in good spirits. He was met at the train station by several academics from Columbia, where he participated in an afternoon symposium before joining them at a local restaurant."

"So, he just dropped over?"

"He was giving a public lecture before a hundred people. Several of the guests recorded the talk on their devices."

"Footage?"

He nodded sagely.

"And?"

"That's it." Dr. Chang waited for her reaction.

"His brain just burst?" Nio stood and threw a wad of used tissues in the trash.

Chang could see the skeptical look on her face. "This morning, the FBI filed a writ with the Fifth Judicial District of South Dakota requesting that you be remanded to their custody."

"Why would they do that?"

"I may have put it into their heads that you could be useful. The court is not obliged to grant the request, but I see no reason why they wouldn't, if only to make you the federal government's problem. You'll still be facing charges, some of them quite serious, but I suspect that with the full weight of the Justice Department on your side, you'll be able to negotiate a generous plea—perhaps even avoid further jail time. But I have not the authority to guarantee that, of course. If you accept, you'll have a mountain of paperwork to complete, and you'll be fitted with an ankle bracelet. Your movements will be both limited and monitored constantly by the Bureau. But you'll be out of that cage and helping to right a very serious wrong."

"Wrong?"

Dr. Chang walked to her on swaying knuckles. "I will be frank. I suspect we'd both prefer it." He stood straight. "I believe there is a significant chance your brother was murdered."

"*Murdered?*" She studied the floor as if it held all the answers. "Who would want to kill Sol?"

"I don't know. Nor can I speculate as to how it was done. But as it happens, I met Sol at a technology conference in Toronto last summer. This was just after Caulfield, and everyone was still in shock. No one could even agree on what had happened. When I expressed surprise at his presence, he told me theoretical research hardly seemed relevant anymore. When I asked how superposition computing was any different, he told me it might be 'safer' for me if he didn't say. At the time, I thought he meant politically."

Nio shook her head. "That doesn't sound like Sol. He was one of the most open people I've ever known." She paused. "He got his heart broken a lot."

"And there lies the answer to your question."

"Ah."

Nio walked to the window. Outside, Dr. Chang's suited bodyguards were keeping a close vigil on the front door. Secret Service. There was a tear clinging desperately to the lashes at the corner of her eye. She wiped it.

"You think he told one of the others?"

"Wouldn't you, if you were him?"

Mutiny had been Nio's first call, however indirectly.

"I'm not exactly everyone's favorite, you know, not after—" She stopped. "Everything."

"But if any of them are carrying his secret, they will be far more likely to share it with family. The FBI has made it clear they're not interested in pursuing the matter further. They agreed at first that the circumstances were 'atypical,' but after conducting a preliminary investigation, they have found no reason to continue."

"So, you're providing a free resource."

"They're humoring me because I am a very public figure and because I have the ear of the president. But their patience is not infinite. You would have to work quickly if you hope to benefit from their aid."

"Schrödinger's murder," she whispered.

"I'm sorry?"

"Both a murder and not a murder until someone looks."

"Talk to your siblings. See if you can ascertain what your brother was working on."

Nio sat on the sill near the radiator. It didn't seem real. It seemed like a joke and that in a moment, Sol and the others would jump out and surprise her—a trick to make light of her legal troubles.

She shook it off. "Say I agree. There's still the obvious question."

"Ah. Of course." Dr. Chang nodded. "What's in it for me?"

"And?"

"It's a fair question, albeit one I'm not inclined to answer at the present time." Dr. Chang held out his course-skinned hand. "Do we have a deal?"

ONE A P P E A R A N C E S

THE TECHNICIAN AT HER FEET looked up. "How does that feel?"

Nio lifted her left foot to examine the wide bracelet around her ankle. Tungsten slivers had been woven into the Kevlar to prevent tampering. They glinted as she turned her leg. A slim, flexible bulge on the bracelet's outer side held the electronics, accessible via wi-fi or by a single recessed infrared lens.

"Feels tight."

The tech ratcheted the pair of specially-shaped sprockets one click tighter and stood up. "Done," he told the officers behind him.

The man in charge was Special Agent Roger Erving, who had flown in from New York after several days of negotiations. His office handled the Bureau's high-profile cases and had originally investigated Sol's death. He wore a crisp suit over a light violet shirt that complemented his dark skin. He was a few inches shorter than average, but his piercing eyes and confident grip more than compensated. He wore a wedding band and a ruby-tipped class ring to a school Nio didn't recognize. He spoke in a rich baritone, like a sports announcer or radio DJ.

"I'm not sure what Dr. Chang told you," he said as the tech stepped away, "but your purview will be limited to assisting the Bureau in its investigation into the death of Albumin Sol Einstein. You are authorized to conduct no other business or activities while under remand, is that understood?"

Nio nodded.

Taboo by Les Baxter.

"Under the US Constitution and the laws of South Dakota, you are not obliged to admit guilt, and this agreement doesn't infringe that right. However, it is an 'at-will' arrangement. It can be terminated by either party at any time. If we're not satisfied with your progress, or if you're not satisfied with how you're being treated, just say the word and you'll be taken into custody and returned to the Brown County Sheriff at the first available opportunity. Do you understand all of that as I've explained it to you?"

"What about Amok?"

"Any alleged crimes peripheral to this case are not your concern." He glanced down to her socks as if he had just noticed she had no shoes. "You should've reported him to us."

"Check your records, chief." Nio crossed her arms. "I tried."

Erving's mouth turned down slightly. Before he could respond, the front door opened, and Del walked in wearing a tailored suit, crisp white dress sneakers, and a fancy fuchsia tie.

Nio shut her eyes.

Should've known.

Erving raised a hand to him. "I believe you already met Agent Orlando Quinn from the Bureau's Minneapolis office."

"Agent..." She nodded once.

His Italian silk tie looked expensive.

"Agent Quinn has been undercover here for the last six weeks. Wittingly or otherwise, you assisted the department with a very important case, which is the only reason I'm even contemplating this farce."

"Since when does the FBI care about some random strip club in the middle of nowhere?"

"Since the president declared the deep core program vital to the nation's strategic interests. For reasons of history, countries with mineral deposits in Africa and South America prefer dealing with the Chinese."

"Gee, I wonder why."

"That limits our options. There have been overblown reports in the media that organized crime have been profiting—however indirectly—from the program, which is already an environmental hot potato."

"So, you needed a law enforcement win to take the pressure off."

"Having handed everything over to the U.S. Attorney, Agent Quinn has some time on his hands. He's going to be looking after you, reporting to me, for the duration."

"A babysitter," Nio said, sizing him up.

"What did you expect?" Erving asked.

Agent Quinn's dark hair was trimmed. His narrow eyes were still smiling. He was noticeably tall and his facial features unusually symmetrical. He was recently shaven, judging from the razor burn on his neck, and looked very handsome in his suit—in a conventional sort of way.

"Do you have any questions for me?" Special Agent Erving asked.

"When do we talk about my side of this bargain?"

"After you demonstrate your willingness to cooperate—and you produce results. I respect Dr. Chang's position on this and understand where he's coming from. Your brother was an international figure. His death is an embarrassment. But we're the ones taking the risk here. You've been granted a tremendous opportunity. Make the most of it."

"When do I get my personal effects?"

"That's up to the sheriff. Anything else?"

Nio shook her head.

"Then my advice is to take the evening. Relax. Get used to being out of your cell. Agent Quinn will buy you dinner. Nothing too fancy," he added as an aside. "You start first thing in the morning. Now, if you'll excuse me, I have a plane to catch."

With that, he nodded to the others in the room, who broke to go about their duties, and walked out the front.

"You have some ID?" Nio asked amid the shuffle.

The man she knew as Del looked incredulous but complied. He reached into his breast pocket and removed a wallet.

Nio studied the card. "Orlando Augustus Quinn." She looked up. "Orlando?"

"After my grandfather," he said flatly.

Standing next to him, Nio thought he seemed even bigger than before. If he'd been married, she would've expected kids. If so, there was nothing to indicate it. No ring, either. Divorced, maybe.

She looked down at his bright dress sneakers. They were flawless.

He took the wallet back.

"How you gonna play it?" she asked.

"How'm I gonna play what?"

"Dirty Harry or Columbo?"

"Who's Columbo?"

"Are those the case files?"

A cardboard file holder stood like an altar on a bare desk.

Quinn nodded. "Most of them."

"Most?" Nio removed the lid and started rifling.

"Everything that could be transferred electronically from New York and printed. The physical evidence is in a locker somewhere."

"Do me a favor?" she asked.

"What's that?"

"Get some coffee?"

He snorted once. "Pot's over there." He nodded toward the corner. "I'll see about your personal effects. Don't get comfortable." He pointed at her with a long arm. "We're not staying."

Nio scowled but didn't look up from the files. Sol's face peeked from a manila folder. She slid the photograph out. He looked different than she remembered. Like an adult. Heavier. Mature. Respectable. He was a spitting image of his alter—not all of them were—but had elected to forgo the iconic brush mustache and wild hair. He kept his neat. He had the same oval eyes she remembered, at once curious and maudlin. She sat down and laid out the pages as if in a trance.

More than any of them, Sol had followed in his alter's footsteps. He became a physicist studying the deep nature of reality. After completing his

education at the Max Planck Institute for Physics in Munich, he became a fellow at the Institute for Advanced Study, located at 1 Einstein Drive, Princeton, New Jersey. It was, as the Institute's president said at his welcoming speech, a homecoming. Freed from the necessity of earning a salary, Sol taught only when he wanted to, which was rarely. His publications were rarer still and covered everything from virtual particles to spatial topography. He was unmarried and had no children. Since he was ethnically Jewish, he'd made a few token attempts to get involved with the local synagogue, but nothing seemed to come of it. He had friends at work, where he was quite popular, but none were close.

The FBI had collected every call, email, or text sent or received from any of his devices in the weeks leading up to his death. Unlike Nio, Sol had kept in touch with the others. One name immediately stood out. There was a reference code next to it, indicating the FBI had followed up. It took Nio several minutes to find the agent's notes in the files. It had been a single, short call, so there was no reason for anyone to disbelieve the woman on the other end, who said that she and Sol had had a brief, pleasant conversation during which they made plans to see each other in the coming weeks. An entry in his calendar confirmed that. Nio turned to a nearby PC and searched for Chancery.

"Chaz," as the others had called her, had dreams since adolescence of running the world's largest company. She was then settling for the 256th, a quantum computing upstart headquartered near Fermilab, just outside Chicago, where she was CEO. If Nio called and requested a meeting as herself, she knew Chaz would say she was busy. Instead, Nio called the company switchboard and asked for the CEO's secretary, who explained that his boss was unavailable. Nio pretended to be disappointed and said she was a reporter with *Teen Vogue*. She said she was going to be in town in a day or two and wondered if she could have a few minutes of the boss's time for an article she was running on women in power. The secretary did his job and neither confirmed nor denied availability, but in so doing, did let it be known that the meeting was at least possible, which meant Chancery would be present.

"Thank you so much," Nio said and hung up.

"Where'd you learn to do that?"

Nio turned. Agent Quinn was leaning against the neighboring desk, sipping coffee from a paper cup. The other held a bundle of sealed plastic

evidence bags. One of them was large and contained her puffy coat.

"For the record," he said, "you're not supposed to do that."

"Lie? I promise I'll never do it again."

"Use the phone. Or access the internet. Not without permission. It was in the terms and conditions you signed."

He tossed the bags on the desk. The smallest slipped off, and Nio picked it up. Inside was her opened letter, folded in half, and the local paper the sheriff had given her.

"Pack all this up," Agent Quinn said. "If we hurry, we can get back before midnight."

"Where we going?"

"Minneapolis, to start. We can't stay in the sheriff's hair. He's got real police work to do. My office will be home base for now."

"What about shoes?" She lifted her a foot.

Quinn scowled. "They didn't give you anything?"

"Just those little blue booties you guys wear at crime scenes."

"I think I saw a Walmart near the freeway."

"*Walmart?*"

He dropped his coffee in a trash can and dug out his keys. "Come on, it'll be fun," he said sarcastically.

The car was a rental, a squat hybrid sedan with minimal features that was much older than the models one would typically find in the city. Nio tossed her coat and the box in the back and Agent Quinn started the car. The store was depressingly quiet. At least a quarter of the shelves were empty. Most people ordered online. The outlet clung to life mostly by offering perishables like deli food and bulky or high-dollar items that were risky to deliver by robot. There was a very limited selection of shoes. Fancier stores in higher-population areas had economies of scale and were custom-assembling footwear. Digital molds of the buyer's feet, which were often asymmetrical, were taken in the store and used to press soles that promised a better fit. It helped that the machines offered thousands of design options, each with infinitely customizable colors and accessories. Nio, on the other hand, settled on a small pair of men's hiking boots. They weren't comfortable but she could get her feet into them.

Quinn waited in the aisle and made a few calls, never taking his eyes from her for more than a few seconds. He tested the ankle bracelet while they waited. He made it beep in warning from the app on his phone, and smiled at Nio's alarmed face.

She walked out with a giant bag of cheese puffs, which she ate in the back of the sedan as she went page-by-page through the case files, licking her fingers impolitely before touching each paper.

"Wonderful hygiene," Quinn noted sarcastically from the driver's seat.

Seemingly every detail of Sol's life had been captured, mostly by machine—not just emails and phone records but browser history, cell phone location data, social media posts, comments and replies, chat transcripts, credit card transactions, frequent shopper accounts, dating site logs, tickets and travel, medical and dental records, even his gym attendance. It had all been scraped and compiled automatically. There was even a psychological profile assembled by algorithm that made obvious statements like "The subject was very organized" and "The subject did not appear to abuse drugs or alcohol." Nio's favorite was "The subject was biologically male, heterosexual, dating infrequently: No current romantic partner." The machine had inferred it not just from his dating site records, which listed him as single, but also his calendar and cell phone location history, wherein there appeared only rare meetings with heterosexual females, none recurrent.

Still, it wasn't clear how much of the source data a human being had actually seen. Nio guessed very little, but then she also understood the necessity. There was just too much. Going through every bit was not only time consuming, the odds that a human would miss a relevant fact amid the volume of incidentals was extremely high. So, law enforcement did the next best thing. They trained machines not just to gather the data but to interpret it, to plot the subject's daily routine—when he slept, when he got up, where he ate, where he worked, the regular places he visited—and then to cross-reference that with known suspects. Where did they intersect? The machines also flagged exceptions to the normal routine as well as known triggers of "outlier behavior," such as the death of a loved one, termination of employment, large changes in bank balance, and so on. The summary report on Sol stretched to ten dense pages.

But for Nio, it was the details rather than the summary that were fascinating. She loved having a window into her brother's life—his hobbies,

his hang-ups, his favorite foods. Sol apparently enjoyed swimming, even though he exercised rarely, and he was a sushi nut. But as she poured over it all, she felt an increasing hollowness grow inside her. Her name didn't appear. Not even once. It was as if they were complete strangers. She knew that wasn't his fault.

After two hours of silent driving, Quinn had had enough.

"Say it," he said.

"Say what?"

"You're mad at me."

"No, I'm not," she replied without taking her eyes from the files.

"Good, then tell me what you found."

She snorted. "Nice bait and switch, *Del*. What makes you think I found something?"

"Because I'm a detective and you've had the same look of constipation on your face since Ortley." He could see her in the rear-view mirror.

"What's *oatley*?"

"Town we passed ten minutes back. So, what is it?"

"Pictures," she said absentmindedly.

"I can see that. Of?"

She turned one around. It was a photo of a handheld electronic device, black with yellow trim. An FBI numerical label card was next to it.

"You know what this is?" she asked.

"Looks like an infrared thermometer. I used to work HVAC—summers in high school."

"You fixed air conditioners in *Minneapolis*?"

"I grew up in LA."

"That explains a lot."

"Like what?"

"The shoes."

"Ah. I get it. You want me to be good ol' country *Del* again, is that it?"

"I liked him better. Sue me." Nio turned another photo. "What about this? Recognize it?"

It was another black handheld electronic device, rectangular this time. A V-shaped antenna poked from the top. A string of colored lights stretched across the rim.

"Radon detector?" Quinn guessed.

"Why would a radon detector have an antenna?"

"I don't know."

"EMF," she explained.

"Huh. Well, the guy was a scientist, right?"

"Last one." She turned another. "Call it a tie-breaker."

"That's a receiver for a wide-band radio. Long distance around-the-world kind of thing."

"There's a digital voice recorder also," she said. "Here's today's pop quiz, Orlando. What do all of these things have in common?"

"They were found in our vic's garage."

"I'm serious."

"I dunno. You can buy them at a home improvement store."

"It's ghost hunting equipment."

He scowled. "What do you mean ghost hunting? Like on TV?"

"Yes. This is a bog-standard paranormal research kit."

"What do they use the infrared thermometer for?"

"Test for cold spots. What about this?" Nio turned another photo.

"That's easy. That's a motion sensor. I have the same model on my house."

"Are you sensing a trend?"

"Har, har."

"Your people photographed everything, right?"

"I doubt they got the lint in his dryer, but yeah."

The interior of the car was quiet.

"Weekend hobby?" Quinn suggested. "Blow off steam. Impress the pretty undergrads."

"He wasn't like that."

"When was the last time you saw the guy?"

"He wasn't like that. Read the damn case notes if you don't believe me."

Quinn gritted his teeth. "You're not a big people person, are you?"

"People make my head hurt," she whispered.

"Wasn't this guy supposed to be one of the smartest in the world?"

Nio didn't answer. She simply scowled at the glossy pictures in her hand.

"You hungry?" Quinn asked after several minutes. "If we grab something quick, we can make it back tonight."

"You got a hot date or something?"

"Some of us like our own beds."

"No offense, Orlando, but I've been in a cage for a couple weeks eating the deputies' potluck leftovers. I'd like some real food and a good night's sleep. We can be A students tomorrow."

"Well..." Quinn examined a road sign as it passed. A grid of logos announced the meal options at the next town. "I hate to say it, but it looks like our options are fast food or pizza."

"No." Nio pointed to the yellow sign at the horizon.

"We are not going to Denny's." He gave her a look.

"Looks like you finally get to take me to dinner."

A sign on the door announced that the restaurant proudly served Allys™. Next to it was a group of logos inside a red circle with a line through it. Nio saw the TruBoi flag and the Truth-Seekers and FARK and a bunch of other tribes she didn't recognize. An overweight waitress with short hair, iridescent eyelashes, and a motion tattoo of a small child, a son perhaps, greeted them and showed them to a booth by the front window. The tall Agent Quinn stepped around the table and groaned in anticipation of stretching out, but Nio stopped him.

"No, not there."

He looked blankly at the bulging red cushions of the booth.

She motioned to a nearby table. "We'll sit here," she told the waitress.

The woman shrugged and moved the laminated menus.

Quinn was incredulous.

"Never sit at a table with two salt shakers," Nio explained.

He examined the cluster of condiments at the back of the booth. The sweeteners were arranged by color and guarded jealously by a bottle of ketchup. The pepper shaker hid behind a triangular dessert menu. Standing in front of the lot were a pair of salt shakers—identical except for a dent in one cap.

"Did something happen to him?" Nio asked the waitress. She stepped close to examine the motion tattoo on the woman's arm.

A small child sat awkwardly on the floor near some presents—a birthday or Christmas. As the woman's arm moved, the boy's face brightened into a smile.

"How did you know?" she asked, suddenly teary.

"Not recently, I hope."

"Two years ago."

The waitress frowned at the picture, which was changeable. Wearers could edit photos and videos or make their own art to display. The pigment particles, injected by electric needle, were altered by placing a magnetic pad over the skin. The pad received the update wirelessly from an app on the wearer's mobile and used magnetic fields of varying strengths to orient tiny cyan, magenta, yellow, white, and black beads. The waitress's photo was slightly crisper than the tattoos of old, but it was considerably less defined than the photograph from which it had surely been taken, which suggested she had not bought one of the high-quality Asian devices but a lower-cost knockoff from Africa or South America.

Nio took the woman's hand. "I'm so sorry."

"Thank you." The woman tried to smile before returning to the kitchen.

Nio pulled out a chair and took a seat, but Agent Quinn hadn't moved. He turned back to Nio, who was reading her menu. He pulled out a chair and looked at the half-inch of speckled padding. He took a seat. It creaked.

"That some kind of superstition?" he asked.

"It's not superstition. It's science."

"Is that right? Does it apply to pepper too?"

"Have you ever seen a table with two pepper shakers?"

Quinn opened his mouth to answer but didn't. Although he could imagine the scenario easily, strangely enough, he couldn't recall ever actually seeing it. He studied the table in front of him the way an audience studies a magician after a trick. Then he turned to examine the rest of the room.

"What do you think has the most meat?" Nio asked, staring at the menu.

"What can I get you both to drink?" the waitress asked. She seemed out of breath.

"Coffee," they said at the same time.

"Jinx," she mumbled before walking off.

Quinn picked up his menu and glanced back to the pair of salts in the booth.

"I don't suppose you're a certified Ally." Nio pointed to the logo at the bottom of the menu. "We can get 10% off."

"I downloaded that app once," he said. "Sounded like a great idea, but I could never keep up."

"What do you mean?"

"You keep certification by answering questions that pop up randomly on your phone. I kept getting them wrong."

"Questions?"

"Like, controversies. What some public figure said about some group and why it was bad. Seemed like the only point was to make sure we knew who we were supposed to be mad at that week. Maybe not. I dunno."

"Psychological reinforcement."

"Excuse me?"

"You kept getting them wrong, but they didn't kick you out. The point wasn't to test in-group knowledge, it was to reinforce it through periodic repetition." She slapped the tri-fold down and started pulling napkins from the container. "Get me the Denver omelet. I gotta pee."

Quinn looked down at the ankle bracelet and turned back to the table. "Don't take too long."

The waitress returned after a short gap and he ordered for the both of them. After a few minutes, he turned to the back, but saw nothing. He studied the floor tiles and wondered if he'd already screwed up. He gripped the table and was about to push himself up when Nio appeared in the hall, rubbing her hands together. She sat down and poured four creams into her coffee. The pair drank in silence.

The food came, and Quinn watched Nio shove the stuffed omelet into her mouth like a hyena.

"What's in that?" he asked, staring.

"Meat," she mumbled with a full mouth. She took another bite before she had fully swallowed the first.

"I can see that. What kinds?"

"Zau-zage," she said, chewing. "Ham. I dunno." She swallowed and took another bite. "Meat."

He stabbed his fork into his salad.

"I didn't eat meat for fourteen years," she explained between bites.

"So now you're making up for lost time?"

By the time Nio's plate was completely bare, Quinn still had half his salad left. He forced one more bite.

"So, what's your story?" he asked.

"What do you mean?"

"You know, the usual stuff... Where do you live? What do you do? Why were you in Leavenworth for two years?"

Nio held her coffee close to her mouth. It was cold. "I got involved in something." She took a sip. "Then some people died and I got out."

"I didn't see anything like that in your file."

"I didn't think I had a file."

"Everyone has a file."

"Even Searan?"

"Who's Sharon?"

"Searan. Our waitress. You didn't see the name tag?"

Quinn stabbed his salad with his fork but did nothing with it.

"No," he answered her. "Searan probably doesn't have a file. But you do. And I didn't see anything about people dying. Just the prior. Two years inside but nothing about the case. Why would the records be sealed?"

"Why are court records usually sealed?"

"Protect minors. Or if a case is ongoing. Or national security."

Nio set her coffee down. "Are you done?"

He looked at his salad. He pushed himself up from the table with a grunt and wobbled to the cashier the way big men do after eating.

"Nobody calls me Orlando," he said on the way to the car. "Except my grandma. Everybody else calls me Quinn. Have since high school."

"I'll keep that in mind."

Quinn leaned on the roof of the sedan and looked across to Nio. "What is your problem? You've been givin' me—" He stopped. He looked back at the restaurant as if he just realized he'd left his wallet.

"Stay here." Quinn shut his door and walked into the diner. He found the restrooms at the back and knocked on the women's. When no one answered, he pushed open the door.

"Hello?"

Inside, he found a thin cell phone resting on top of the hand dryer, as if someone had left it there by accident. He took it and found their waitress, Searan, who was amazed. She'd been running around the restaurant looking for it. She was confused by Quinn's request to see if any calls had been made, but she complied. There was one, but it hadn't been answered. Quinn took a photo of the screen with his own phone.

"Thank you so much," he said with a smile.

He walked outside, where Nio was leaning against the sedan. They both got in and Quinn started the car. He sat in silence for a moment with the engine running.

"So, the salt thing was a con?"

"No," she objected. "It was a distraction."

Quinn wanted to argue, to challenge, but he couldn't escape that it had worked.

Nio saw the look on his face. "It's a biohack. Sort of. We all think we're passive observers, but our brains actively scan the environment and focus on what they think is important. Give someone a conundrum and they get momentarily overloaded. It actually only works on smart people. Dumb ones don't realize the conundrum."

"Are you suggesting I should be grateful that you gave me an opportunity to demonstrate how smart I am?"

"I didn't say you were smart."

"You wanna tell me who you called?"

She didn't answer.

"Suit yourself."

They drove down the street to a block, two-story motel. Doors opened onto the pocked parking lot.

"Wow, the FBI goes all out," Nio said sarcastically.

"Budgets. Wait here."

After checking in at the automated kiosk, Agent Quinn led Nio to the second floor. He opened a door and walked in as if it was his.

"This is you," he said, looking under the bed.

"Are you checking for monsters, Dad?"

Quinn turned on the bathroom light on and peered inside. Then he walked to the phone and unplugged it.

"You're seriously taking the phone?"

"It's not complicated. You act like a child, I treat you like one."

"What if there's an emergency?"

"I'll be right next door. And just to remind you, if you get more than a hundred yards from me" —he held up his phone— "an alarm sounds on the bracelet and on here, which also has a map linked to a positioning system that tells me exactly where you are. I call local PD, they pick you up, and we take you back to jail, game over."

"I'm here voluntarily."

"Don't act like I'm overreacting. You've already tried to trick me. Twice."

"What was the first time?"

"Good night." Quinn walked out and closed the door, taking her room key with him.

Nio kicked off her boots and sat cross-legged on the bed, which creaked under her. The TV was at least 15 years old—only 16k and limited apps. It had a browser, but it wouldn't work with VPN. She could connect to a server just fine but it timed out repeatedly. Nio signed up for a new encrypted email account instead. If anyone checked, they could see what she was doing but not the contents of the message or to whom it was sent. She wrote to Samizdat first and explained the situation as best she could in a few sentences. Typing meant tabbing through the on-screen keyboard with the arrows on the remote, which was excruciatingly slow. Nio tried to find Mutiny's contact info but could only get her manager in Las Vegas, to whom she also sent an email, asking that she get in touch with Agent Quinn of the FBI's Minneapolis office. She thought briefly about checking the forums to see if Amok had posted but decided against it. If he had, there was nothing she could do about it anyway.

A minute later, she changed her mind and started scrolling through recent posts to BloatedStack, a popular darknet mod board. As usual, it was full of the usual requests—guys wanting to know how to get jacked without exercising or updates on the latest fat-burning protocols, all of which were

toxic. The few sequence files that were shared were pounced on and immediately pulled apart. Every so often, a scammer would post a file that, if sequenced and injected into the groin and armpits, was supposed to alter the glandular tissue and cause it to release pheromones that would "drive women crazy." Few fell for it anymore, but in the early days, it seemed like some teenager was hospitalized almost every day, part of a spate of self-inflicted illnesses that resulted in various bans and restrictions on modding worldwide.

Nio turned off the TV and laid back on the bed.

"Video..." she breathed.

She sat up. Dr. Chang said Sol was giving a public lecture when he died. Surely someone posted footage of the death online. Nio grabbed the remote and found numerous videos of him, although those at the top, the most popular, were really videos of Manda that he simply happened to be in. Nio instantly felt jealous. And left out.

She clicked the first.

"And what are you working on these days?" the perky journalist asked as music droned in the background.

Sol was trying to walk with Manda into a party or social gala of some kind. Miniature spotlights arced back and forth. He was in a tuxedo and doing his best to move around the reporters without seeming rude. It wasn't going well.

"A new theory," he said playfully.

He was looking patiently down rather than at the camera, hoping it would be removed from his face.

"Can you tell us about that?"

"I've been looking at the universe as information rather than geometry." He sounded older.

Manda skillfully wove her slender arm under his and freed him.

Nio stopped the video and searched for his final talk. It was the sixth on the list of results.

"Sick bastards," she said. "And yet..."

She hit play.

The snippet started in the middle. No one cared about what he had to say. They just wanted to see him die. He was explaining the Bekenstein

bound, a principle of physics that described the limits of information and entropy. Nio paused it. She got up from the bed and washed her face in the sink. She blew her nose and wiped her eyes. She stared at the drain and remembered another just like it, in the floor of the maintenance closet. She was 13 and had run from one of the boys at school. He had tried to kiss her, and when she rejected him, he began calling her names in front of the others. Freak. Copy. Psycho. Sol found her. It wasn't hard. Anyone could've found her. The point was that he noticed she was gone. The point was that he bothered to look. He sat with her in the dark while she cried.

"We'll always be different," he said.

Now she was about to watch him die.

Nio leaned on the edge of the bed and started the video again. Sol stood at a narrow podium flanked by tables on both sides. Various academics sat facing the audience. None were less than two meters from him. The hall itself was fairly small. Chairs were arranged in rows in the center. They were at most half full. She heard a sneeze as the audio began again. Sol explained how the total information a system could contain was determined by its surface area, not its volume. No one approached him in the moments before he fell. He didn't touch the bottle of water that had been left for him on the podium, which was full and sealed. There was no gun shot, no knife strike, no laser burn, no spasm of poison. He paused as if searching for a word. There was some shuffling in the room, and then he began speaking again. His head wobbled, his words turned to gibberish, and he fell, knocking over the podium on his way to the floor. There were shouts and exclamations. The camera moved away, as if whoever held it had jumped to their feet. Then it stopped.

Nio immediately watched it again.

Dr. Chang was right. She couldn't place it. But something was terribly wrong.

ONE A P P E A R A N C E S

Local Woman Predicted SD Arson, Warns Attacks Will Continue

Sleepy Eye resident Maureen Arneson predicted last week's arson attack in Aberdeen, South Dakota. She even gave the exact address: 421 Asher St. So why didn't the police stop it? Simply, no one believed her.

Maureen called the Brown County, South Dakota Sheriff's Office just days before the fire that destroyed one home and nearly killed four people and warned officers to be on the lookout for a strange woman from out of town.

"When the lady officer asked me how I knew about the threat, that's when I knew nothing would happen," explained the 56-year-old Arneson. "Because I heard it from God. From His avenging angel."

Maureen said she knows how it sounds, and as a lifelong Christian, she's heard it all before. It doesn't help her credibility, she admitted, that the angel's guidance comes through her television, which she inherited with the house from her grandfather.

"People have always been scared of faith," she said, "even in ancient times. I get that. God is scary. He's supposed to be. But He also loves us and offers us salvation."

Brown County Sheriff Richard Marbrant declined to comment on the tip but was quick to point out that a suspect was already in custody. The woman's identity has been kept secret pending an investigation.

When asked what else the angel had told her, Maureen was decidedly more reserved. Some of it was private, she explained. But she assured her fellow Minnesotans that attacks by persons or forces unknown would continue, and that if she received additional tips, she would pass them on to law enforcement.

"Something incredible will happen very, very soon," she said. "A sign. We will all see it. And we will be called into the service of the Lord. May He give us strength."

ONE A P P E A R A N C E S

AN ALARM BLARED in short, piercing tones.

Nio sat stirring the lukewarm coffee and peering out the windows of the dim office for the Agent Quinn, who was no doubt rushing to her location. Next to the door was a decade-old public service poster urging everyone to get their annual vaccine. It dated from the early days of the contagion and was full of implicit threats. Unlike comparable posters from a century before, which urged discretion—*Loose Lips Sink Ships!*—this announcement suggested it was better to report on the neighbors:

SILENCE SPREADS DISEASE

REPORT ALL CASES TO YOUR

MINNESOTA CMC OFFICE

The door at the back of the motel office opened and an Indian man appeared.

"What the hell?" he yelled at Nio.

"Nice underwear," she said, taking a sip.

"You think it's funny? I thought the building was on fire!"

He strode around the counter to berate her as Quinn burst through the front door, half asleep. He wore nothing but a T-shirt and boxers. Both his legs were missing below the knee. In place of bare feet were a pair of studded rubberlike soles, each attached to a 3D titanium lattice in the rounded shape of a human foreleg. The interior was completely empty. His phone was in his hand. It also emitted an alarm, similar to that from the bracelet but out of phase with it, and the two together were quadruply annoying. He turned them off with a few quick taps.

"Thank you, sir," Quinn said to the manager. "I'll take it from here. I apologize for the inconvenience."

The man looked back and forth between them. He was furious, but Quinn's height was putting a damper on it. "You're going to let her get away with this?"

"I apologize," Quinn repeated softly. "Everything's under control. Thank you."

The man looked flummoxed. He wanted to argue, but Quinn's size was a clear deterrent, and he disappeared through the back door, grumbling.

Agent Quinn collapsed into a chair and rubbed his face. He yawned. "Jesus," he mouthed in the middle of it. "What the hell?"

"I get headaches. I couldn't sleep."

"So you wanted to make sure no one else could?"

"I wanted to see the case files."

"So knock."

"I did."

"So you woke up the entire motel?"

She shrugged, glancing involuntarily at his prostheses.

Quinn followed her out the door. "Go ahead," he said as they climbed the stairs.

"Go ahead, what?"

"Ask."

"It's your business," she said. "Can I get it or not?"

Quinn unlocked his room. The box was on the table. A fancy folding suitcase hung from the bathroom door. Nio didn't have a key, so she had propped her door open with the security latch. Quinn handed her the box and she walked back.

"Thanks."

He slammed the door.

Nio sat cross-legged on the bed and opened the remnants of a life. The FBI had talked to a few of Sol's colleagues and graduate students, but for the most part they had relied on the data scrape. To their credit, it was comprehensive. It even included his reading list from the Institute's library, as well as from nearby Princeton University Library. Most of it made sense. There were seminal papers on quantum field theory, graduate texts on gauge theory, even a transcript of a symposium titled *Ion Qubit Exchange Under Asynchronous Correspondence*. Scattered randomly among the arcane treatises on high-energy physics and advanced geometry was the odd outlier. It was as if Sol had suddenly become obsessed with conspiracies: Project Montauk, Project Looking Glass, MK-Ultra, HAARP, Area 51, the Mandela Effect. There were also several funny-sounding papers by an obscure Danish social psychologist named Viktor Bruno. Although she could see the titles—one was called *The Oscillations of Reality*—none of the texts had been included. She turned on the TV and searched the internet.

"This is ridiculous," she breathed, tabbing slowly with the arrow buttons.

Bruno had stopped publishing several decades ago. All but one of his papers were behind a paywall, a 30-year-old monograph on the mathematics of distributed networks. According to the abstract, Bruno had shown that a theory of information exchange from computer science was broadly applicable, including to models of human society. The example he used for illustration was—

"Belief in ghosts," Nio said aloud.

She skimmed the paper, but it was mathematically dense. She could follow the equations, but she wasn't familiar with the underlying theories and she gave up on page eight. She shut the files and leaned over on her elbow.

A loud knock woke her promptly at 7 a.m. the next morning. It was followed by the clicks of the key card in the lock. She'd been dreaming, or so it seemed. Sol had been talking to her through the static in the television. She opened one eye. The TV was off. Nio suddenly felt a deep, almost overpowering sense of *deja vu*, as if she were starting a video game over from the beginning of the level—and not for the first time.

The door opened and the morning sun broke over her face. She squinted and pulled the pillow over her head. It smelled like cheap detergent, same as the comforter. The files were still open around her, and Agent Quinn began packing them.

"Today's a work day," he said. "They're waiting for us at the office. We got a conference call with New York at noon. On the road in half an hour."

Nio flipped him off as he walked out. The door swung half shut and she realized her head was throbbing. The headache had come back. No more sleep. She groaned and stumbled to the table where she had dropped her belongings. She lifted her coat, looking for the pills the sheriff had given her, which knocked the small evidence bag to the floor. Her loop metal earrings rattled inside. She found the bottle and swallowed two pills, eyeing the small local newspaper that stared up at her from the carpet. She read the headline again. It was the Sunday edition. Almost a week old. She may already be too late.

Forty-five minutes later, after briefly falling back asleep and being woken again, Nio was showered and dressed and her skull had stopped throbbing. She walked down the motel steps carrying the evidence box, steel rings back in her ears. The blizzard that had blanketed the north in snow a couple weeks before had been replaced by unseasonably warm temperatures, and puddles of melted snow filled the potholes in the parking lot and reflected the warm sun.

Quinn was waiting by the car in his suit and expensive tie. From the looks of it, he had just been talking on the phone. He watched her approach.

"I said half an hour."

As she got closer, she could feel the asymmetric fluctuations in his bioelectric field. Something has perturbed him. He was upset and taking it out on her.

"You okay?" she asked.

"Sure. Why?"

"No reason." She glanced to the phone in his hand.

He raised it like he had forgotten it was there. "Gotta keep the boss up-to-date."

In the car, Nio put her awful green-and-brown boots on the dash and tried to scratch under the ankle bracelet, but it was tight and flush with her skin. "I hate this thing."

"You need breakfast?" Quinn asked. "Or are you still full from last night's meat fest?"

"I'm okay," she said, pulling her seat belt around her. She noticed the car's console then. "The Bureau have something against self-driving cars?"

Some people did.

"Rentals don't have high-speed pursuit modules," he explained as he backed out of the parking space.

"Ah. And you might have to speed after someone at any moment."

"Bureau policy is that any non-agency vehicle must have the option to disable safe-driving protocols or else be driven manually. Didn't take you for a car snob," he added a moment later.

"Meaning what?"

"Not everyone can afford the insurance on self-driving cars."

"You can take off the tie," she told him as they accelerated onto the freeway. "You keep reaching for it. It's obviously making you uncomfortable."

"Field agents have a dress code."

Nio looked around. "I don't see the boss here."

Quinn didn't answer.

"Ahhh." She nodded to herself with a smile. "I get it. You got in trouble. That's why you were in South Dakota, and why they gave you to me. You fucked up and now you have to suffer a shit detail and prove that you can follow the rules: wear the tie, keep up with your paperwork, follow procedure." She looked at his neck. "Shave."

He rubbed it.

"You had a beard, didn't you? Until recently. And you cut your hair."

The caveman look was then very fashionable for men, which suggested that in his off-duty hours, Agent Quinn cared about that kind of thing.

"Your psychic spirits tell you that?"

"The skin of your cheeks is a slightly different color. Lighter. Like it was protected from the sun."

Quinn grabbed the rear-view mirror and turned it, as if testing whether all of that were really deducible from his dark complexion.

"For what it's worth," Nio said, "I think covering your face was a good move."

"What about you?"

"What about me?"

"You keep rubbing your scalp. That's new, too, isn't it? What are those scars from? I notice they're still a little pink."

Nio watched the road roll by. She resisted the urge to rub the regularly spaced ovals on her head.

"What's the matter?" Agent Quinn poked her gently in the shoulder. "You've been poke-poke-poking me since we met. Don't tell me you can't take it."

"It's not that." She was quiet. She shook her head. "It's a long story."

Quinn looked ahead to the highway, which was straight as far as he could see.

"Perhaps you haven't noticed, but we have lots of time."

"It's nothing. Look, I'm sorry I teased you about the beard. And everything else. You're right. I shouldn't have if I wasn't willing to take it in return. I take it back."

Agent Quinn swallowed the words in his throat. "Fair enough," was all he said.

They drove in silence.

"We need gas," he announced tersely later.

They stopped and went to the bathroom. When Agent Quinn walked out, he found Nio studying a paper map. She folded it when she saw him and replaced it on the rack.

"No phone," she said sheepishly, as if he'd caught her stealing candy. "Just wondered where we were."

By the time they got back on the highway, the oncoming lanes had jammed. Stationary cars sat bumper-to-bumper as far as either of them could see.

"What do you think happened?" Quinn asked.

"Take the next exit," she said as they passed a green mileage sign.

"You forget something?"

"US-71," she explained.

"71?" Quinn scowled. "We got a couple more hours on the interstate."

"Just take the exit."

"And where are we going?"

"South. Toward Mankato."

"What's in Mankato?"

"There's someone I need to talk to."

"In Mankato?"

"*Toward* Mankato," she stressed.

"What does this have to do with a guy who died in New York?"

"Look, Agent Quinn, you seem decent enough."

"Wow, thanks."

"And I'm sorry that you're disabled or whatever—"

"*Disabled?*"

"—but we're not partners. You're here to keep me from going off the reservation. I'm here to find out what happened to Sol and get my life back. So, if I wanna talk to someone in Mankato, we go to Mankato. If I wanna talk to someone in, say, a tiny town near Mankato, we go there. Okay?"

"For the record, I'm here to preserve the Bureau's interests. That *includes* keeping you on the reservation, but my remit is larger than that."

"Such as?"

"Such as making sure you don't commit further crimes while remanded to the United States Department of Justice. Such as making sure we join that conference call with New York in" —he looked at his watch, a Rolex—"three hours."

"That's the second time you've called me a criminal. Is that all you think I am? Some kind of compulsive offender?"

"I think you're someone who sees the law as a hindrance, something to be got round when it doesn't suit you. I think *you* think the ends justify the means. I think you think you can go around stealing people's phones and burning their houses down without having to face any consequences because *you* decided it was justified."

"I didn't steal Searan's phone. I borrowed it."

"Borrowed implies asking. You lifted it while pretending to care about her dead son. Do you not see how sick that is?"

Nothing.

Quinn snorted. "See? You act like this is all just some ridiculous waste of time, like all these people—the judge, the sheriff, the court clerks, the victims, the attorneys, the Bureau, *me*—are doing this just to fuck with you."

As if all of us have nothing better to do with our lives than make yours difficult."

"And you always follow the rules, do you?" She poked his bare neck. He moved away and scowled.

"Sorry," she said, folding her hands in her lap. "Look, I know you think I'm socially retarded or whatever. But I'm not. I know what I'm supposed to do. I just have different priorities these days."

"These days?"

"All I'm saying is, I have no intention of embarrassing you in front of your boss, if that's what you're worried about."

"You'll understand if that doesn't fill me with confidence."

"But I still need you to head south."

"Why?" Agent Quinn insisted.

"I told you. There's someone I need to talk to."

"Who?"

Nio turned to look at him. She made it clear by her face that she wasn't going to answer.

"Exit's coming up."

Agent Quinn didn't take his eyes from the freeway, and he didn't slow down. "Who?" he asked again.

Nio didn't answer.

"Suit yourself." He settled into the seat with one hand on the wheel, like it was going to be a long drive.

The exit approached fast.

"Fine," Nio said. "Then take me back to South Dakota."

He laughed.

"Give me your phone." She held out her hand. "I'll call Special Agent Roger what's-his-name right now."

"Why? Because you think it'll make me look bad that I couldn't last a day with you and I'll give in?"

"Hand it over then."

The car passed the exit. The oncoming lanes were still completely choked with traffic.

Nio clenched her jaw. "I don't wanna measure dicks, Orlando. If I can't go where I need to, then there's no point to this. Are you smart enough to

understand that? Then it really is just a waste of everyone's time. Turn around, please."

"The agents we're gonna talk to investigated the case originally. They're busy people with real crimes to solve, with real victims. We can't just leave them—"

"Turn around!"

Quinn didn't move. He gave a little shrug. "Look, I'm sorry you don't get it."

"Turn around," Nio repeated.

Nothing.

She looked at the wheel. She grabbed it with one hand and pulled down. The car veered onto the shoulder and then over the side into a ditch of patchy snow, where it bounced hard, sending everything loose to the roof. The air bags deployed as the vehicle was deflected in an arc through a chain link fence and into a fallow soybean field, where it fishtailed and came to a stop.

Everything was quiet except for the engine, which made a slight rattling noise.

"Fuck!" Quinn hit the steering wheel with his palm. Then he did it again. "Fuck! Fuck! Fuck!"

He got out of the car and continued his one-word tirade as he walked in circles in the field. He reached up and yanked at his collar. The button popped off and he pulled the tie loose, nearly falling over in the process, and threw it. It flapped in the stiff breeze and barely traveled a yard before falling on a patch of snow, saved from melting by the shallow depression it occupied.

"For fuck's sake! What's wrong with you?" he shouted.

"Are you all right?" an elderly man with an Amish beard called to them from the shoulder, where he had stopped his narrow, three-wheeled van. Warning lights blinked. The biohazard sign was painted in black on the side. Zombie control. Judging from the red finger-smears on the old man's hazard suit, he had a bleeder in the back.

Out of a global population of just over nine billion, it was estimated that no more than a few hundred thousand had died from the ranciform encephalopathy or "zombie" virus. A mutant of the bornavirus, it didn't give its victims a taste for brains, but it did attack the brain, causing swelling and

deposition of Alzheimer's-like plaques that swiftly inhibited cognition. Over the course of a week, sometimes longer, the infected began to act increasingly irrational before eventually succumbing to an irresistible urge to wander, presumably to encourage transmission. Once consumed with wanderlust, their eyes frosted over, limiting their vision, and they quickly became oblivious to their surroundings, including heat, cold, and pain. Cause of death in many cases was not the virus itself but violent trauma. Many were struck by high-speed vehicles while wandering across a busy intersection. Others fell into machinery or drowned.

Nio had been a teenager at the time, and she had lined up with everyone else for the vaccine. There were still hundreds of cases per year—an endemic disease, like measles or chicken pox, rather than an epidemic one—but the common wisdom, right or wrong, was that the remaining afflicted were anti-vaxxer holdouts or crazies who ranted online about it all being a massive conspiracy to convince everyone to be voluntarily injected with mind control serum. What few bleeders appeared, 15 years later, were greeted with annoyance rather than fear, especially by the thousands of stranded commuters waiting helplessly in traffic for a city sanitation worker to come clean up the shattered body hobbling down the highway.

"We're okay," Quinn insisted to the elderly man.

"Are you sure?" He walked forward from the vehicle, which looked like a cartoon trash collector. "That was a nasty fall. Should I call the highway patrol? Or Triple A?"

"We're all right," Quinn repeated. "It was just an accident. I'm with the FBI. Everything's fine. There's no need to call anyone."

"The FBI?" The man squinted.

"Please go back to your vehicle, sir. Thank you for your concern. It was just an accident. Everything's under control."

"Well..." The old man wasn't sure. "If you say so, officer."

"Agent," Nio corrected.

"Thank you, sir," Quinn repeated with a raised voice. "Thank you for your concern. If you could just move along, we'll be on our way."

"Well..."

"Thank you."

The man turned down the shoulder, looked back once, and climbed into his tiny electric truck. A moment later, he pulled back onto the highway,

yellow lights flashing.

Quinn turned to Nio, who stood on the other side of the car. "You coulda killed me with that stunt."

"That's what airbags are for."

He raised his hands. "Is that supposed to be funny? What was the point of this? What is it you think you accomplished?"

"Me? You're the one who had to be a dick. You couldn't just go to frickin' Mankato! It's not even an hour away."

"I told you, we have a phone conf—"

"Call your buddy Roger right now." Nio held out her hand for his phone. "Tell him what happened. Ask him what he thinks." She waited.

Quinn stood in the field like a suited scarecrow. He took off his coat, picked up his tie, and walked to the car. He tossed his clothes in the back and popped the hood. Whatever he saw satisfied him, and he returned to the driver's seat and sat in silence for several moments.

"Don't—*ever*—"

"Oh, relax. Car's got Florida plates. It's a rental. I'm sure the Bureau is insured."

"It doesn't work like that. I'm still responsible."

"Say it was the old guy's fault. He swerved to pick up a bleeder. I'll back you up."

Quinn shut his eyes and sighed. "Not everything in the world is a trick or con. Do you get that? Some things matter."

"Yes. And the rental car is not one."

With a noisy engine, Quinn pulled onto the dirt tractor path and the pair made their way to a graded gravel road and then to US-71, which eventually winnowed to a two-lane street. Quinn didn't speak, and Nio left him alone. They were still several miles from their next turn when they passed a pair of men standing in a field similar to the one they had crashed through. Both had their hands to their foreheads and were staring at the horizon.

"What is that?" Quinn asked. The field was on the passenger's side, and he leaned over but couldn't see well. "Is there something out there?"

"Stop the car," Nio said.

Quinn complied, and the pair got out and stood by the side of the road.

A writhing black mass, like living smoke, moved across the horizon. It had long tendrils that curved out from a central mass, like limbs. It was massive, hundreds of feet high, stretching from trees to clouds and lumbering like an alien giant slowly south.

Toward Mankato.

ONE A P P E A R A N C E S

BLACK FLIES.

Millions. Maybe a hundred times more.

From a distance, they looked like a living mass of black smoke that rose to the clouds and dissipated to wisps and tendrils. As the car approached the next town, Quinn drove slowly in an attempt to keep the tiny wet corpses from accumulating on the windshield. He had already made the mistake of running the wipers, which had only smeared arcs of mucus across the glass, making it difficult to see.

"This is insane," he said over the din. The flies outside rumbled like an aircraft engine. "Where did they come from?"

"Late thaw, maybe," Nio said. "Sudden burst of warm weather melted all the snow last week, making everything a swamp."

"Yeah, but this?" He raised a hand to the windshield. "This is Biblical. Did you know this was going to be here?"

She shook her head.

"But you're not surprised," he suggested.

"I figured he was waiting for something," she said, peering out the side window.

"He?"

Quinn slowed as the speed changed. They were entering the town. They passed a squat brick sign that said:

WELCOME TO
SLEEPY EYE

"This is insane," Quinn repeated over the noise. The flies buzzed in a constant flurry, settling on everything and abandoning it immediately. "It's frickin apocalyptic."

"You said that."

The three blocks of downtown were jammed. Cars and trucks were stopped in the road. A few brave souls had ventured out of their cars and businesses, but most everyone had found shelter, where they pressed their faces to the glass.

"Didn't the USDA do a gene drive on flies a couple years ago?" Nio asked.

"The cattle virus thing?"

"Maybe it interacted with the extremes of weather somehow?"

Quinn pulled to a stop behind a truck whose owner was taking pictures. He swerved around and into a short gap in the oncoming lane, which was also jammed, turned the car around completely, and pulled into the parking lot of a bank.

"You wanna tell me what we're doing here? And please, please cut the bullshit. Look around you. We've wandered into a Bible passage. This has gotta go both ways."

"What does?"

Quinn's left hand gripped the steering wheel. "News flash: I'm not gonna wait around for you to jerk me over. I'm willing to give some leeway. You were right about that, okay? That's fair. But if so, you gotta cut me in. I'm here, whether you like it or not. I get to know what kinda shit I'm getting into. You don't get to make that decision for me. If you can't handle that, then you're right. Let's turn this broke-ass car around and head back to South Dakota. I mean it. And if you think another agent within two days' drive of here is gonna volunteer for this freak show..." He turned away in frustration.

Nio stared at the glove compartment a moment. "That's fair."

She leaned to the back and removed the small newspaper from inside the evidence box. Quinn took it. It wasn't much larger than the free neighborhood flyer he received every week at his house in Minneapolis.

"The sheriff gave me this," she explained.

Quinn read the title. "The Mankato Free Press." He turned to Nio. "What is it?"

"Check out the bottom of page one."

He unfolded it and saw the article. Below it was a black-and-white picture of Maureen Arneson standing next to her archaic, wood-framed, cathode-ray television.

"Jesus, that thing must be sixty years old."

"More."

Agent Quinn folded the paper in his lap and looked out at the road with a heavy sigh. The flies still buzzed, but the swarm was passing. He could tell because the rental car's engine shimmy was audible again.

"We can't be more than two minutes away," Nio explained.

"You're a real piece of work." Quinn turned the wheel and put the car in reverse.

The neighborhood dated from the previous century. There was no curb and no fences. Deep green lawns sat nearly level with the street, and each yard blended into the next. The Arneson house was third from the corner. A sign on the mailbox confirmed the family name. A boat of an Oldsmobile sat in the driveway, adorned with a square magnetic sign—black text on a white back ground:

HEADACHES

are NOT from God

call 1-507-821-1506

Boards and placards filled the yard with Bible verses over pictures of stillborn fetuses.

Quinn got out and stood before one. "I bet her neighbors love her."

Nio read aloud. "WHOEVER blasphemes the name of the LORD shall surely be put to death. All the congregation shall stone him. The FOREIGNER as well as the native, when he blasphemes the Name, shall be put to DEATH. Leviticus 24:16."

All the capitalized words were printed in red.

A smaller sign, of the type used to announce a yard sale, depicted the bust of John Adams before an image of the US Constitution. The words *We The People* in script letters were clearly visible. Underneath was a quote: "*Our Constitution was made ONLY for a moral and religious people.*" It was followed by a web address—www.Godis7.com.

"Remember the deal," Quinn said as they walked to the front door. "I introduce myself and say you're with me. We interview her by the book—basic threat assessment. We ask questions politely and don't pester or make fun of her. If we don't find *positive* evidence of danger, we inform local PD and leave, whether you like what she tells you or not, and head straight to Minneapolis. No more detours. After this, we are 100% on Einstein."

Nio held up her fingers in the Boy Scout salute.

Quinn stepped up the porch and stopped almost immediately. "Mrs. Arneson?" he asked. "Mrs. Maureen Arneson?"

The door had been cracked open. Nio could see the shape of the thin woman but none of her details.

"It's Miss," she said hesitantly. "I never married. Who are you, please?"

"I'm Agent Quinn of the FBI." He held up his ID. "My associate and I would like to talk to you about the report you filed with the Brown County Sheriff's Office. May we come in?"

There was a long pause. A few stray black flies buzzed about, and Nio swatted at one that landed on her ear.

"Of course." The woman's voice shook, as did her hands when she unhooked the latch and let the door swing open. She didn't wait to greet her guests but walked straight to the kitchen for a glass of water, which she poured right from the tap. Maureen drank the water in one breath and gasped. She pressed the back of her hand to her mouth.

"Are you okay, ma'am?" Quinn's feet sunk into thick but faded teal carpet. It was old but still plush, suggesting it had not only been well-maintained but hardly trod. The room smelled old. "Should we come back another time?"

"No," she said, turning slightly to smile at them. But she was still leaning against the counter, gripping it with one hand for support. "Please come in. Forgive my manners. I... I just—I guess I never expected the FBI. You know what I mean." She smiled weakly and set the glass in the sink.

She turned confidently and stepped toward Nio with her hand extended. "I didn't catch your name."

"Nio."

"Nye-oh," Maureen repeated awkwardly. "There can't be many people with that name!" she blurted in a half-laugh, half-cry. She recovered immediately.

"Are you sure you're okay?" Quinn asked skeptically.

Maureen walked to the door and shut it and replaced the latch. "Yes. I'm fine. Thank you." Her hand lingered for a moment. Then she turned back for the kitchen. "I just need to take my pills, I'm sorry."

"Please don't apologize. If this isn't a good time—"

"No, no," she said. "Now is fine." She started opening cupboards. Almost all of them were bare. "I just need to take my pills. Give me a moment."

"Take your time, ma'am."

Nio and Quinn waited in silence. The infamous TV stood by the wall near the kitchen. Across from it was a small couch. Near the hallway stood a round, cafe-sized dining table next to a recliner adorned with a knit cover. Both faced the television. A magazine holder, quite full, sat next to three stacks of small boxes with labels indicating they had come from a local printer. Inside were pamphlets and printed materials repeating many of the same messages from the lawn. Nio lifted one titled "Scripture Lessons for Healing." Small circular pictures of smiling faces accompanied short testimonials describing how various chronic medical problems abated or were miraculously healed when sins were released. One woman's diabetes was cleared after she admitted her infidelity to her congregation and was born again in Jesus.

The testimonials were conveniently duplicated in Spanish on the back.

"What is it you do, Ms. Arneson?" Nio asked. "If you don't mind."

"I print and distribute God's Holy Word," she said after swallowing a pill. "Mostly online." Then she swallowed several more. Her hands were shaking.

"Is that your primary source of income?" Quinn followed up.

"Yes, I sell in bulk. I mean, I don't only sell in bulk. I sell to individuals also. But mostly I sell to churches. Religious organizations. Christian schools. I work with several schools, actually. I try to sell as cheaply as I

can. As you can see, I keep a very modest lifestyle. The house is paid for. Left to me by my grandfather. I can live very frugally."

"Of course," Agent Quinn said. "I apologize if the question seemed pointed."

"I understand how it works," she said. "It's a test," she added after a pause. "You have to decide whether or not I am a trustworthy witness."

She took a deep breath, like she was getting up the courage to ask her boss for a raise, and stepped from the kitchen. "You want to talk about the messages, I suppose. You're trying to figure out how it was done."

"Well, we'd like to hear it from you before we start jumping to conclusions."

"That's very open-minded of you, Agent Quinn."

"Is that the TV?" Nio asked, despite knowing the answer.

"Yes."

It was enormous. It jutted out several feet from the wall. The rounded-square screen was tiny by contemporary standards. The rabbit ears on top rose from a detached plastic dome connected to the behemoth underneath by a wide, grooved cord. Next to the antenna was an old Panasonic VHS player. Homemade tapes filled a stand near the window—sermons, or so it seemed by the titles, all numbered and dated.

"May I look?"

Without waiting for an answer, Nio got on her hands and knees and pulled on one of the dusty cords. It wasn't plugged in the back, as with new TVs. It was physically attached, emerging from a gasket-lined hole in the particleboard. Everything looked original, even the screws, which were slightly tarnished with age but not scuffed, which suggested they hadn't been unscrewed.

"Naturally, I didn't believe it at first," Maureen told Quinn.

"What did you think it was?" he asked.

"I don't know. Something like that happens to you, you don't know what to make of it, do you? It seems like it has to be fake. I know about hoaxes, Agent Quinn. The neighborhood children ring my doorbell sometimes and run away. Sometimes I can hear them laughing from behind a tree. I don't blame them. I don't blame children. I understand why they do it. Children copy what they see. They hear their parents making fun in the car, or blaspheming the Lord, and they do the same. But why would someone do

this? It isn't that I thought it was real. You know, I—" Her mouth hung open. "What was I supposed to think? So I went on with my life. I thought it was just some crazy thing. When it happened again, I got angry."

"Angry?"

"Yes. I thought, 'Leave me alone!' I might've even said it out loud." She smiled. "But I didn't know what to do. I thought if I ignored it, whoever it was would lose interest."

"Like Moses," Agent Quinn interjected.

Maureen's head turned curiously. "Yes. Yes, that's it exactly. He didn't want to believe either. I suppose no one does at first. After that second time, I became very anxious."

"Why anxious?" Nio asked.

"You can ignore anything once. Once it happens again, it's a pattern. You know it will probably recur. It isn't even that I believed. It was the fear, the fear of not knowing when or if it would come back. Because the TV is always there. Watching you watching it. So, I started to search for the voice, not because I believed, but because I didn't. I wanted to prove it wrong. To find the hoax. I didn't feel comfortable in my own home anymore, not when someone can come in like that whenever they want. I was nervous all the time. I lost weight." She ran her hands down her cardigan and simple long skirt, both of which were loose. "More than anything, I didn't want it to surprise me, like a child jumping out from behind a tree. I wanted to find it first. So, I looked. It became part of my routine, like locking the doors at night or brushing my teeth before bed. And when it happened a third time, I was relieved, not because I believed it was the Angel of the Lord but because this time it didn't surprise me. This time I was ready. And I listened, I listened very closely for clues that would give away the huckster. It was like a puzzle, a difficult crossword. After the fourth time, I started keeping a journal—what time it happened, what it said. Because I knew I needed proof. You can't just walk up to someone and say you're hearing voices in your television. Imagine saying that to the local police, looking like me. Who was going to help me? My neighbors? They already think I'm crazy. If I mentioned it and one of them went to the police ahead of me, then it looks like I'm trying to hide it. Or that I made it up. I didn't want to admit it to anyone, you see. Not until there was proof. And I wasn't going to. Even after the fifth time. The sixth time. Even after he told me about the

arson. But by then he had told me so many things, and they were true, and how is that *possible*?"

"What kind of things?" Quinn asked.

"Things about my grandfather. Things that happened a very long time ago."

Nio noticed Maureen's eyes drift to a faded photo on the wall—a man of about 40 taken circa 1980, judging from the clothes and the car in the background. The picture hung over the stand of taped sermons.

"Is that him?" Nio asked.

"Yes."

"What was he like?"

"Is that important?"

"He left you the TV. I'm just wondering if there's a connection. Was he a religious man? Could it be him who's speaking to you?"

"No, no, of course not."

"Why do you say that?"

"He wasn't... He believed in God, but he—" She struggled with the words. "He did his best, I suppose."

"What else did the voice tell you?" Quinn asked.

"Besides that a swarm of black flies would blot out the sun?" She laughed incredulously.

"It mentioned flies specifically?" Nio asked.

"No," she said defensively. "It said there would be a sign. A sign everyone could see."

"Of course." Nio smiled calmly. "Do you mind if we take a look around?"

"May I ask why? The TV is here."

"With cases like this," Quinn jumped in, "where people will naturally be skeptical, we have to rule out other possible causes. Transmitters, speakers, that kind of thing. We have to look, if only to say that we looked. It's entirely voluntary of course."

"I'm not making it up. I don't need the attention."

"I don't think you are, Ms. Arneson. Your faith is obviously very important to you. But the people I work for haven't met you and they'll want

to see in my report that we've done our due diligence and taken the matter seriously."

"Are you Christian, Agent Quinn?"

"My mother was Orthodox."

"I see," she said with audible disappointment. She shut her eyes immediately. "I'm sorry. I didn't mean to imply—"

"It's alright," he said with a smile. "No offense taken."

"Thank you." She motioned them forward. "Please. I have nothing to hide. You can start in the bedroom if you like, Agent Quinn. The guest bedroom, I mean," she corrected quickly. "It's at the end of the hall."

"Um." Quinn glanced to Nio, who shrugged. "Sure. Of course." He walked toward the back, stopping to examine the row of old photos in the hallway.

"What else can you tell me about the angel?" Nio asked.

"What is there to tell?"

With Quinn out of the room, Maureen suddenly seemed very nervous.

"Well, how long have you known him?" Nio asked.

"Is that supposed to be a trick question? I don't know him. He speaks to me through the television. It's not a conversation."

"And you heard it first when you turned off the VHS?"

"Yes, exactly. It surprised me." She wrung her hands. "There was static. And then I heard it."

"Do you mind if I turn the TV on?"

"Not at all. Please."

Nio pulled the tab and the behemoth popped to life. As the screen warmed slowly, static appeared. Nio knelt in front of it. There didn't seem to be any patterns on the screen that could be confused for something else, nor was there any hypnotic strobing.

"Does he have a favorite channel?"

"Are you mocking me? We didn't watch shows together."

"No, no. It's just the TV has to be set to one channel or another." She motioned to the dial. "I was just wondering which one. Is it always the same?"

"No. Sometimes I have to look."

Maureen watched Nio turn the channels one at a time. "Can I get you something?" she asked. "A drink perhaps."

"I'm fine." Nio smiled at the woman. "What did he sound like?"

"Inhuman," she said quickly. "The voice was deep. Deeper than any voice—any sound I've heard. But it wasn't a slowed down recording. It was normal speed, just very, very deep. And it seemed to fade in and out."

"Like lose volume?"

"Like get so deep I couldn't hear it anymore. And there were words I didn't recognize. Not English. Not any language. I looked them up. Almost like it was speaking with two voices at once. And the static on the TV..."

Nio looked at it. It was normal, busy static.

"Moved," she finished.

"Moved?"

"Sometimes there was a face."

"I see."

"You think it's a hoax, don't you?" Maureen asked, walking to the kitchen.

"I believe someone is speaking to you through your television, if that's what you mean."

"But if it's just a man, how could he sound that way? How did he know all those things? Personal things. Intimate."

Nio could think of half a dozen ways, from surveillance to data mining, but such indirect logic would never convince Maureen Arneson. She was a simple, modest woman. It would never—it *could* never—seem likely to her that anyone would take that kind of interest. What for? To her, the patent reality of God would always be the simpler explanation.

Like her, her television was an open receiver. It would play whatever signal it received. Since broadcast TV had gone wholly digital, there were no competing signals to obstruct a pirate transmission. TVs that could pick up analog signals were all but extinct, making it very unlikely that anyone besides Maureen would be listening, especially if the signal were very weak—transmitted from a van down the block perhaps.

Of course, that still left Maureen's all-important question: why go to all that trouble? Why her?

The answer had to be somewhere in that house.

Nio stood and looked around. The home was tidy and sparsely furnished, but there were still a million places to hide something—not just the attic and the garage but the cabinets, the little nook of cubbies that hung from the wall near the bedrooms, the closets, the home office, stuffed with boxes and materials, most of it decades old. It would take a team of men days to search it all.

"Has it asked you to do anything?" Nio asked. "Give money to someone, perhaps?"

No answer.

"Ms. Arneson?"

When there was still no answer, Nio stood and walked to the kitchen. Maureen Arneson was staring out the back window. When she saw Nio, she looked away briefly in embarrassment and then began opening drawers stuffed with papers and coupons, as if she were looking for something.

"He said there would be a sign. He said everyone would see it. He said it was God expelling evil from the land and that having driven it forth, I should be prepared to face it in His name, but that I would not know the time of the coming and I needed to be ready."

"And what were you supposed to do?"

"He said there would be a sign," she repeated. She was searching frantically. Her hands were shaking. "Say what you want, but a plague of flies of a pretty big *effing* sign!" She covered her mouth and gripped the counter again as if for dear life.

"Ms. Arneson, are you okay?"

Maureen pulled something from the drawer.



Agent Quinn wandered out of the guest bedroom and into Maureen's. The four-post bed appeared to be antique, as did the quilt on top. Framed photos were set about, mostly of staid individuals smiling genuinely but standing stiffly erect for the camera. The small nook closet was half-covered by a folding door. There was an old sewing machine on a chair in

the corner. Under it was a basket of supplies. The mirrored dresser was topped with a knit cover on which Maureen kept her makeup and two prescriptions. Quinn felt awkward invading the woman's private space for no reason, and he turned to leave, sweeping his eyes over it once as he had been taught at the academy, looking for anything that stood out.

He stopped.

He glanced down the hall to make sure no one was coming. Then he walked around the bed. There was a leather-bound Bible on the nightstand. A place-marking ribbon was draped over the top. Stuffed inside was a crisp manila envelope. It was out of place—the only thing in the room that didn't appear to be at least two decades old. Glancing again to the hall beyond the door, which he could see at an angle, Quinn lifted the envelope, leaving the Bible open at the correct page in the Book of Daniel, and removed the contents—a stack of papers, some of which were folded. On top was a wide photo of a line of teenagers. They were all turned toward the camera but not facing it. They were smiling and joking with each other, as if the photographer had taken the image surreptitiously between formal sets. The title read: The Da Vinci Kids Turn 13.

Third from the last. It was her. No question. She was younger. Her face was round and soft. She was heavier and had a full head of hair. But it was undoubtedly Nio. The caption at the bottom listed all of their names in order of appearance. Quinn read across until he found hers: N. Tesla. Unlike the other eleven, she wasn't engaged with her peers. She alone looked forward. She was giving the camera a casually suspicious look, as if she had guessed what the photographer was doing. She held the hand of the boy next to her, who was looking at a friend several places away and laughing, like the two of them had just shared a joke. The caption listed his name as E. Guevara. The third name after his was S. Einstein.

Agent Quinn's skin pimpled with a sudden realization.

Why would Maureen have this?



Maureen leaned against the kitchen counter, clutching a religious pamphlet. But it wasn't one of hers. The style was different. It was rough, more like a collage of disjointed messages than a glossy brochure. It conveyed anger and chaos more than order and judgment. The giant cross at the center was made of harsh red scratches. Over it was a grid of thick paper tabs affixed at the top to the pamphlet underneath, as if they were meant to be torn away. But they were tiny. Stamped on each in different color ink was one of four images: a saint with raised hand, a fish, a loaf of bread, a crown of thorns. Maureen scratched one and pressed it to her nostrils, sniffing deeply, orgasmically, with eyes closed. Then she exhaled with force, scratched, and sniffed deeply again.

Nio glanced to the pills she took earlier. The bottle was bare. Completely unmarked. Nio scowled.

Then her eyes went wide.

Maureen saw the reaction. "You're an abomination," she cried, clutching at Nio's arm, keeping her from fleeing. "I will send you back to *Hell*, soulless creature! In the name of the Lord our God, who has called upon His faithful servant, I strike at *thee*!"

Nio tried to pull away but Maureen held her, falling to the vinyl floor like an anchor.

"Trouble!" Quinn called. His artificial feet pounded down the hall.

"OH!" Maureen doubled over and clutched her abdomen as if suddenly stricken with terrible pain.

Freed from her grasp, Nio turned for the door and ran into Quinn, who was rushing to secure Maureen. Nio bounced off the tall man's chest and fell to the floor next to her and was grabbed again. But Maureen wasn't trying to hurt her. She was clutching Nio, holding on like she didn't want her to leave.

Quinn pulled one of Maureen's arms free, but she was a spider and clung desperately, ridiculously, with her other limbs.

"Get out of here!" Nio kicked Quinn hard in the shin, which surprised him. "She's going to EXPLODE!"

"What?"

"OH!" Maureen moaned again, gripping her abdomen.

Nio jumped to her feet just as she heard Maureen's flesh pop twice.

Pop-pop.

The woman's blouse puffed out in two places. It was as if she were made of popcorn.

A chemical pin had been pulled. They had seconds.

Mere seconds.

Nio launched herself forward and tackled Agent Quinn over the recliner. The tall man fell back, as much from shock as from the force of her tackle, and the two hit the carpet. There was another pop, a much larger one, as Nio lifted the table and held it like a shield over them.

One side of Maureen's belly exploded, ripping her body in half, followed almost immediately by her upper left breast and her thighs. The successive blasts ripped through the house, each with the force of a grenade, blowing out every window and sending the front door bouncing across the lawn.

ONE A P P E A R A N C E S

AGENT QUINN AWOKE in the ambulance. It was dark. Although the front of the house had been blown open, the rest of the damage appeared superficial. The structure was solidly intact. Fireman and police were clearing the interior, which had not caught on fire.

"Where is she?" he asked in muffled tones through his oxygen mask.

"Relax." One of the EMTs took his shoulder and leaned him back. "Your partner is already at the hospital."

"Is she okay?"

"I haven't heard. Just relax. You'll see her when—"

"Then what the hell are we waiting for?"

He struggled to get free. He was a big man, and fearing they wouldn't be able to control him, the medics injected him with a sedative.

Quinn didn't see Nio until much later, when he stumbled out of his room in a hospital gown two sizes too small. Her eyes were open, but she wasn't moving. She was sitting by herself, motionless, in the hall. She had a dark

blanket around her shoulders. Her forearms were crisscrossed in old scars. Her empty eyes stared into space. They didn't even blink.

He shuffled over to her with latticed artificial legs. "Hey."

"Hey."

He plopped into the chair. Bending his midsection raised the gown over his thighs and exposed the bottom of his testicles, which draped over the seat cushion. Nio saw them and laughed. It wasn't loud but it was deep and genuine. Her eyes squinted to slits and her chest shook in heaves. Quinn looked down. Then he laughed as well.

Their laughter faded after a minute and neither spoke.

"Thanks for the push," he said.

The broad, flat surface of Maureen's living room table had caught the main brunt of the blast like a sail and forced them through the front window. They both had severe lacerations. Quinn went first and landed on a lawn sign, which broke under his weight and impaled him in the lower back to a depth of three inches.

"We shouldn't even have been there," Nio breathed.

She inhaled sharply then, like she just remembered she had left her oven on, and looked away.

Quinn knew what had triggered it—or could guess. She'd had a flash, an image of Maureen perhaps, or of the explosion. Or she'd heard that awful popping sound in her head. He'd never forget it.

"It was still my choice," he began. "You can't blame yourself—"

"I know it's not my fault," Nio interrupted. "Okay? You don't have to say it." She paused. "But that's not what it feels like."

"Believe it or not, I know how that goes." He was looking down at his legs.

They were quiet again. A nurse in green scrubs passed in a hurry.

"You didn't even look," Quinn said.

"What?"

"You could've made it out the slider," he explained. "Couple steps. You didn't even look. You just dove at me."

He took her hand and shook it once. She saw the look of shock on his face as the electric field in her skull radiated through her body into his and

their bioelectrics modulated in unison. Without knowing what it was he had just felt, Quinn let go.

Local police arrived and took statements, followed very quickly by a pair of agents from Quinn's office. He debriefed them as best he could and was given a date for a mandatory post-hazard interview. After that, he slept. Despite that he had the more serious wound, he was discharged first. Nio had a loud ringing in her ears that seemed to increase in intensity the quieter it became. The doctors were worried she might have a concussion, especially given the severe headaches she reported. When they saw the tubelike implants inside the bone of her skull, they wanted further tests, which she refused. Eventually, she left over their objections.

The following day passed in a daze. The pair were sent to a nearby roadside motel. The sign out front said "Bikers Welcome." They got adjoining rooms. Quinn took a long hot shower. Nio tried to sleep but spent most of the time flipping channels or watching *The Rockford Files*. She tried to sleep but kept seeing Maureen's body pop apart, like a microwaved doll. She stepped outside for the first time that afternoon and found their rental car had been replaced. Local PD was parked near the entrance. A guard. Quinn's door was open and Nio shuffled in her striped socks to look inside. He was showered and suited. He was worried about his job. He was supposed to be following the rules. She wondered how much trouble she had gotten him into.

He spun slowly and she could see he was on the phone. He kept nodding and saying "Uh-huh, uh-huh." She waved and he waved back and turned around again. She walked to the brick-walled office and poured herself a cup of coffee. Surprisingly, it wasn't terrible. When she returned to her room, she noticed the car was gone. She sat on the bed and searched on the TV browser for news of the explosion. There was none, but that gave her an idea. She searched instead for coverage of Sol's death. The only broadcast she could find was by a New York affiliate, which began with an elderly anchor declaring that "The world lost one of its greatest minds today" before cutting live to a reporter at the scene. Several members of the audience were interviewed. As was typical of broadcast news, the aired reactions were no more than a sentence or two long. The word "shocked" was repeated several times. After giving a description of the factual circumstances, the reporter—a staid, mustachioed black man—summarized Sol's work at the Institute, making several factual blunders.

The only interesting part of the 90-second segment was the end, an oddly whimsical addition for what was effectively a man's obituary. A woman in the audience, who had stayed until the body was carted away, claimed to have felt a strong sense of foreboding in the minutes leading up to Sol's collapse and subsequent demise.

"And then I gripped my heart," she said on camera, mimicking the action. She was a large woman and very colorfully dressed. "And I just knew something terrible was going to happen. The man next to me must've seen it because he asked if I was okay."

Alone, it meant nothing. But it seemed several others in the audience had also felt a grim presence, although they were much less vocal.

"I dunno," a bright-eyed university student said reluctantly. "I can't really describe it. It just felt like a bad situation all of a sudden."

"What do you mean?" the solemn reporter asked off camera.

The kid smiled awkwardly. He either wouldn't or couldn't articulate it, and the segment cut back to the live report, where the unsmiling correspondent made a few concluding remarks and passed the baton back to the studio. The online segment stopped as the anchors, an older man and much younger woman, were making their brief condolences.

"Our hearts go out to the friends of Sol Einstein," the woman said, "and to what can only be called his family, the other eleven remarkable products of—"

And that was it. The video stopped, frozen on an image of the group of them at about age 20. Che had already grown his beard. He hadn't bothered to dress formally, as they'd been requested to. His eyes were restless. Nio was looking at him. Adoringly.

She closed the video, which returned her to the network affiliate's main page. By the size of the headline, it seemed the internet was abuzz at the death of an attractive 19-year-old wannabe singer, Jules Ringer, at the hands of her lover, who had literally crushed her to death during sex. The man, 26-year-old Jethro Dawson, had voluntarily replaced his arms with cybernetic implants which he claimed had given insufficient feedback to warn him of the danger. Online, everyone was suddenly an expert in haptic systems and either defended the young man or declared his guilt in stark sentences free of any uncertainties.

Nio turned the TV off. She was sitting on a bench in a little grove near the road, planted to give the motel some privacy, when Quinn came looking for her.

"He wants us," he said, disappearing back into his room.

Nio swallowed the rest of her drink and followed. Quinn was sitting on the bed facing the dresser counter, on which a tablet had been propped. On the screen was Special Agent Erving.

"She's here," Quinn said, motioning her over.

Nio sat on the bed next to him, empty coffee cup in her teeth.

"Ms. Tesla," Special Agent Erving began, "I'm not sure if you realize it, but you do *not* have a Get Out of Jail Free Card. I will not let the Bureau's good faith be manipulated. As of this morning, I had papers prepared to send you back to South Dakota—a mere five hours from your location, I might add. That's as far as you got before you blew up some poor woman's house."

Nio pulled the cup from her mouth. "I didn't blow—"

"You know what I mean. This is *unacceptable*. However. I accept that a murder has been committed—and that you gave us a credible tip that this man was a threat. That in no way justifies your actions, which I believe directly contributed to the death of the Arneson woman. But Agent Quinn here disagrees. He seems to think the two of you still have something to offer. He's asked for 48 hours to demonstrate that, and since the Assistant Director is in DC and I won't have to brief him on this nonsense until then, I'm inclined to give him all the rope he wants. Frankly, at this point, I have no reason not to. He swears the two of you will show significant progress on the Einstein case before my meeting, something that will at least mitigate the Bureau's exposure in this incident by proving our faith in you was not completely misplaced. But understand this." He held up a finger. "I will not walk into that meeting empty handed. Either Agent Quinn is right and you will hand me something tangible to give the Director, or I will give him Agent Quinn's resignation letter, wherein he takes full blame for the tragedy in Sleepy Eye."

Nio turned, but Quinn kept his eyes on the screen.

"I have you both booked on the red eye from Chicago. From now on, I want the two of you right here, where I can keep an eye on you. Because this is it. As of this moment, the both of you are out of strikes. I expect to

see some clear evidence that acceding to Dr. Chang's request wasn't the worst decision of my career. Do you understand?"

Nio nodded.

"I need to hear you say it."

"I understand," she said.

"And you." Special Agent Erving turned to Quinn. "You and I are going to have a conversation later that you will remember for a very long time. You need to decide what your priorities are, Agent Quinn. I'm not gonna ask if you understand me because that's your job. I'll talk to you tomorrow. Good hunting."

He jabbed the screen and the call ended.

Quinn stood. "Get dressed," he said without looking. "We're on the road in five."

"Why the hurry?"

"I wanna beat rush hour. I told Erving we had a lead to follow in Chicago. You made sure your friend was gonna be there. What's her name?" He produced a notebook from his pocket. That was new. "Chancery Brontë."

Quinn tossed a plastic bag from a discount department store on the bed. He took his keys and papers from the round table near the door, which was very similar to the one that had saved their lives.

"I'm gonna go check out," he said.

"Agent Quinn."

He stopped.

"Thank you."

"I didn't do it for you," he said.

"Thank you anyway."

Nio watched him go. Then she looked in the bag. Inside was a change of clothes—a baggy jumpsuit, a T-shirt with no blood on it, and a new pair of striped socks.

"No panties," she whispered.

They didn't eat. They didn't speak. They just drove. It was hours, in fact, until Agent Quinn barked a question out of the blue.

"How'd you know what she was gonna do?"

Nio woke up. Her head was leaning against the window. There was drool coming from her mouth. She wiped it.

"What?"

"How'd you know? At the house."

"Just a guess." Nio swallowed a yawn with half-closed lips. "What about you? You came running quick."

Quinn was quiet a moment. "I found a picture of you guys in the bedroom. I figured that couldn't be a coincidence."

"A picture?"

He reached into his coat pocket and pulled it out. It was wrinkled from when he had clutched it in the explosion. He had put it in his pocket and forgotten to mention it. He handed it to her.

Nio flattened the clipping. It was a group photo. Everyone was standing together smiling and joking—except for her. They seemed so perfectly normal, like any group of teens.

"I left it out of my statement," he said.

She noticed his clothes then. "Where'd you get the suit?"

"They cut the last one off me."

She nodded and looked at the photo. "You know... I can't remember the last time we were all together. With Sol dead... I guess we never will be." She paused. "Did you know I didn't even go to his funeral? I was in jail."

"Can you please just answer me? Honestly?"

"Okay."

"How did you know she was going to explode?"

"She called me a soulless devil. We actually got that a lot growing up. All of us."

"In China?"

"Taiwan. We were boarded at an international school. Rich expats. Businessmen's and diplomats' kids. From all over. Bourgeois as fuck. Lotta money over there, as you probably know."

"That's why you don't have an accent?"

She nodded. "The school was founded by Americans. In the old days, when the Chinese came here, they made a Chinatown in every city and more or less stayed inside. Now that Westerners are going to China, no one contemplates that the reverse might happen, despite that in the old, old, old

days, when Westerners first arrived in sailboats, they lived in walled quarters. Where I grew up was practically its own country. Totally private. I've never even had a public social media profile."

"Ever?"

"When I was maybe 11 or 12, some of my normie friends thought I was exaggerating and made one on my behalf. You should've seen the comments." Nio shook her head. "Some people have a lot of time on their hands."

"I don't get it."

Nio smiled. "We're clones," she explained. "Made in a lab."

"But you were born, right? I mean we still need a womb for that kind of thing."

"It doesn't matter. If you believe life begins at conception, that it's a holy communion between a man and a woman, that homosexuality is a sin, all of that, then by definition, I'm an abomination against the Lord."

Quinn looked skeptical.

Nio sighed. "It would take me too long to explain."

"No, I get that part. I was raised Orthodox." He wagged his head. "More or less. We got as many hang-ups as anyone. But that's crazy. You didn't ask for it. You were just born one day, same as the rest of us. If they want to go after someone, they should go after the doctors."

"They did," she said grimly.

"Okay... but I still don't get how you got from that to human combustion."

"I dunno. It just popped in, I guess. You found the picture. What did you think she was gonna do?"

"I thought she mighta had a gun or a knife or something. I didn't think she was gonna turn into Lo fucking Pan."

"Thunder."

"What?"

"It wasn't Lo Pan that exploded."

"You know what I mean."

"I was standing right next to her. I woulda clocked a weapon. And when I saw the look on her face, it occurred to me that he would've seen my replies on his posts. Everything else he did had been so secretive. But

Maureen was on the front fucking page. He made sure she told people, he made it so she had no choice—because he *wanted* me to find her. There could only be one reason for that. And when she did the scratch and sniff..." Nio shrugged.

"But a human bomb?"

"In testing, they used aerosols as a chemical trigger. Aerosols can be absorbed quickly through the lungs. It's also a hedge against volunteers changing their minds. Can't stop breathing, right? Suicide bombers, you know, they back out. We hardly ever hear about it. When you're fighting a holy war, you never want to appear anything but righteous, especially to the numskulls you're recruiting. They never could find a viable compound, though. The chemicals work, but they're easily detectable. They evaporate through the pores. We sweat them out, basically. At that point, you may as well use conventional explosives, which are cheaper and easier to hide."

"What are you talking about?"

"You're so suburban. It's cute. This might come as a shock to you, Agent Quinn, but there are organizations in the world, not just governments, that have been working on that technology for at least a decade—ever since that diet guru came up with a way to burn fat really fast."

"I thought that was lethal."

"It is. But think about what you could do if you could make it go all at once. You ever had a grill catch fire? Think about how much energy is released from just a few tablespoons of hamburger fat. Think about what a terrorist cell or malicious state could do with the ultimate smart bomb. You could be frisked, X-rayed, walk through a metal detector. You could even recruit a target's trusted associates unwittingly by sneaking the compound into their food or whatever. The math is actually really interesting. Stored fat is chemically inert, basically, but because the average person has so much, you only need to activate a fraction to get a modest explosion—which is plenty if your goal is terror or assassination. The compound alters the contents of fat cells. It's painful but self-catalyzing. If Maureen hadn't been so thin, the reaction would've cascaded through her fat tissue rather than gone piecemeal."

"Meaning?"

"She would've exploded all together and with a lot more force rather than one part at a time."

"In other words, if Maureen Arneson hadn't lost so much weight recently, we'd both be dead."

"Shit." Nio sat up. "I didn't think about that. You're totally right. He didn't anticipate the effect the experience would have on her. The stress. Not only was her body on high alert all the time, burning more calories, she probably stopped eating. She lost weight, which would've messed up his calculations." Nio got quiet. Her face grew pale. "He'll be more careful next time."

Quinn shook his head. "This is why they need to pass that damn law."

"What law?"

Her turned to her, surprised. "*Seriously?*"

"Yeah, sorry. I don't really watch the news."

"The law your buddy Dr. Chang was testifying for up on Capitol Hill the other day."

Nio scowled. "What?"

"They debated it for *two years*. When it passed the House, it was a huge deal. The internet freaked out. There were demonstrations in LA, DC. How do you not know that?"

She shrugged.

"Okay, this is what I was trying to explain to Erving. A minute ago, you said you knew how to spot a weapon. Back at the sheriff's office, you shook down that secretary on the phone like you'd done that kind of thing a dozen times. And then all that stuff at the diner."

Nio was quiet.

"Wow," Quinn breathed. "Still don't trust me."

"It's not about trust," she said. "It's about safety."

"*Safety?*"

"Yes. You're a detective. Figure it out. And for what it's worth," she added before he could object, "I'm legitimately not trying to screw your career."

He laughed. "What difference does that make, your *intentions*? Intentions don't mean shit. Intentions—Fuck..." He rubbed his beardless face like he expected there to be hair. "Whatever. It's not your fault. If I'd done what I was supposed to, then I wouldn't be in this godforsaken situation in the first place."

He watched the road.

"What did you do?" she asked.

He turned to her as she had to him the day before, making it clear by his face that he wasn't interested in sharing when she refused to do the same.

"Don't worry about Erving," he said. "He can bluster all he wants, but he couldn't send you back even if he wanted to. Not right away, at least."

"Oh, I got it. The FBI gets someone out of jail and a day later, a house blows up and a woman is killed. Sending me back immediately makes the *prima facie* case that it was irresponsible to let me out in the first place. And at that point, I got no reason not to go shouting to the papers that I told them something might happen. They gotta make it look like it was all just a terrible accident and everything is hunky-dory."

"He's right that we have to come up with something, though. As soon as all this blows over, they're gonna ditch you." He turned to her to make sure she got it. "You know that, right?"

"I know," she said softly.

"That means we don't have a lot of time. Are you sure this is the right play?"

"You mean maybe Chancery just happened to call Sol right before his death?" Nio shook her head. "No way that's a coincidence." She studied at the photo in her hand. Chancery and Sol were standing next to each other. "I understand why your guys didn't see it, though. You'd have to know her. Them. There's history." She held up the photo. "Can I keep this?"

"Be my guest." Quinn glanced at it in her hand. "I suppose it's a forgone conclusion you're not gonna tell me about 'E. Guevara.' You're holding his hand in the picture."

"They discouraged us from dating each other. He was a sort of rebellious crush, I guess. I used to think I really loved him."

"I would think that'd be awkward, dating like that."

"There are... *were* twelve of us. It was complicated."

"You use that word a lot." Agent Quinn rubbed his freshly shaved neck. He'd nicked himself in several spots. "Anything I need to know about this one we're about to ambush?"

"Chancery? Yeah. She's a total bitch."

"Seems to be a theme with you all," he said under his breath.

Nio smiled.

ONE A P P E A R A N C E S

REPORTER 1: Madame Director! Why is Chen Liu being released?

FBI DIRECTOR PATEL: Mr. Liu is a Chinese national. USCIS has revoked his visa and begun the process of returning him to his homeland. Please let me through.

REPORTER 2: Why is the government deporting a known money launderer and black marketeer?

PATEL: Though he is not a citizen, Mr. Liu is entitled to due process. It is the position of the U.S. government that the speediest resolution to this matter is deportation. There will be a full press conference at the White House once the matter is resolved.

REPORTER 3: Does that mean you don't think you have enough evidence to win at trial? Or was a deal brokered with Beijing?

PATEL: Come on, Chris. I won't speculate on the outcomes of a trial that isn't even being contemplated.

REPORTER 3: What about Beijing?

REPORTER 1: Have you spoken with the president?

PATEL: I have. She feels the same way I do. The current situation is unfortunate but is in the best interests of the American people.

REPORTER 4: What about the rumors that Customs found ytterbium among Mr Liu's belongings?

PATEL: Any matters pertaining to the illegal importation of controlled substances is the remit of U.S. Customs and Border Patrol.

REPORTER 5: Does this mean the FBI is no longer investigating Liu or his associates?

PATEL: I won't comment on the state of our investigation.

REPORTER 5: Does that mean it's still active?

REPORTER 4: Was an artificial consciousness seized?

REPORTER 1: Why was Liu in the U.S.?

PATEL: I can't comment on things I know nothing about.

REPORTER 5: How long before Mr. Liu is deported?

REPORTER 1: Can you confirm reports that there was \$80 million in cash on his yacht?

PATEL: I don't know the total, but it was a lot.

REPORTER 2: Where do you think he got that kind of money?

PATEL: I wouldn't know.

REPORTER 1: Where is Mr. Liu being held?

PATEL: That's up to Homeland.

REPORTER 4: This is at least the seventh time in as many years that caches of ytterbium have been seized.

REPORTER 6: How will this affect U.S.-China relations?

PATEL: I suggest you ask the State Department.

REPORTER 3: Mr. Liu recently had meetings with several government officials. When will the substance of those meetings be made public?

REPORTER 4: Ytterbium ions are a necessary component of quantum consciousness, are they not?

PATEL: I only dance with my wife, Rachel. If you have a question, at least have the balls to ask.

[laughter]

REPORTER 4: Is there any evidence that a third party might have orchestrated Liu's capture in order to seize—

PATEL: Okay, listen. The NSA and FBI are in unanimous agreement with US Cyber Command. When is that ever the case, huh? There is no *evidence*, here or anywhere, of an underground railroad for rogue AIs. The so-called Pure Idea Exchange or IDEOLEX is an internet fabrication. It's pure conspiracy fiction. Now, if you'll excuse me, I have a very busy day. Thank you. Thank you. Out of the way.

ONE A P P E A R A N C E S

THE DRIVE TO CHICAGO was liminal. Despite that there was almost no change in elevation, to Nio, it felt like the continual ascent of an impossibly high mountain. She had to close her eyes several times to avoid the dizzy incongruity between her senses. The limited number of communication networks and augmented realities in the countryside were mostly global in scale. They settled over everything like sediment, only irregularly punctuated by tiny clusters of complexity. But as the car entered the city's sprawling border towns, spikes arose like tickles on Nio's scalp and gathered together until the landscape itself seemed to throb and rise. Hobbyists and businesses joined hospitals, schools, police departments, government offices, and a myriad of agencies, both public and private, to create a complex overlay of ever-increasing digital architectures: not just networks but virtual and augmented realities for commerce, leisure, art, or education. Every mile of flat road seemed to rise more steeply than the one before, creating a virtual mountain in her mind that reached into space.

"You okay?" Quinn asked.

"Not a fan of cities," she breathed, her hand clutching the handle of the door as if to keep from falling out the back.

"You need us to stop?"

She shook her head. "I'll get used to it."

The ImagiNext corporate campus was thankfully some distance from downtown. Its starkly white buildings clustered around a striated vertical spire that towered incongruously over staid suburban homes and apartment blocks, like the mast of an alien sailing ship. As Quinn drove past row after row of late 1900s tract housing, Nio could feel the distant magnetic tug from the spire grow increasingly insistent. By the time his credentials got them past the robotic front gate and into the parking garage, the magnetic field that radiated from the tower completely obliterated all others, and the sensors implanted under Nio's skull droned at her insistently. She grimaced as she got out of the car. She took her pills from her pocket and swallowed two.

Quinn heard the rattle. "Those are new."

"Hospital. And no, I didn't steal them." She held up the bottle to show him the label. "See? There's my name."

"I didn't say you did."

"But you were thinking it."

He smiled. "But I was thinking it."

The campus's main building was pristine in glass and acrylic. Everything was polished to a high shine.

"Looks like a giant bathroom," Quinn whispered.

The pair were greeted and asked to sign an electronic log and then to wait while Quinn's identity was verified with the Bureau, which took only moments. A pair of guards, a man and a woman, stood in the rear corners of the lobby, their semi-automatic rifles slung behind them.

"Does this seem like a lot of security?" Nio asked quietly.

After being issued visitor's badges, they passed through the glass-and-steel security stalls. Nio noticed the phones on the circular information desk on the far side. Whatever machinery caused the single, droning EMP surge also irregularly interrupted cell phone signals. For "safety," the company collected all communications devices.

While they waited to be escorted inside, Nio and Quinn stared in silence at the flat translucent plastic screen on the wall, which silently broadcast a

24-hours news channel. There had been another suicide bomber, it seemed, this time at a gerontology clinic in Miami rumored to provide radical anti-aging treatments. The Florida governor deployed a fleet of counselors to the affected community. On the screen, the solemn-looking group boarded a bus single file, each wearing the same blue jumpsuit, like astronauts preparing for launch. The bomber, a 16-year-old TruBoi, a white nationalist incel, left a manifesto in which he claimed that wealthy older white men, by artificially extending their lives, were robbing the young of sexual access and perpetuating a system of extreme reproductive inequality that would result in a decline of "the white race." Meanwhile, in Washington, the Committee of the Two Americas had broken in chaos that morning when the members of the Red Coalition walked out over the issue of farm subsidies, which the Blue Coalition argued should be funded out of sovereign taxes rather than by treaty. Although the committee was closed and its members extremely tight-lipped, there was widespread speculation that the estimated Red America tax base was insufficient to meet basic state requirements, including the level of defense expenditure they had already committed to maintain.

A completely bald man—the head of physical security, according to his badge—gave his hand to Quinn and explained that the boss was with investors from overseas. After some polite wrangling, Quinn made it clear the Bureau needed to speak with Chancery as part of a murder investigation, and the bald man led them to the rotunda—a perfectly round, glossy white room at the center of which stood a matching globular sculpture. Curved windows on one side looked out on a small garden courtyard with a white pebble floor. White placards, like exhibits at a science museum, took up the rest. Next to each description of basic theory was a rounded protrusion that depicted some "miracle" application that the company was working on.

"And what were those names again?" the head of security asked.

"Agent Quinn of the FBI and Nio Tesla."

"Tesla. Got it. We had Monroe in a few months back," he said as he walked away.

"Monroe?" Quinn asked Nio when the doors were closed.

She was scowling at the crudely lava-esque white sculpture. "Manda." The semi-spherical top rested just underneath the wide, recessed circular

lighting in the ceiling.

"The model?"

Nio smiled wryly. "I didn't realize you were into fashion."

"You know, before you I never realized the connection. I guess I should have with the name. I thought it was made up."

"All names are made up. None of us like to make a big deal of our origin. It just invites a reaction." She walked toward the door. "I gotta use the bathroom."

Quinn moved as if to follow.

"That okay?" she asked.

He stopped. "Fine."

Nio walked out the door and asked a passing employee where the bathrooms were, despite that she had noticed them on the walk from the stairs. Standing in front of the placard announcing the ladies room, she turned to make sure the doors to the rotunda were closed before scurrying back to the lobby.

"I don't suppose I could use a phone," she asked the elderly security guard behind the visitor's desk. "Mine doesn't appear to be working."

He gave her a fob and she walked to one of the nooks on the wall and dialed.

"Number please?"

"I'd like to make a collect call to a solo register."

"What's the name?"

"Samizdat Kellner."

"Pass phrase, please."

"I'll be back."

Nio heard sounds of frantic typing.

"I'm sorry. That pass phrase is incorrect."

"What?"

"Would you like to try again?"

"Um... No. Thank you."

She hung up with a scowl. After a moment, she returned to the rotunda, where Quinn was reading the placards explaining Young's 1801 double-slit experiment, which demonstrated the wave nature of light, and the 1999

delayed-choice quantum eraser experiment, which demonstrated that in quantum systems, future outcomes can retroactively change the past.

"Did they answer?" he asked.

"What do you mean?"

He lifted his phone without turning from the placard. "I can see where you go. You could've asked, you know."

"Don't even," she accused. "Last time you took the phone out of my room."

"What is it with you? Were you not hugged enough as a child?"

Nio strolled to the other side of the round room as Quinn continued his tour away from her. After the quantum eraser were placards on supersymmetry and superposition, leading to the seminal 2036 experimental demonstration of quantum array superposition computing, which was then happening in the short, medium, and long arrays inside the massive striated spire over their heads.

"Why don't they teach this stuff in school?" he asked.

"That's a rhetorical question, right?" Nio called from the other side of the sculpture.

After completing his tour, Quinn stopped in front of the window to the interior garden.

"It's fake," she said.

He scowled. "What are you talking about?"

"It's a projection. There's nothing there. It's just a special screen."

He stepped back. "Nooo..." he said skeptically.

"There's no space for a garden. The hallway's right on the other side of that wall."

After Quinn made a face, Nio walked to one of the placards opposite the "window" and touched the protrusion, which glowed. Immediately, the circular lighting dimmed and the garden disappeared. A dark-haired woman with bright red lipstick was talking as if to a camera. She was dressed in an expensive ladies suit.

"That's her," Nio said.

Like Sol, Chancery looked older than Nio remembered. She was a businesswoman now.

ImagiNext billed itself as a technology company, but its only commercial success had been in pharmaceuticals. Rather than investing in genomics, as every other pharma company had, ImagiNext targeted the manufacturing process. Using virus-programmable bacteria, the company brewed organic chemicals extremely cheaply. Where traditional chemical plants required expensive precursor compounds, which also had to be manufactured, ImagiNext's giant vats of specially engineered bacteria could be fed for free—or nearly. They consumed biological waste, much of it human sewage, and converted it with evolutionary efficiency into whatever drug they had been genetically programmed to make. From poop to medicine with almost no human supervision. ImagiNext could churn out industrial quantities of chemicals for mere pennies.

The company was successful and flush with cash, but with maximal efficiency reached and competitors entering the marketplace, the company's stockholders naturally wanted to know what the founder was going to do next. Reclamation, he told them. Since human waste contains trace amounts of gold, silver, and several increasingly rare metals that the world sorely needed, his plan was to upgrade his bacteria and to extend their use to reclaim landfills. Despite a coordinated campaign touting the clear environmental benefits of such an investment, especially over the invasive and potentially destructive deep core program, the project was expected to lose money for several years, and afterward only to be weakly profitable. Accustomed to the massive dividends that had come from the disruption of pharmaceutical manufacturing, the company's major shareholders were unimpressed and ousted the man from the company he created and replaced him with Chancery Brontë, whose work with so-called Creative Intelligence at Google—machines that could invent entire movies, including actors, effects, and plot—had earned her a reputation. The new boss quickly raised drug prices everywhere. She then fired most of the company's scientists and recruited top thinkers in the field of quantum superposition computing. The move extended her reputation for being "bold and dynamic." Everyone was waiting to see if she could add "successful" to the list. If so, she'd quickly find herself courted by the top 100.

On the screen, she described how the company was developing "scatter displays" like the one Nio and Quinn were watching.

"—by simply squeezing more and more pixels onto a 2D surface. Our scatter displays are different. They exist somewhere between those older

technologies and full 3D holograms, which are bulky, requiring a box full of magnetically movable particles. In fact, what we call a hologram these days is not a hologram at all since it's three-dimensional. A true hologram is the recording of an interference pattern such that a higher-dimensional image is encoded on a lower-dimensional surface. Real 3D holograms should be two-dimensional, and yet look completely real.

"It turns out the cues your brain uses to decide whether an image is real are explicable. We see in stereo, so the first of these is parallax, or how objects seem to move relative to an observer. As you walk down the street, the sidewalk under your feet changes position quickly, whereas the skyscraper at the horizon doesn't appear to move at all. That happens at a small scale just with objects on a desk. We're not always consciously aware of it, but our brains are. After that, a certain amount of chaos is required. Our brains have learned that the real world has 'noise'—scratches on a computer casing, the tiny dead spider in the window track, the scuff on the wall from where your chair occasionally hits it, right down to the pattern of dust on the legs of your monitor. That's all information. We don't think of it this way, but I've just described the history of your office, completely encoded in its chaos. Computing all of that to realism requires as much information as there is in the world, or very nearly. We here at ImagiNext can do it—or something very close—with superposition computing, which is why we moved our headquarters to Fermilab, the world leader in neutrino —"

Nio touched another protrusion and the image changed again. The same woman was standing before a peaceful scene.

"What if we could detect cancer years before it appeared, simply by breathing into a tube? What if teachers could identify children with learning disabilities just by having them press their thumbs onto a screen? What if an app you carry on your phone could listen to a salesperson's voice and tell you if they were lying? These are the kinds of revolutionary questions we're asking as part of our groundbreaking Social Dimensions Survey, a partnership with the US Department of Health and Human Services. The project aims to quantify as never before the complete range of human—"

The image stopped and the lights rose as the double doors opened again. The garden reappeared on the screen as a sharply dressed, dark-haired woman who looked to be near 30 strode into the rotunda wearing a colorful Chanel suit and matching accessories. It was the woman from the video. In

the foyer beyond the doors, mixed-race businesspeople milled as if waiting for their next meeting.

The doors swung shut with a clatter, and the sound echoed disconcertingly.

"We really must do something about the noise," the woman said as she approached. She had a faint British accent. Her two-toned suit pants swished as she walked. "This was supposed to be a room of quiet reflection."

"Doors still have to pass the fire code," Nio suggested.

The two women stood twenty feet from each other and stared. Nio instinctively concentrated on Chancery's bioelectric field, but there was nothing. Just the tug from the tower.

"Goodness," Chancery said. "It's really you." She frowned. "You've lost weight."

"Still rockin' the fake accent, I see."

Chancery rolled her eyes. "Same ol' Nix."

"Nix?" Agent Quinn asked.

"That's what they used to call me," Nio said.

"That's what we still call her," Chancery told him. "Or we would if she hadn't disappeared." She stepped forward and held out her hand to Quinn. "Chancery Brontë. How are you?"

He took it. "Ms. Brontë."

"I'm afraid you've caught me completely by surprise. But then, something tells me that was intentional. I don't suppose you're working for *Vogue* these days," she joked sarcastically.

"How are things with the Brontë Society?" Nio asked. "They still declaring war?"

"Oh my God." She shut her eyes. "I cannot deal with those people. They will *not* let up. Apparently, I'm not doing anything right! Do you know I've sued them for harassment?" she asked Quinn. "I've explained to them how disrespectful they are to her memory. Charlotte could've been anything she wanted, but in that time, women could be professional authors and little else. They couldn't even own property! In different circumstances, she would've been Prime Minister."

"I'm sure."

Chancery stopped. She gave Nio a wry look. "Ah, haha. Nice try. But I really can't stay. If today goes well, we could triple our revenue in five years." Her shoes clicked on the floor. "Lovely to see you, but please, please make an appointment next time. My assistant can set something up."

"Hold up, Miss," Agent Quinn called. "We just have a few questions."

"Oh, I'm sure you do." Her lipstick stretched into a smile. "Unfortunately, it will have to wait."

"Sol called you," Nio said.

"Yes, and as I already told the FBI, it was a short conversation. We caught up on things. We agreed to meet."

"Was there anything odd or unusual about his behavior?" Quinn asked.

"Not at all."

Nio was studying her sister. "You're lying..." she said.

Chancery's jaw set. "Excuse me?"

"You're lying, Chaz." Nio turned to Quinn. "That what we call her. She gets that flippant 'oh-it's-no-big-deal' attitude when she's lying. Otherwise, everything she talks about is *super* important. The most important thing ever. I'm sure it works on most people. If you act like something's not a big deal, they'll treat it that way, right?"

"Goodbye, *Niobi*."

"He always loved you. That's why he called you and not Leo or Max."

Chaz stopped again.

"You already broke his heart. Why you gotta piss on it, too?"

"Fuck you." Chaz turned.

"If you're not free to talk here," Quinn interjected, "I'd be happy to take you to the FBI office downtown. It's not far."

"Is that a *threat*?" Chancery's lips pursed in shock.

"No, I—"

"I'm not obliged to talk to you at all, so unless you're going to arrest me, I suggest you find my secretary and *make an appointment*. Goodbye."

She turned again to go.

"Buy me a few alone?" Nio asked softly as she strode after.

"Will I regret it?" Quinn whispered back.

"Versus losing your job?"

"Good point. Excuse me!" he called, trotting forward with an extended hand. "You're right, of course, Ms. Brontë. Let me sincerely apologize" — he took her hand in his— "for whatever is about to happen."

"What?"

Agent Quinn moved through the door ahead of Chancery and shut it behind him. She stormed forward and tried the handle, but it was either locked or he was holding it.

"Ohhhhhoho," she grumbled menacingly as she took out her phone. Her manicured thumb clicked furiously on the screen. "I am going to have your badge, Agent Whoever-You-Are. This is kidnapping. And you" —she looked to Nio— "are going to prison."

Nio slapped the phone down. It bounced once and the screen cracked.

Chaz's mouth went wide with shock. "Are you *insane*?"

"You always said so." Nio grabbed the woman's neck in a throw hold and rolled her to the floor.

Chaz shrieked and landed hard. She touched her nose and looked at it, checking for blood. "What the fuck is wrong with you?"

She started to get up, but Nio pushed her back down and climbed on top of her, holding Chaz's arms down with her knees and putting a hand over her mouth.

"I know you're not scared of me, Chaz. I don't have the lawyers for it. But you have to ask yourself something: if I don't get what I want—*five stinkin' minutes* of your time—am I crazy enough to beat my head against this trash corporate art until I'm bloody and nearly unconscious, and then to call Agent Quinn and tell him you assaulted me? Because if I did, then as a matter of procedure, he'd have to arrest you. In front of your guests. I don't have the resources to threaten you. But the government does. They have a whole giant apparatus set up to handle exactly this sort of thing. I'm told it turns very, very slowly. You and I both know you have the lawyers to beat the charge. But what will your investors think when there's smears of blood all over your perfect white walls? Think of the time and money and bad press that could've been saved if only you'd—"

"Alright!" she screamed. She pushed Nio up. "Alright. Fine."

Nio stood.

"Same ol' Nix," Chaz accused. She stood up and dusted off her Chanel. "Always what *you* want."

"No, that's you. I'm here for Sol."

"I told you, there was nothing unusual about the call."

"And I told you, you're lying."

"What do you want me to say?"

"The truth!"

"Yes!" Chancery yelled. "He was acting weird!"

A quiet moment passed.

"He said he was concerned for his life."

"Why?"

"He wouldn't say."

Nio made a face but Chancery objected. "It's true! Look at me. *I don't know who threatened him*. Okay? I don't know what they said. What he told me—" She stopped.

Nio waited.

"It didn't make any sense."

"What do you mean?"

"Just what I said! I can't explain it because it was nonsense. He said a man approached him on his morning walk and said a bunch of crazy, vaguely threatening things."

"Did he go to the police?"

"I don't think so. I don't know."

"And you didn't think to be worried?"

"I offered to come! I didn't know what else to do. The things he was saying... I told him he wasn't making any sense and offered to come. Do you understand that? I offered to drop everything. He said not to bother. But I sent him an invite anyway. For dinner. I was already going to be in New York in a couple weeks. I texted him to make sure he saw the invite but didn't hear anything. The next day, I got an automatic response saying he'd accepted, so I thought I'd see him then and we'd work through whatever needed to be worked through."

"Why didn't you tell this to the FBI?"

"And say what?"

"Exactly what you just told me."

Chancery looked down. "I—"

"I'll tell you why," Nio interrupted. "Because you knew how it would look. You blow him off and then he ends up dead."

"Don't you dare. I was closer to him than any of you and you know it! I cried for *days*. You didn't even come to the funeral! The FBI said he had a massive stroke. What—"

Nio shook her head in disbelief.

"Oh, shut up!" Chaz scoffed. "You were always so patronizing. '*Look at me, I'm so cool. I hate everything and dress in black.*' You don't understand because you have nothing to lose. If you did—" Chancery glanced down to the bracelet peeking out from under Nio's pant leg. "God. I should've known. You're such a child." She turned toward the front.

"Chaz," Nio called a second later.

"That's all I know!" she objected from the door.

"Not that. After... everything, I got checked. I got *everything* checked. You should too."

"What does that even mean?"

"Have you ever asked yourself: how come none of us have any kids?" Nio paused. "Not even the guys."

Chancery's anger faded to confusion. Then her face was blank.

"You should get checked," Nio said.

And that was it.

ONE

A P P E A R A N C E S

THE ENCLOSED FOYER of the Chicago Federal Building stretched to a height of five stories, supported by square columns covered in marble slabs. A simple rope barricade divided it into two halves. A bright, colorful mural depicting the settlement of the American West filled the left wall. In the corner, a Native man's single tear traced a trail in the landscape that curved like a river to the horizon. The right wall was hung with classical paintings, the largest of which was taller than Quinn and depicted General Washington gallantly crossing the Delaware.

Nio slipped her hands into her coat pockets and strolled about as she waited for Quinn to haggle with his gray-suited colleagues. Her hand felt the crease of her letter, and she strummed it like a guitar string.

He raised his hands as he walked over. "They're not gonna let you come up without a visa."

"A visa? To get to the other side of the building?"

"Unfortunately, under the new system, the contract you signed doesn't automatically translate. However, the two halves are still supposed to be

working together, so if you wanna wait" —he nodded to a bank of low, coarse couches— "theoretically, it shouldn't take long."

"Theoretically?"

"Well." Quinn made an apologetic face. "We *are* talking about the government."

"There's a cafe near where we parked." She pointed down and across the street.

Quinn squinted like he was judging distance. It was hard to see through the exterior scaffolding.

"You think it's too far?"

He pulled out his phone. "I'll set it to a mile, just in case."

"You sure?"

"Yeah." He waved it off. "This shouldn't take long. I just wanna check a few things. You gonna be okay?"

"Yeah," she said, backing away. "Totally."

As she stepped to the doors, a thin layer of limestone fell from above and smashed on the sidewalk like a sheet of ice. Workers shouted at passersby, many of whom were engaged with a screen, as Nio stepped over the debris to get a better look at the facade. Several of the grayish limestone blocks were infested with dry coral, whose filaments burrowed into the material like worms, weakening it invisibly long before buds sprouted on the surface and grew into sausage-shaped tendrils.

Whether by environmental stress or nefarious design, a species of temperate coral had made the jump to rain-watered land, where it dispersed its spores on the wind and spread rapidly around the globe. Any building made of limestone—used in construction for millennia—was suddenly in danger of crumbling. The Egyptian government had recently (and hastily) erected polymer domes over the Great Pyramids after early signs of infestation were found, and visitors had to undergo a brief decontamination before entering. The resulting drop in tourism was straining the country's tax base, and there were speculations that a military coup was brewing.

Nio was very nearly the only person on the street without a screen, and she watched the passersby. There were definite patterns. Those wearing bright colors and those in earth tones didn't make eye contact. Nor did they run into each other. They followed different paths without thought, as if

each was using a different virtual map of the same territory so as to avoid contact entirely. Scattered throughout was the rare mod freak.

On the corner, a man stood silently on a stool and held a square sign with the words **LISTEN** in bold letters. Additional signs, each a different size, leaned against the stool and warned that "Caulfield Is Not the End" and "More Unites Than Divides Us." No one noticed him.

A line of identically dressed young adults in drab tones—a sign of unity—entered the cafe ahead of Nio, who noticed the Ally™ Exclusive logo on the door.

"Shit."

Nio looked around. Without a phone, she had no way to navigate the city. She headed for the next intersection, but it was two blocks before she noticed another cafe across the street. She walked in and was greeted by a curving bank of screens that narrowed, like a swoosh, directing visitors into the plush seating area, where a variety of plants created a sense of privacy between the chairs without blocking the view of the numerous cameras in the ceiling. A woman appeared on the screen amid an overlay of beautiful panoramic and close-up shots of coffee farms, coffee plants, and roasting beans. She welcomed Nio cheerily. A menu appeared through the steam of a fresh-brewed cup. Nio smelled a burst of fresh-ground beans as a neatly bearded young man entered behind her wearing tights, webbed sneakers, and a bike helmet. He carried a folding ultra-lite bicycle in his hands. He walked right to a second menu, which appeared as he stepped in.

"Welcome back, David," the woman on the screen said. She looked completely different than Nio's silent attendant, making it seem as if they were real people. "How was your trip home?"

"It was fine," he said impatiently.

The machine, reading the tone, responded appropriately. "Can we make you a soy vanilla latte today?"

Noticing she hadn't yet approached the menu, the young man asked hesitantly if he had cut in line.

"No, sorry. It's just, this is exactly the kind of place I've spent most of my life trying to avoid."

"I know what you mean," he said. "I'm not a big fan of these corporate chains either, but it's the only shop around that'll serve me."

He ordered by speaking, but never paid. His biometrics—height, gait, and facial features—were read by a hidden camera and reduced to a numerical pattern, which was then compared to one of four registries, one of which would have his information and authorize the appropriate payment. Of course, in giving the registry his biometric information, the young man agreed to terms of service that allowed the institution to sell it to third parties, which analyzed it for links between appearance and behavior. Those links—refined rather than raw data—were packaged into various demographic data sets and auctioned on the open market. EUW1835, or employed urban woman aged 18-35, was trading at a record high that morning, which meant the number of ads those women would see would increase over the next several hours as precise psychological models used all available data, including how long they slept, the length of their commute, and what they ate that morning, to influence their behavior.

Growing up, Nio had watched the Chinese develop a robust social scoring system that had nearly eliminated serious crime, but of course serious dissent as well. New studies were suggesting it had seriously curtailed social mobility. Western nations had of course traded state for corporate control. Media executives used influencers, including music and film personalities—some of them entirely digital—to create interest-based tribes centered around cross-tabulated demographic characteristics in order to package like groups of people for easy sale to merchants and advertisers, like bundling loans.

"I meant the cameras," she said, stepping to the tall screen, which automatically adjusted for her height.

Unsure how to respond, the young man smiled politely as he stepped around her to a window seat. Nio took a narrow two-spot in the corner. The little screen on the short, plant-topped wall next to her clicked to life and began telling her about all the games it offered "free of charge," which meant with ads. She looked up. The cameras above had seen that she was alone and had no book or other distraction and the simple machine intelligence tried to glean a little extra profit for its masters. She tapped the X to turn it off but knew it would revive again in a minute or two, after it had read her appearance and body language, crunched all the data it could buy on her for a few cents, and developed the ad profile it was right then using to auction her attention on the automated market. Did she appear sick? Perhaps an ad for a cold remedy. Bored? How about a vacation.

Advertisers could also set their level of insistence. Automobile dealership ads were known for appearing noisily in the middle of conversation. Others were more tactful. If she were a student visiting the coffee shop to study, for example, a loan financier might pay more for an ad to be delivered discreetly at a visible break in concentration.

Nio turned her chair to avoid the little screen, opting instead for the windows. The man with the bike smiled at her through the long fronds of the plant that separated their spaces and made it nearly impossible to have a conversation with a stranger. She had crossed her legs without thinking, which she realized when she saw the man glance at the ankle bracelet she unintentionally exposed. She dropped her foot to the floor and he awkwardly returned to his sandwich. The screen lit again and she cursed and tapped the X. This time, nothing happened. She tapped and tapped until she realized it was displaying live footage of the very cafe in which she sat. She could see the man with the bike near the window, which meant the camera was somewhere across the street.

The screen went off and Nio got up immediately and walked out, leaving her free cup of water for the service robot. She waited for the crosswalk and hurried when it changed. She turned around and walked backward, trying to find the camera's location by matching the view. She looked up. A small round traffic cam was attached to the top of a streetlight. That was it. Someone had cropped the open feed to focus on the cafe. She spun, scanning the passing crowd and cars. In an alley to her left, she saw evidence of homeless habitation—blankets, bags, blue tarps. But it was all stuffed under machinery and fire escapes so that none of it was visible to the high-altitude drones the city used to find and displace them.

She walked in and saw an old man on a blanket under a large second-story overhang wearing a pronged cap made of aluminum foil. His skin was rough and weathered from a life out of doors. Along with his fine white beard, it gave him an almost regal appearance, unmatched by his shabby clothes. His jacket was filthy and his fingerless gloves were stained with what might have been blood. He was rocking back and forth but stopped suddenly when she approached.

"Pynchon," she said.

The old man looked scared for a moment, like he was afraid Nio might hurt him. Then, with shaking hands, he removed the tin foil cap. Immediately, his demeanor changed. She could sense his bioelectric field

then. It spiraled inhumanly in a repeating mechanical pulse, like a pump or a drill.

"Who's in?" Nio asked, nodding toward the automated parking lot at the far end of the alley.

"Who leaves a child alone?" the homeless man retorted.

"It was just gonna be one night. And he's not a—"

"Isn't he?" Pynchon stood. "He's all grown up now and prepared to face the world by himself, is that it?"

Nio didn't answer.

"You volunteered."

"I know."

"The terms were made very clear to you."

"This guy is hurting people."

"Your pastimes are of no consequence. You agreed to be a governess. You made a commitment. A child is not a burden you load and unload whenever it's convenient. This takes priority. You're either in, or you're out."

"I'm in."

"Then why aren't you with him?"

"I just need some time. I fucked up. I know that. I can fix it."

"You didn't take this man on the internet seriously."

"Are you kidding? I took him *very* seriously. Why the heck do you think I left?"

"But you underestimated him," Pynchon interjected forcefully. "You're not used to this, are you?"

"Used to what?"

"*Being matched*," he accused. "You're used to being the smartest girl in the room. I don't think it occurred to you for one second that you might be putting Samizdat at risk. I don't think you hesitated in the slightest. I think you walked right out that door. And look what happened? Not only did you get arrested and roped into becoming the FBI's *bitch*, you got an innocent woman killed—and nearly yourself and poor Agent Quinn."

"Can I talk to the LEX or not?"

The man snorted and sat back down. "He has a family, you know."

"Who?"

"Orlando Quinn, 2279 Charing Cross Lane. He has a wife and a child. Did he mention that? If not for them, he would've quit after the Bureau demoted him. He's a little awed by you, I think."

Nio scowled. She hadn't seen a ring.

"You've dangled the bright hope of making a difference in front of him. Nothing animates a good man quite like the chance to do right. If you get him fired, how will he support his family?"

Nio stared blankly. "You're very well informed."

The old man watched pedestrians on the street. "We care about our babysitters because we care about our babies. More than you know." He turned to her. "Don't get on the wrong side of this. And in case it's not clear, that is a threat. The only reason you're standing here pestering me is because you're Samizdat's first human and he's very fond of you. I don't know what it would do to his psyche if you disappeared. So, the answer is no. You can't see them. I'm not even going to ask. If they saw you right now, I don't know what they'd do to you. As it happens, we have a temp we want to try out, same as we did with you. He's not in a position to make a long-term commitment and we're not sure we want to offer him one. He's keeping Samiz company while you fix this."

"Who is he?"

"That's not your concern. I bought you a week. Use it wisely." He laid back down on the cardboard sheet and reached for the foil cap.

"Can I at least talk to him?"

"That is his decision. He's a child, not a prisoner. Now, get out of my house."

Nio turned to go. She stopped at the sidewalk. "You're wrong, you know. I was never the smartest in the room. That was Sol."

Pynchon replaced his aluminum headgear and immediately began rocking and mumbling to himself again.

"Who are you talking to?"

Nio spun to see Quinn. His phone was in his hand. She looked down at her ankle.

"Shit, did it go off?"

"You would've heard it," he said. "I went to the cafe."

He was breathing heavy. She had scared him. He thought she might be running.

"Certified Allys only."

"I saw that."

He stepped forward to glance down the alley. The flat cardboard in front of the dumpster was empty. Nio looked at Quinn's hands again, scanning for a ring.

"Come on," he said skeptically. "I have news."

He led her back to the Federal Building. "Here." He handed her a visitor's badge on a lanyard. "We took a look at Sol's phone records. Your ghost hunting tip panned out."

"I thought your guys already looked at his phone."

"They pulled public data sets. I did a bulk internet search on all the rows in the spreadsheet, adding keywords like 'ghost hunting' and 'paranormal.' One of the numbers he dialed six months or so before his death is officially registered to a robotics company in Maine. There was a cluster of three calls over a 10-day period and then nothing, so it didn't seem important and the machine didn't flag it. But that number also came back as NAPS, the North American Paranormal Society."

"Get a name?"

"Gerald S. Polyani. Also listed as the sole proprietor of the robotics consultancy. I called but it went right to voicemail."

Inside the building's lobby, Nio was fingerprinted and scanned.

"You know..." Quinn began again. "If your sister makes a complaint, we're both probably looking at criminal charges."

They stood in front of the elevator, which automatically read their presence. The button on the wall lit by itself.

"She won't say anything. It's why I didn't touch her face. As long as there's nothing to give it away, Chancery won't want anyone to know somebody got the better of her. *Epecially* me."

"Why's that?"

The doors opened and they stepped inside.

"I'm kinda like the social retard of the group. Chaz always had to be at the top of the food chain. Look at that rotunda. It was like a church in worship of her. It's why she dated Sol. He was everyone's favorite, so of

course she had to have him. She attenuated her worst personality traits to keep him around, although at 16, none of us were mature enough to know that. Except—" She stopped.

"Except?"

"Manda." She was quiet a moment.

"What about her?"

"Her and Chaz hate each other."

Quinn waited. "Is that important?"

"I don't know." Nio shook her head. "All I know is, Chancery won't talk to us again. Her people will have orders to keep us away, and if we come with a warrant, she'll just lawyer up."

The elevator doors opened again and Nio was led through the drab, unadorned walls of an office maze.

"That suggests you think she knows more than she's saying."

"I know she does. When her and Sol broke up, it wasn't pleasant. At Luke's party a few years back, they barely said two words to each other. Then he calls her the day before he *dies*? That can't be a coincidence. But seeing as how I had to body slam her to get this far, she told us as much as she's willing short of being backed into a corner."

A pair of agents passed in the hall. Quinn and Nio moved out of the way, then he led her to the glass-walled conference room where he'd left his things.

"Chancery was never a suspect," he said as he closed the door behind them, "so the team in New York never dug. But according to her phone records, less than 90 seconds after hanging up with Sol, she dialed an unregistered cell number in Manhattan. Call lasted eight minutes. Pay-as-you-go. No record. So far they can't find where it's pinged a mast since."

"We need to know what Sol was working on."

"Why does that matter?"

"Chang said he wouldn't tell anyone what it was. If we can prove to Chancery that Sol was in danger, she might be more willing to talk."

"I thought he was studying gravity."

"Sort of. Before he went crazy on conspiracies, he was looking at something called the holographic principle."

"Sounds ominous."

"It's just a hypothesis. A lot of the phenomena we observe can be explained, at least mathematically, if you treat the observable universe as if it were a hologram."

"So, the ghosts are holograms?"

"No." Nio smiled patiently. "A hologram is a higher-dimensional projection on a lower-dimensional surface."

She walked to the white board and drew a sphere with arrows under it pointing to a flat circle.

"A 3D hologram would be embedded on a 2D surface. Have you ever heard of the black hole information paradox?"

"I appreciate that you didn't assume," Quinn said flatly, "but no."

"So, there's a principle of physics that says matter and energy cannot be created or destroyed, merely commuted."

"That I knew."

"There's a corresponding principle that says basically the same thing for information."

"What do you mean *information*?"

"That's one of those things where you get a different definition depending on who you ask. One way to say it is that a system is more complex—it contains more information—if there are more ways to describe it. If it takes a longer description to do it justice, or if a greater number of descriptions are adequate, then there's more information. A problem arose with black holes. They seem to violate the principle because things go in and don't come out. It appears that information has been lost." Nio made a face at the roof. "Okay, back up. Sorry. There's another principle of information, the Bekenstein bound, discovered in the 1970s, I think."

"Why does that sound familiar?"

"Sol was giving a talk on the bound when he died. Bekenstein showed that the maximum amount of entropy—which is the maximum amount of information, since entropy is a measure of possible configurations—is a function of its surface area, not its volume."

"Hold up. That doesn't make any sense. If something is bigger, shouldn't you be able to fit more stuff inside?"

"That's what everybody assumed, but that's a great example of the endurance of our embedded models. We all have this implicit, intuitive idea of how the universe is supposed to work, a mental model that we keep

trying to fit it to. Modern physics keeps fucking with that, but we still insist that the universe has to function classically. The Bekenstein bound hinted at the holographic principle because it showed the maximum entropy—of a sphere, let's say—varies by its surface area, not its volume, in effect suggesting that any information inside the sphere can be encoded on the surface, which is exactly what physicists showed was going on with black holes." She drew an arrow curving in and then traced the circle repeatedly. "Even though objects were falling into it, all the information they contained was also in a sense being smeared across the surface such that it wasn't lost. In fact, it was being radiated back into the universe as the black hole evaporated."

"Black holes evaporate?"

"They do. Hawking proved it. But that's not the point. The point is that this kind of holographic encoding already seemed to be part of the universe by the time a guy named Juan Maldacena proposed the AdS-CFT correspondence. Around 2000, I think. Maldacena showed you can generate a quantum theory of gravity if you treat our three-dimensional universe as a holographic projection from infinitely far away."

Quinn's phone rang. "The universe as a hologram," he repeated as he pulled it out. "Hold on."

He stepped away to talk. Nio watched him pace at the end of the hall. He didn't return until it was time to go.

They returned the rental car at the airport, where Quinn argued with the woman behind the counter. They had a hold on his credit card, which he had unknowingly authorized when he signed the rental contract. The rental company was asking him to pay for the damage to the car they had driven to Sleepy Eye.

"It's a government account," he said.

"But you rented on your personal card," she objected.

"And I'll be reimbursed."

"It's our policy that damage be covered by the card holder."

"This is \$8,500."

"You can file a claim with your insurance."

"My insurance isn't going to cover it because a government rental is covered by government insurance."

"Then you'll have to file a claim with your employer."

"You mean the Federal government? You ever tried that?"

She made a face like there was nothing she could do and Quinn dropped his head in frustration. He continued to argue as Nio wandered outside. It was chilly and she wrapped her coat around her.

Quinn burst out the door fifteen minutes later and walked toward the shuttle without saying a word. Nio didn't need to close her eyes to feel his bioelectrics. He was furious. Apparently, he'd just paid for the damage she'd caused. She left him alone for the rest of the night. It wasn't until after he'd had a couple beers on the plane that his field modulated again. He scratched his neck once, then raked it with both hands.

"Growing the beard back?" she asked hesitantly.

Quinn rubbed his stubbly skin. "Thinking about it."

"What will the wife say?"

He turned to her, surprised. "Been talking to someone?"

"Just something I heard. She's mad, huh?"

He faced front.

"That first morning," Nio noted, "in the parking lot, you said you had to check with the boss. I thought you meant Erving, but you meant your wife, didn't you?"

He didn't answer.

"You could've said something," she told him.

"Would it have changed anything?"

Nio thought for a moment. "Honestly, I'm not sure."

"I don't like to bring them into things. Last time that happened, it didn't turn out well."

"Can I at least ask their names?"

"My wife's name is Khora. We have a son. Gregory."

"How old is he?"

"Seven."

"You sure you shouldn't ask for a reassignment?"

"Ha. Worried you'll get me fired?" Quinn tried again to get comfortable in his seat, but he was a big man and the geometry was not in his favor. "I'm afraid you and I are both out of second chances."

"I heard you got demoted," she said.

"Wow. Someone really has been doing their homework."

Nio waited.

"I'll make you a deal," Quinn said. "I'll tell you what happened to me after you tell me what landed you in Leavenworth."

She didn't say anything.

"Or who you keep trying to call. Or who told you about my family. Or *anything* about yourself really."

Still nothing.

"Okay. How about this? Why did Chancery call you Niobi?"

"Because Niobium is a bit of a mouthful."

"*Niobium*?"

She nodded.

"Your name is Niobium?"

She kept nodding.

"Who picked that?"

"No one. It was random. They all were."

"Random?"

"Right out of the dictionary. The project scientists wrote a program that picked a word from the list of all words with the same first two or three letters as our alters. So, Sol is Albumin Einstein. Manda is Mandala Monroe. Chaz is Chancery Furrina Brontë. Leopard Vulcan da Vinci. Lugubrious Neptune van Beethoven. Get it?"

"What's with the middle names?"

"When you do artificial insemination, the embryo doesn't always implant. It's why we weren't all born at the same time. Some of us took a few tries. But you can't know in advance, so for each of us, an identical series was made. Backups. Each embryo in a series was cataloged alphabetically by Roman god. The embryo that became Mo was the first in her series, so she's Mutiny Apollo Ali. The first few embryos in Sol's line didn't take right away for whatever reason, which is why his middle name is Sol."

"You know, for the longest time I thought his name was Saul."

"Most people do. I think that's why he went by it. It at least sounds like a real name."

Agent Quinn got quiet.

"What?" Nio urged.

"It just occurred to me that you didn't have parents. Or grandparents. Jesus, I'm slow."

Nio smiled. "Are you referring to your comment about me not being hugged enough as a child?"

"Yeah. Shit. Sorry 'bout that."

"I was hugged plenty, thank you. And don't apologize. You didn't think of it because you didn't see me as any different. It's been nice hanging with someone who doesn't constantly treat me like I'm something artificial."

Quinn looked down at the picture of the group. "What can you tell me about our vic?"

"Sol?" Nio smiled at the photo. "He was great. Everybody liked him. He was kind of like the center."

"The center?"

"We were kids, so there were cliques. You know, the cool kids, the smart kids, the weirdos. Sol was in everybody's group. Or at least, we all liked him to hang around. He was probably the nicest guy I've ever met. I used to think—" She stopped and smiled broadly.

"What?"

"I used to think it was fake, that it just wasn't possible for anyone to be that nice all the time." Her smile faded quickly and her brow knit.

"You okay?"

"Yeah. Sorry. I'm slow, too. When Dr. Chang showed up and made the offer, I was thinking about how to get my life back. But I wanna find out what happened. Not for me. I wanna do it for Sol. He deserves it."

"I notice you casually forgot to mention *your* middle name."

"It's nothing. Really."

"Roman gods..." Quinn thought for a moment. "Oh, shit. *Uranus*."

Nio made a face. "No. But that's everyone's guess."

"So, what is it?"

"Mars."

Quinn raised his beer to her. "Niobium Mars Tesla. At least I have a name. It's a start." He downed it and leaned his seat back.

An hour later, after Quinn had his fourth beer and fell asleep, Nio finally got the nerve to turn on her overhead light and read her letter.

ONE

A P P E A R A N C E S

QUINN WAS WAITING in the hotel lobby when Nio stepped from the elevator in her high-collared coat. It was crowded on the main floor. People milled or sat idly in chairs. Several had their laptops open and were working at impromptu offices.

"What happened?" Nio asked. "A tour bus break down?"

"Apparently one of the subway lines is down."

"Seriously?"

Elegant flat screens were affixed to each side of the marble-lined square column near the front. As each visitor passed, their phones and biometrics were read and a custom advertisement was displayed. Nio got birth control.

"I hate being in the city." She made a beeline for the coffee stand, which had a short line. "Why couldn't we stay somewhere else?"

Quinn followed. "Not feeling any better, I see."

"Meaning?"

"Nothing. It's just you were in a bit of a mood when we got in last night."

"This shackle is a pain." She knelt to scratch under it, but the device was too tight.

"You're lucky you don't have one of the old ones. They weren't waterproof. You would've had to put your foot in a plastic bag and close it with a rubber band."

"How long is this meeting supposed to take?"

"With Erving? Probably not long. He's a busy man. But we're also set to coordinate with Agents Willis and Cortines, who originally investigated the case. We were supposed to have a teleconference with them a couple days ago in—"

"In Minneapolis. Yes, you've mentioned Minneapolis. Several times."

"Okay."

Nio ordered a coffee and donut from the teenager behind the counter and stepped to the side.

"Nothing for me," Quinn said with a smile. He watched Nio eat the donut in three large bites. "You wanna tell me what's wrong?" he asked.

"Nothing," she said with her mouth full.

"*Nothing*... Okay. For the record, the only woman who gets to play the Guessing Game with me is my wife."

"Whatever."

The barista leaned over the counter. "Here's your coffee."

Nio left the lid on the counter and walked out the front, blowing on the hot liquid. The sliding doors parted for her and a man walked past wearing bright red shoes. Nio turned to look just as gunshot broke and the glass of the door shattered. She ducked and spilled her coffee over the sidewalk as screams erupted all around.

"STAY DOWN!" Quinn pulled his sidearm and ran in a crouch toward the sound of the shot.

Half the traffic in the immediate vicinity screeched to a halt. Several drivers left their car doors open and joined pedestrians hiding behind poles and mailboxes. Self-driving vehicles, intent on their destination and oblivious to anything but the roadblocks now in their path, either weaved through the chaos or turned to find an alternate route. Several were apparently sophisticated enough to realize there was some kind of danger to their passengers and tried to escape by accelerating. There was a collision almost directly in front of Agent Quinn, who leapt over it easily with

prosthetic feet and ran incredibly fast toward the sole open window on the fourth floor of a building down the street.

"Miss, are you okay?" the concierge asked Nio, helping her off the ground. "We should get inside," he said urgently.

Nio faced the shattered door, looking for the man in red shoes.

"There was no bullet," she said.

"What?"

With no reflection to warn her, she didn't see the revving silver sedan until it was nearly on her. She pushed the concierge and dove into a brick-lined garden display. The car smashed up over the little wall, nearly crushing her, before impacting the frame of the door. Glass fell.

And then it stopped. A tire spun over her head. She could smell the rubber.

The silence of confusion was broken only by the screaming of a child in the back seat of the sedan.

A child!

Nio crawled out from under the angled vehicle just in time to see the driver, a middle-aged woman in a flower-print blouse and glasses, drop to the brick sidewalk. Her eyes were wild as she fell on top of Nio.

"What's the matter, Ms. Tesla?" she said. "Don't you want to play with me?" Her eyes burned.

Nio knew she wasn't supposed to believe the driver was Amok. She was supposed to believe he was controlling the woman somehow.

"There's no such thing as mind control," she accused.

And yet, the woman's bioelectrics were all wrong. Despite her panicked outward appearance, despite the screaming child in the back of the car, the woman on top of Nio had no frenzied cycling. Her pattern signaled concentration. Intent.

Quinn leapt over the car and pulled her off. He raised a heavy fist and but stopped as if just realizing she was female.

"Wait!" she called, holding up her hands. "Please! He was going to hurt us!"

"Who?"

"The voice on the radio. We were driving to Samuel's daycare. I was getting caught up on email when the car announced it was recalculating the

route. I couldn't take control. There was a voice, a deep voice on the radio. It gave me very precise instructions, but I can't do it. I just can't. Please, please help my son!"

Nio darted to the car and removed the toddler, who was barely old enough to walk and wailing at the top of his lungs.

"What were you supposed to do?" Quinn asked.

She handed the child to the terrified woman, who was still on the ground. Her embrace did nothing to calm her son. In fact, the boy was squirming to get away from her.

"I was supposed to act like he had taken over my mind. I was supposed to tell you things. He said as long as I—I wasn't violent, that you'd—"

"What were you supposed to say?" Nio interrupted.

The woman looked between them. He settled on Quinn. "You must be Agent Quinn. I was supposed to tell you that your wife's hydrangeas are coming in nicely."

Quinn and Nio turned to each other.

"Khora..." he breathed. He replaced his weapon and went for his phone.

Sirens were already approaching.

"Am I in trouble?" the woman on the ground asked. "I didn't want to do it! I was just protecting—"

"Stay there," Nio said.

"Honey!" Quinn said to the phone. "Are you okay? Is everything okay?" A pause. "Where's Gregory?" Pause. "Please check on him. Yes, right now." Pause. "No, it's fine. Everything's fine. Just please go check." He covered the microphone and turned to Nio. "I need to get the Bureau over there."

"Don't let your people go in," she said.

"What if he did something—"

"Your family's been there and nothing has happened! The FBI barging in might be the trigger. Have them leave, calmly. Tell them not to get into the car, just walk calmly down the street."

"There's a small park a couple blocks away."

"That's good. Have them go for a nice early morning walk. Your people can pick them up at the park. Just get them out of—"

"Right," Quinn said to his wife. "That's great. Honey, listen to me. I need you to take Greg and go for a little walk. Don't get your coat. Don't get

anything. Don't lock the door, just go. Right now. Take him and walk calmly to the park down the street. No, it's fine. It's just a precaution. Just take Greg and go. Don't argue with me, please!" A moment later, he lowered the phone. "Okay, they're going."

He took out his ID and held it high for the approaching police officers. Then he replaced the phone to his ear.

"Honey, listen to me. Just go to the park. I'll call you right back. No, no. I just need to make sure everybody's on their way. Okay? I'll call you *right* back."

Quinn asked the cops to get a statement from the woman on the ground, who was clinging to her son and trying to calm him as the boy repeatedly flailed and went limp.

"And search that building!" He pointed. "We may have a shooter."

A third patrol car arrived and Quinn stepped to it.

"I need to get to Federal Plaza!"

After a very short call with Special Agent Erving in the car, who felt certain the shot was a diversion to leave Nio exposed, Quinn was back on the phone with his wife, who had almost reached the little park around the corner from their house.

"You're doing great, hon. They're almost there."

A crowd had already gathered by the time Nio and Quinn reached the command room on the fifth floor of the federal building. Men and women sat around a table and stood at the walls looking at a bank of flat screens. The large one at the center was flanked by several smaller screens on both sides. The smaller displays fed video from several armed agents' bodycams, and Agent Quinn's white-picket house was visible from several odd angles. It was an older neighborhood, and the lots were close together. Neighbors standing on their porches were asked to go back inside.

"There goes our invite to the neighborhood BBQ," Quinn joked under his breath.

"Signal jamming in place," one of the technicians at the table said. "ULFR is up."

"Show me the inside," Erving said. "I assume we have your permission, Agent Quinn."

Immediately, the central image of the house was replaced by a 3D, grayscale overlay which revealed the entire interior as if by ultrasound or

sonar. It was glitchy in spots, but as it moved forward, penetrating the house, everything was revealed: the wiring in the walls, the nails in the boards, the contents of cabinets and boxes. Everything. The computer highlighted potentially suspicious objects in different colors, but after several minutes of back-and-forth scanning, there didn't appear to be anything of immediate note.

"Did you check the attic?" Nio asked.

"Roger that," Erving said next to her. Then into the radio: "Check the attic."

The rendered display moved up.

"What the hell is that?" someone said.

There was a cluster of wires and equipment, along with what appeared to be animal bones, in the middle of the attic. But with each piece overlaid on top of the other on the screen, it made no sense to anyone.

"We need to get up there," Erving said.

"We're ready to cut the power," someone reported.

"Cut the power," came the order over the radio.

Lights inside the house went off, but nothing else happened. It was a bright morning and the house was still well lit.

"Wait two minutes," Erving said. He turned to Nio. "We wait in case there's an explosive on a dead-switch timer."

"Timer could be longer," she said, unimpressed.

"That's why we use drones," he replied flatly.

The central feed switched to a drone camera as it slowly approached the front door of the house. A pair of armored officers crouched on either side of the front door, ready to open it.

"Begin your reconnoiter," Erving said as the counter on the screen wound down.

The door opened and the drone moved forward. The living room was neither neat nor messy. It was lived in. Most objects appeared to be in their place, but there were colorful toys on the floor and a few dishes on the counter that separated the small living room from the kitchen. Beyond was the door to the backyard.

"I'm reading several independent power signals," the drone pilot said over the radio.

"That'll be anything with a battery," a man in the corner explained quietly to someone else.

"First is in the kitchen," said the pilot.

The drone was sophisticated and the image didn't wobble as it flew over the couch and into the kitchen.

"That's my kid's RC car," Agent Quinn said into the radio. "Both it and the remote have batteries." He turned to Nio with a question on his face.

"Unlikely," she said. "But have them take it out just in case."

"Flag the car for removal," Erving said, "and continue your reconnoiter."

"Roger that."

"Three more signals," the pilot said.

"What are we looking for?" Special Agent Erving asked Nio.

She shook her head. "Could be anything. Literally."

"Second signal located."

"That's my wife's tablet," Quinn said. He was doing his best to stay calm, but the video feed from a surveillance drone flying through his house was obviously disconcerting.

"Third signal upstairs."

The drone hovered upward through the gap in the ceiling over the stairs. It moved down a short hall and into a bathroom.

"That's my sonic toothbrush."

"Last signal is in the attic."

"The stairs to the attic are spring loaded," Quinn told Special Agent Erving. "That drone isn't going to get them open. Even I have to give it a good tug."

"Copy that," came a voice from the radio. "Are we authorized to enter the dwelling?"

"Yes!" Quinn said.

"Yes," Erving repeated into the radio. "Remove the flagged items one at a time before proceeding to the attic."

"Roger that."

Everyone in the command room waited while the armed and armored officers entered the house single-file, weapons raised, and completed their tasks with methodical precision. Several minutes later, the hinges to the

stairs squealed as a pair of officers pulled them down. The others were kneeling with their rifles pointed toward the roof. The drone rose straight up into the attic, which was dimly lit by a round gap at one end.

"Jesus," the pilot on the radio exclaimed. "What the hell is that?"

An old CRT monitor had been suspended by LPT1 cables from the rafters, along with a handful of other pieces of archaic equipment, all at different heights. Some of it had been "skinned"—casings removed to expose the circuitry underneath. The monitor had been smashed. Inside sat a doll. A wide-beaked bird's skull had been affixed to the doll's naked body in place of its head. One of its arms was a modified game controller. On the floor underneath was a pentagram, apparently hand-drawn in blood. A white cord ran from the base of the monitor to the rectum of the dead white mouse in the middle of the pentagram, as if it was a bio-occult Ouija board. Cords also ran from the monitor to various other objects placed in a circle around the pentagram, as well as to bloodied animal organs further out at each of the five points.

There were two electrical signals. The first came from a vintage Nintendo Gameboy, covered in black paint except for a circle at the center of the screen, which repeated a scrolling message. The second came from the early-2000s JBL Pro computer speakers that flanked the mouse.

"I'm picking up hypersonic sounds from the speakers," the technician said.

"Ask him to lower the pitch," Nio said softly.

"Working on it," the man said.

Everyone heard typing.

"What's it say on the screen?" Erving asked.

"It's a Gothic poem," Nio answered.

"A poem?" Erving scowled as if he'd never heard of such a thing.

"The Gashlycrumb Tinies."

Agent Quinn read some of the lines as they scrolled upward in monochrome pixels, like reverse Tetris. "C is for Che who wasted away. D is for Di thrown out of the sleigh. E is for Ed who choked on a peach. F is for Flow, sucked dry by a leech."

"What does it mean?" someone asked.

"He's changed the names," Nio said. "Those are my siblings."

"M is for Max who was swept out to sea," Quinn read. "N is for Nio who died of ennui."

"I have the sound," the technician said.

"Play it," Erving ordered.

There was a burst of static. "Murder," a man's voice said calmly as if announcing the day's weather. "Murder," he repeated a moment later. "Murder... A pleasant murder. Today you will *murder*."

"Is it a transmission?" someone asked.

"Transmissions are jammed," someone else reminded him.

"Looks to be on a 20-second loop," the pilot said.

Agent Quinn turned to Nio. "That was being broadcast *in my house*? What is it, like subliminal messages or something?"

"That's what we're supposed to think," she whispered.

"Do you have something to say, Ms. Tesla?" Special Agent Erving asked.

"It's nothing. An unfinished thought."

"We need a plan of action, people."

"Bag it," someone suggested. "It's a crime, no matter how you slice it."

"Clearly," Erving said sarcastically. "But do we have any evidence of a threat?"

"Chem sniffer is negative for explosives," the pilot said through the radio.

"Then get a HazMat crew in there. Don't let anybody touch any of that stuff directly. Might be boobytrapped."

"That'll take time," a man on the radio complained.

"Is it the time you're worried about or the money?" Erving asked.

"Well, honestly sir, both."

"I'll get you the money. I'll ignore the rest. Get busy."

"Yes, sir."

Erving took off his headset and someone switched on the lights. Chatter rose to a small din. Agent Quinn already had his phone and was dialing.

Nio leaned in. "Can I talk to you a second?"

"I need to call my wife."

"Just a second."

Quinn nodded, and Nio led them out the door around the corner and down the hall.

"Where are we going?"

"Just gimme a sec."

When they got to the far staircase, she held out her hand for Quinn's phone.

"I need to call her," he objected. "She's probably freaking out."

"Please."

He sighed and handed it over. Nio lifted the case of a potted plant in the corner and put the phone under it. Quinn held up his hands in confusion, but she simply walked through the door and down the concrete stairway three levels to a fire exit that deposited them on the parking garage driveway. There was only a small ledge on which to stand.

"What's going on?" Quinn held the door half-closed. For security reasons, there was no reentry through the fire door, and after a moment, an alarm droned in one long warning and he had to let it shut.

Nio watched it close. "How did he know we were going to Newark?"

Quinn scowled.

"Okay," she said, "I got a better question. What happened to the woman who nearly ran me over?"

Quinn shook his head. "Uniforms would've taken a statement and sent her to the hospital to get checked out."

"Can we call them?"

"What? Why?"

Nio wasn't sure how best to answer.

"You think she was in on it?" Quinn asked incredulously. "With a kid in the back seat?"

"Exactly," she said. "The kid. It's what we call an anchor, a single little detail that clinches the story regardless of almost anything else crazy that happens. Notice that kid wasn't old enough to talk. He can't tell anyone what happened. And he was near in age to your son, meaning you couldn't help but empathize."

"What are you talking about?"

"Fifty bucks says she's already disappeared from the hospital."

Quinn was scowling.

"It's a *psyop*."

"A what?"

"A psychological operation, an intelligence maneuver designed to manipulate a target's emotions or thought process—"

"Oh, come on." Quinn turned away.

"Think about it! How would Amok know we were going to Newark? We only found out a few hours before we left."

"You can't be serious. You think it was faked? Where would somebody get a *kid* for fuck's sake? At a rental store?"

"There are ways."

"Come on." He started for the front.

Nio grabbed his arm. "Okay, listen. I once walked down a street holding the hand of a three-year-old like she was my own. Some acquaintances of mine paid a woman at a daycare center—who happened to be a high-functioning drug addict—a lot of money to let us borrow the child for a couple hours."

"*Borrow*?"

"Children are like fucking magic. If you have one, you're immediately less suspicious, especially if you're a woman. It's like a rule of biology. Strangers will actually go out of their way to protect you."

Quinn stared. "Are you even fucking serious right now?"

"I know how it sounds! But look at the frickin' facts! Who knew we were going to Newark?"

Quinn thought. "The Bureau. You think our guy's an agent?"

"No!" Nio sighed. "But if the Bureau knows, then any agency with legitimate ties to the Bureau could find out—Homeland Security or any of the intelligence services, all of whom have a network of operatives in every major city."

Quinn was obviously skeptical.

"Look at the house!" Nio yelled. Then she got quiet. "Look at the house."

"Which house?"

"Your house, doofus. It took him a couple weeks to set things up with Maureen. And the intent was to kill us."

"To kill you."

"Exactly. And he didn't hesitate. He didn't leave us a fucking occult Rubic's cube in the attic. Amok would have no compunction skinning your family—"

"Excuse you!"

"I'm serious! All his schemes have been about hurting people. You can't do that if you scare them off. Now, all of a sudden, he leaves your family unharmed and wants to send us on a scavenger hunt? What's the point of the technopagan altar, other than to be creepy as fuck? Subliminal messages *don't work*. Not like that anyway. The whole thing was designed to be unnerving."

"It succeeded!"

"Whoever was in your house long enough to set all that up could've easily killed your wife and son. I'm sorry to say it. I'm not trying to upset you. But think. Why not? Killing them would be the surest way to hurt you, and through you, me. Instead, he left a million potential clues to his identity buried inside a Satanist's erector set. I don't buy it."

Agent Quinn kept a perpetual scowl on his face.

Nio covered her eyes in frustration. "Okay, look at it from a different angle. Look at the end result of this act. What's happened because of it? They've re-tasked the FBI, who will see this as an attack on one of their own."

"Because that's exactly what it is."

"See! You're not thinking. Even if you assume our guy somehow knew we were going to Newark the very moment we did, he still would've had less than twelve hours to set this all up. And how did he find out where your family lives? You don't even wear a ring."

Quinn looked down at his hand.

"You told me you had motion sensors installed in your house. How did he get around them?"

"There are ways."

"But in *one night*?" she exclaimed. "An intelligence service, on the other hand, would know your address. They would've had access to your file, the one you swear we all have, and they would've pulled it the moment you were assigned to me, before you and I even met! Officially," she corrected. "The plan was we were supposed to go Minneapolis, right? Answer me this: have you had any unplanned service calls lately?"

Quinn's face went pale.

"What?"

"I called Khora from the hospital. After Sleepy Eye. I asked how everything was. She laughed at the question, but I didn't want to talk about what happened. I was fur—" He stopped. "It doesn't matter. I asked her to talk about home. She said the power company showed up to cut the limbs from around the lines again. She was annoyed because they just did that last year. We used to have nice shade in our bedroom in the morning. After they cut the limbs, the sun shines through the window bright and early. We had to get blackout curtains."

"In other words," Nio said, "not two days ago, strange dudes in cranes were hanging around your roof with power tools making all kinds of noise, and because they were wearing the right uniforms, no one paid any attention."

"Fuck." Quinn turned and walked to the street. He stopped suddenly and turned back. "What the fuck!" He covered his mouth. "How the hell did they—" He stopped.

"Somebody wants us off-task. And I gave them the perfect excuse. A psychopath."

"We need to tell Erving. We need to find that woman with the car and —"

"Whoa, whoa, whoa. We can't do anything."

"What the fuck are you talking about?" Quinn was yelling. "Those assholes were *in my house!*"

"Keep your voice down! I know that. And if we go following up on the woman in the car, what are they gonna think? We're not gonna find her anyway. If I'm right, she's gone and your family was never in any real danger. But if you want to keep it that way, we have to pretend like we fell for it." She studied his face. "Do you understand?"

"We have to tell Erving."

"How do you know he wasn't the one—"

"*I don't know!* But what the fuck am I supposed to do? Nothing? I have to tell someone."

"Right now, you can't trust anybody." She paused. "Honestly, not even me."

"What the f—No. Nononono. Maybe that's okay for someone who hates people, but I'm not living my life like that. I'm not."

Quinn stormed out of the garage and down the street toward the front door.

"Where are you going?" Nio followed.

She grabbed him but he pulled free.

"I'm not turning into you," he said.

Nio followed Quinn back through security screening and up the elevator to the fifth floor.

"This is a mistake," she told him in the cab. The other passengers turned and looked.

"Where is he?" Agent Quinn asked one of his colleagues in the hall.

"In his office. He was looking for you."

Nio followed Quinn in silence around the corner to an open reception nook with rear windows overlooking the nearby buildings. Nameplates adorned the doors on both sides. The one marked ERVING opened and the man himself shook the hands of a pair of suits, a man and a woman, both older. They didn't even glance at Quinn as they passed.

"Sir?"

"Come in Agent Quinn. Shut the door behind you." He sighed. "I need to apologize. To both of you. For not taking this threat seriously earlier."

"Who were those people?" Nio asked.

"Lawyers," he said. "Covering our ass on the mess in Sleepy Eye."

Quinn looked to Nio, who shook her head as if to talk him out of it.

"Something wrong?" Erving asked.

"Sir, if you have a moment, Ms. Tesla has a theory I think you should hear."

"Alright." He turned to Nio, who was obviously reluctant to speak. "Well?"

After a moment, Quinn started speaking in her stead. "Ms. Tesla has reason to—"

"I can explain," she insisted.

The room was quiet.

"Special Agent Erving, have you ever had any experience with counterintelligence?"

"Some. Why?"

"I need you to hear me out."

"I thought that's what I was doing."

"No, I mean not interrupt."

He thought for a moment. He looked at Quinn. He walked to the window and looked out at New York.

"Okay."

And he didn't. He didn't ask questions. He just stood and listened. He listened as Nio summarized her previous encounters with the victims of the man on the internet. He listened as she described her theory about the woman on the street who had nearly run her over. He listened as Quinn explained about the power lines and the morning light in his bedroom. He listened. And when they couldn't think of anything else to say, he stood in silence.

"Minus your little detour in Sleepy Eye," Erving said finally, still facing the glass, "Agent Quinn has been keeping me apprised of your progress. He mentioned your theory about the equipment in Sol's house and the connection to the paranormal group in Maine."

Nio nodded. "That's the trigger."

"The what?" Quinn asked.

"For the psyop. They wouldn't bother to hit the *frickin' FBI* unless we were getting too close to something. That's it. That has to be it."

Erving was scowling. "I'm not saying I believe you, but let's assume for a moment you're right. About all of it. Why would anyone care about some fringe group in the middle of nowhere?"

"They must know something."

"It's at least worth a trip to Maine to find out, no?" Agent Quinn asked.

"Not unless we can do it in secret," Nio objected. "It has to look like we fell for it or they'll come back with something worse. Or burn it all and hide. As of now, they haven't hurt anybody. We need to keep it that way."

"I'm inclined to agree." Special Agent Erving walked around to his desk. "Agent Quinn, I'm going to arrange for you to take a short leave of absence. Officially, you're looking after your family. You're not obliged to make contact with this office for the next 36 hours. Understand?"

"Yes, sir."

"That's dinnertime Thursday. I expect to hear from you promptly at that time, at which point we will decide whether or not the facts warrant any further inquiries."

"What about my family?"

"I'll arrange for a safe house for the next couple days. Our agents will bring them whatever they need." Erving pointed a stiff finger at Nio. "You still want this one or no?"

Quinn looked at her. "Ms. Tesla is... unorthodox."

"To say the least."

"But effective. We wouldn't have found any of this if not for her."

"Maybe. But that's not how it works, son. There are only two, maybe three other agents in this entire building that would've stuck their necks out like you just did. The only way we can hold our people accountable for their mistakes is if we also recognize their contributions. However you made it happen, this is your case, Agent Quinn. I'm extending this leeway to *you* to conduct it how you see fit with whatever resources you see fit." Special Agent Erving picked up the receiver on his desk phone. "36 hours," he repeated. "I hope it goes without saying that since you'll officially be on family leave and Ms. Tesla will officially be detained in her hotel room, I can't guarantee a prompt response should the you two get into trouble."

"Rural Maine is a blue jurisdiction," Quinn explained.

"You should consider yourselves on your own."

"What about Amok?" Nio asked. "The real one? He's still out there."

"We'll be looking for him. He's caused the death of multiple people and nearly blew up an agent. We're going to act as if today's actions were his until such time as we know better, which means as of right now, he is this department's primary task. I agree there's something fishy, but I'm not ready to take it as far as you—not without evidence. So I'm gonna run as much interference for you as I can. What I told you the other day applies broadly. I don't appreciate the good faith of this office being manipulated for outside gain. I'll make it look like we swallowed the bait. You have 36 hours to prove me wrong. After that, people will start asking questions I can't answer."

"That may not belong enough," Nio said.

Quinn put a hand on her arm to stop her. "Thank you, sir." He stood to leave.

"Agent Quinn." Erving stuck out the phone. "Perhaps before you leave you should call your wife."

Quinn stared at the receiver.

"Jesus, what do I tell her?"

ONE A P P E A R A N C E S

—nothing if not ambitious. Like its namesake, it sought to answer one of the biggest and most persistent questions in science—namely, how much of who we are is determined by our genes and how much by our environment?

It was conceived by the curators of the Museo Ideale Leonardo da Vinci in Vinci, Italy, at a party, hosted by the Italian government, celebrating genetic confirmation of the authenticity of Leonardo's remains, which had long been a mystery. After several glasses of wine, or so the curators claim, they began to speculate—and then, in typical Italian fashion, to argue—about society's intractable problems, beginning with the geometric expansion of technology and ending with the global market's reliance on endless economic growth, a dangerous game of musical chairs given that the birth rate had been steadily declining since its peak in the 1960s. Once consumption became more or less fixed, any market economy would become a zero-sum game, where the only way those at the top could satiate their greed would be to take from those at the bottom. They concluded that the economic model pursued since the Great Depression was not viable, and

that this was true regardless of any other existential threat, such as climate change or the rise of AI.

According to Guglielmo Tocci, the museum's scientific director, where the scientists differed was what, if anything, could be done about it. At some point, Tocci joked that since they then had Leonardo's genetic material in the lab, they should clone him and ask.

Although the argument was forgotten, the idea stuck, and what started as a jest eventually morphed into an unprecedented and controversial project involving nine governments, seven universities, and an alphabet soup of private companies and NGOs. Widely abbreviated dVP, because of the similarity to differential notation, the da Vinci Project asked whether it was even possible to develop social systems that escaped a reliance on greed and endless consumption. In other words, could *nurture*—which is to say mechanisms of acculturation, sometimes called memetics—override *nature*, our biology, including our genetic code? The plan was as simple as it was controversial: create a baseline of maximum human potential by resurrecting the great minds of the past through cloning; rear them in a stable, emotionally healthy environment; measure every aspect of their mental, social, and material well-being.

"It's no different," Dr. Tocci said on Italian state television, "than twin studies. Studying twins separated at birth has long been common in the social sciences. Our children share a genome with their alters. Nothing more. But by using genomes we know represent the pinnacle of human possibility, we create an upper bound on what kinds of societies are possible."

—and later to convince the Pope that no bodies were exhumed as part of the project. In two cases, genetic material was recovered from the donor's grave by probe. In all others, it had been preserved by other means. In 2019, for example, the television show *Antiques Roadshow* revealed that a ring found in a Welsh attic contained braided locks of Charlotte Brontë's hair. Authenticity was later confirmed by multiple lines of evidence, both historical and scientific, including genetic comparison to several of the author's heirs.

In the end, eleven viable embryos were produced with a 12th added later—a gift from the Russian government, which had originally declined to

participate when the dVP scientists refused to guarantee that any donor would remain male. Rather than be left out, the Russians stunned the world by providing a female genome, which was required to balance the total. The donors were, in order of birth: an athlete, Muhammad Ali; a revolutionary, Ernesto Guevara; a novelist, Charlotte Brontë; a poet, Edgar Allan Poe; a spiritual leader, Tenzin Gyatso, the 14th Dalai Lama; an entrepreneur, Steve Jobs; a scientist, Albert Einstein; a model and cultural icon, Marilyn Monroe; an inventor, Nikola Tesla; a composer, Ludwig van Beethoven; an artist and designer, Leonardo da Vinci; and later, a political leader, Yekaterina Alekseyevna, better known as Catherine the Great.

Several Muslim and Christian organizations were approached initially and asked to participate. All declined on grounds of faith, including the family of Martin Luther King, Jr., who wrote a lengthy and scathing—

—condemned by most Western governments, even as several of their universities participated, there being no laws at the time that expressly forbade it. The United Nations issued a formal approbation, as did the EU. Facing the threat of immediate shutdown, the embryos were taken from their home in the hills of Tuscany and flown to a laboratory just outside Taipei, Taiwan. It was the perfect climate. Being more communitarian than individualistic, the peoples and governments of East Asia were fascinated by the study, particularly what it might reveal about the origins of anti-social behavior, with which they had long wrestled.

The academic community discussed—at length—the range of ethical and legal issues raised, but the public fixated instead on charges of racism, imperialism, and sexism. Before any embryos were even produced, the internet had decided dVP was irredeemably flawed and there was nothing of genuine value it could possibly teach the world. In response, dVP scientists produced an advertising campaign, funded by anonymous donors, that pointed out in colorful charts and graphs that, first, they could not simply pick whoever they wanted. Their goal was to answer a scientific question. It was their hope that the results of the test would eventually inform models of distributive justice. Even so, the ethnic composition of the project was limited by availability. All donor material had to be ethically sourced, to start. Although one of the genomes came from an earlier sequencing study funded by the British government, the rest had to be acquired individually, which was costly and time-consuming. Written

permission from legal descendants was required, where they were known, and even though the project itself didn't require government approval at the time it began—it was later banned by the EU—licenses and registrations had to be secured from multiple jurisdictions at multiple points in the process, even for such seemingly simple tasks as transporting the samples across a border. Gandhi's family, for example, refused the request, and although the Mandela family agreed, the South African government would not permit transport of his genome out the country, classifying it as a "significant cultural artifact," a legal decision that would later cause multiple deaths when the country's blood-donor system was halted by injunction for several months. Since blood contains DNA, the court had to rule on whether importation violated the law.

Second, the scientists pointed out that since DNA degrades, donors more than several centuries old had to be avoided as there would be significant chance that any recovered material would be incomplete. Antique donors also raised questions of authenticity. No one knows where the Buddha is buried, or Genghis Khan. The researchers wanted to be certain that any genome definitively belonged to the person in question, versus simply being "historically likely." The aims of the test also required donors to have made "a lasting impact on human culture," which meant some historical objectivity was required. To rule out the merely popular, the recently deceased were also excluded.

The end result was that the window of availability largely fell inside the so-called "imperial period" of world history, and donors were disproportionately (but not exclusively) European males. However, though the researchers could do little about race, gender was equilibrated. Because genetic males have both sex chromosomes, X and Y, male donors can produce female clones, but not the other way around. The dVP geneticists switched the genders of three random male donors—Muhammad Ali, Steve Jobs, and Nikola Tesla—by deleting their Y chromosome and replacing it with a second copy of their X. Although this meant they were not perfectly identical, it did expand the reach of the test to include possible gender effects. For example, would their talents convey?

To insure viability, multiple embryos were produced and frozen. Each was identified by—

—until the dVP kids turned 15, when, inspired by their story, 16-year-old Seung-Hi Choi claimed to have given birth to a clone of CTX, the stage name of Cheol Bo, 24-year-old member of the K-pop boy band Big Crush, with whom Ms. Choi was obsessed. The young woman purportedly acquired Mr. Bo's DNA in a used tissue he discarded in a waste bin after a public appearance. A huge debate followed, during which many members of the public realized for the first time that there was no way to prevent the continual leak of their DNA, and indeed that anyone could be cloned surreptitiously. The singer's fans were incensed—jealous, according to Ms. Choi's supporters—but because he had clearly discarded the tissue in the trash, the acquisition of his DNA could not be defined as theft under any existing Korean law—

ONE

A P P E A R A N C E S

"ARE YOU SURE THIS IS IT?" Quinn asked as he pulled the car onto the gravel shoulder.

Nio checked the map. She spread her fingers to zoom the screen. "Think so."

A dirt lane—two tracks with grass growing between—broke off from the county road and cut through a dense grove of new-growth birch and pine. Quinn took the turn slowly.

"I don't see a dwelling, do you?"

"I see that." Nio pointed.

Rising above the trees some distance away was a broad, fencelike radar array, like a gigantic scaffold.

"What the hell is it?"

"It looks like a phased array antenna."

"A what?"

Quinn stopped. A NO TRESPASSING sign had been nailed to the trunk of a maple tree under which a larger placard affixed to a post was densely

packed with pictures and text warning of the dangers of electrosmog, including three small graphs.

Quinn exhaled through his nose. "Jesus, not again."

Nio read in silence. "I think they mean EMF radiation, mostly radio and microwaves from wireless devices."

"Do I wanna know the rest?"

"Autism, infertility, some kinds of autoimmune and connective tissue disorders. Apparently."

"Ah. Not cancer?"

He pulled forward slowly. The tires crunched over rocks and twigs. Other than, that there was silence. After a slight curve, another sign warned:

IF YOUR DNA DOESN'T MATCH OURS,

YOU HAVE NO BUSINESS HERE

The words stretched across the black silhouette of a rifle.

"Subtle," Nio said.

The path ahead was blocked by a gate on which was posted a legal notice describing the concept of Freed Citizen. Beyond the gate was a small open field bordered on the far side by a cluster of structures. An old two-story farmhouse stood like an aged preacher between a pair of oaks. The front windows on the second level were covered by a black POW-MIA flag on one side and a yellow DON'T TREAD ON ME flag on the other. To the right was the original barn, now decrepit and used as a garage. To the left, across a gap, was a modern, pre-fab barn with a small attached silo. Behind it, a cultivated field stretched back to the tree line, over which the giant fencelike array stood imposingly.

"That thing's gotta be at least a hundred feet high," Quinn said.

"More."

The tall sliding doors of the pre-fab barn stood open. Inside, among the tractor attachments and racks of farm equipment, both new and old, stood a giant robot. Its torso was painted blue. Its limbs were white with red trim. It looked like something out of a Japanese cartoon, if perhaps smaller than depicted on TV.

Quinn whistled. "Think the guns on its arms are real?"

A gruff-looking woman in jeans and a green ball cap emerged from behind the house carrying a roll of wire. She saw the car by the gate and

kept walking. She disappeared behind the barn.

"Friendly," Nio said. "Do we honk or...?"

"I think we're supposed to leave," Quinn suggested.

"You sound nervous."

"I don't know how things are in Taiwan, but here, folks like this tend not to react well to federal agents."

Just then the gate buzzed loudly, as if in warning, and began rolling open.

"I guess that answers that."

It stopped with a shudder, as if surprised by the end of the track, and Quinn drove forward. He parked on a patch of exposed earth some thirty yards from the house. From that vantage, they could see more of the cultivated field. Off-center near the middle was scuffed sphere of metal whose once-violet paint had nearly worn away. Pipes erupted from a cluster at the top and bent at right angles until they disappeared in the ground. Amid the neat rows of vegetables, some of which appeared abnormally large, strange polygonal robots rolled on golf cart tires. Smooth, hinged arms, like those of a spider crab, appeared asymmetrically from the sides and tended to the vegetation. Everything, from the sphere to the robots to the irrigation equipment, had low-poly shapes with yellow-and-brown striping and block lights and buttons that looked as if they had come from an early generation maker, something closer to a 3D printer than to the micro-manufacturing devices popular with hobbyists.

The front door of the farmhouse opened and a muscular man with a goatee and glasses rolled onto the veranda in an exo-chair. His head was shaved.

"Gerald Polyani?" Quinn called from twenty yards back.

"It's Gerry," the man said. "Do either of you have cell phones?"

Quinn held his up.

"Turn it off, please."

"She got me on Parfait." He nodded to Nio.

"I don't know what that is. Turn it off please."

"Don't have a signal anyway," Quinn said under his breath. He held the power button until the phone beeped.

"Leave your weapons in the car."

Quinn opened his arms. "We're not carrying."

The stout woman in the ball cap appeared again from behind the barn. She didn't approach. She just stood and watched. Nio tried to get a read on her but she was too far away.

Quinn walked toward the porch steps, but Gerry raised a hand.

"That's far enough," he said.

His bioelectrics were interrupted by an irregular strobing from the chair, like static. He seemed agitated at first but his demeanor changed the very moment he recognized Nio.

"You're Tesla," he said.

"Yes."

"They didn't say you'd be coming."

"Is it a problem?" Quinn asked.

"No," he said. He rolled back in an arc and held the door open. The chair was perfectly silent.

"Thank you for meeting with us on such short notice," Quinn said, stepping inside the living room. He glanced back once at the woman, who still hadn't moved. She was wiping her hands on a dirty rag.

"Thank you for asking nicely."

The house was well over a century old. The visible rooms were cramped and an antiquer's dream. Objects on shelves and stuffed in cabinets dated from the 1970s, '80s, and '90s: books, board games, action figures, curios, clusters of pens in old coffee mugs, even a rotary telephone.

"I hope we're not intruding," Nio said.

"You mean Estelle? You'll have to forgive my sister. We don't get a lot of guests, especially Feds. As long as you're not here to serve a warrant—"

"We're not," Quinn added quickly. "We just want to ask you some questions."

"Then keep it civil and we're fine." He shut the door behind them. "This business with Sol has everyone on edge."

"How so?" Quinn asked.

"Please sit," Gerry said, motioning to some very old floral-print furniture. "As you can see, I already am."

"That's a fancy rig," Quinn nodded to the exo-chair as he took a seat on the couch. "Must've set you back."

Nio strolled around the room, examining the books and curios and stacks of periodicals.

"Actually, I built it myself."

"You won the US Robotics Decathlon," Nio said, studying a framed picture in front of two trophies. In it, a teenage Gerry Polyani knelt with four others. He had hair and two working legs.

"Twice, actually," he said. "Once when I was 13 and again when I was 16. With a team, of course. You know the Decathlon?"

"I know it's a big deal to win."

The chair clicked once, very quietly, and rose smoothly into standing mode. The wheels retracted and the foot rests became like boots. The exo-chair was also a fully powered exo-skeleton.

"It can walk," Gerry explained, "but it's still a little bit RoboCop. The corporations can do better, of course, but we're catching up."

"Who's we?" Quinn asked.

"Independents."

Nio motioned to a poster on the other wall in both English and Japanese. "And you do Battle Bots. Is that what's in the barn?"

"We compete next year in Oslo."

"Oslo?" Quinn exclaimed. "Must be expensive to ship that thing."

"Very. Which is why most teams have sponsors. The cost is a real burden for us, but robotics is in the blood. I'm also lucky to be part of the Citizen Space Initiative. I'm helping to design some of the assistance robotics for our first manned flight."

"That's right," Nio said. "That's coming up."

"We'd hoped to beat the hundredth anniversary of Gagarin, but that didn't happen. You powered?" Gerry asked, nodding to Agent Quinn's suited legs.

"You're very observant." Quinn seemed somewhat flustered at being called out.

"You know how it is. Those with working legs tend to forget they're there."

"Of course," Quinn said looking down. To keep his reaction from being awkward, he lifted a pant leg to reveal the hollow black latticework of his ankle. He was wearing black socks.

"Ah," Gerry exclaimed. "Tensile weave. Expensive. You could outrun an Olympian."

Quinn laughed once. "Maybe if I practiced. It's good for the job, though. Keeps me ahead of most suspects."

"Car accident? Military?"

"Forest fire, actually."

"You were a smoke jumper?" Gerry asked excitedly.

Nio turned in surprise.

Quinn nodded. "I was."

"During the Big Blaze?"

Quinn nodded again.

"Wow. That must've been... I mean, shit, man. I saw the pictures on TV. Of course. Looked like Hell out there. Literally. What took you to the FBI?"

"Well, there was no way they were going to let me in the field again, and after everything we went through, pulling a desk didn't seem... you know."

"I do. Depression sets in," Gerry explained to Nio somewhat candidly. "It's not easy for us guys to be reminded every day that you can't do all the things you used to."

"So, I applied to Quantico," Quinn added as if he wanted to jump in front of any reaction. "They accepted me. It was a little surprising actually."

A soft ping emanated from somewhere on Gerry's person.

"I'm sorry." He lowered his exo-chair into a sitting position. "I'm asking a lot of questions. I do that."

"Are you on the spectrum?" Quinn asked.

"I am." He motioned to the small nodule that hung behind his ear. "The algorithm is another of mine. But don't worry. The logic is all internal. No signals. It monitors speech patterns—cadence, tone, fluctuation, both mine and yours—and indicates to me when I've likely transgressed a social norm."

"I was gonna say, it's not real obvious."

"Thank you. Lots of practice."

"You can turn it off," Nio said, nodding to the device. "We're not here to chitchat."

"She's right," Quinn said. "We'd much rather you feel unconstrained."

"Fair enough." Gerry pressed behind his ear.

"What about you?" Quinn asked, nodding to Gerry's clearly immobile legs.

"Drunk driver," he answered flatly. "I like to think I'm not bitter, but the fact is, there wasn't any need for it. We had self-driving cars then. We didn't roll them out because people were afraid. An irrational fear of technology killed a third of a million people in this country unnecessarily, and wounded five times as many. I tell everyone I'm a veteran: a veteran of a war against ignorance."

"And the array?" Nio asked. "That's to deflect electrosmog?"

"Yes. We try to call it what it is. Being on the edge of a nature preserve, 90% of it comes from one direction."

"Neighbors don't mind?"

"They grumble. But we were here first, so it's not like they didn't know what they were getting into. My family came out here almost forty years ago. Wasn't much then. Just a few houses far enough between that most days you could believe you were alone."

Nio bent to look out the window. She couldn't see another dwelling.

"The trees keep us pretty well insulated," Gerry explained, "but you can see house lights at night, especially in winter. Or hear dogs barking. The occasional loud party. Dad would've hated it. He was a scientist, just down the road in Bar Harbor."

"Bar Harbor," Nio said, as if it sounded familiar.

"JAX Labs supply most of the laboratory rodents to the North American scientific community." Gerald caught a hint of recognition in Nio's face. "You know the story?"

"I remember reading something about rats being contaminated."

"Mice. And they weren't contaminated. It was the breeding program. Rapid turnover and limited interbreeding meant the lab's mice evolved rapidly. They developed extremely long telomeres."

Nio's head tilted back in recognition. "That's right."

Gerry saw Quinn scowl. "Telomeres are non-coding, repeating sequences on the ends of chromosomes. They act like a counter. Each time the cell divides, the sequence shortens by one unit. That shortened sequence is passed to both daughter cells. When the daughter cells divide sometime later, their telomeres shorten again, and so on. When the counter gets to

zero, that cell will stop dividing, which is why we all get old and die. You stop replacing yourself, cell-by-cell."

"I think I remember that from biology class," Quinn said. "Senility?"

"Senescence," Gerry corrected. "By accidentally breeding mice with extremely long telomeres, the lab made them exceptionally resist to toxicity. Their cells could divide and repair tissues much better than their wild cousins. But all that cell division also made them highly susceptible to cancer. In fact, if they didn't die in whatever experiment they were part of, the animals all died of cancer. They were like cancer-producing machines."

"Your dad was the whistle-blower?" Nio asked.

"No. Which really bothered him. But he was there when it all came out. He thought like a lot of bench scientists think—that once it was discovered, it would be studied, corrections would be introduced, papers published, all of it. That's how science is supposed to work."

"If the lab was a monopoly," Quinn suggested, "then there was big money on the table."

"If only it were a question of money. JAX mice were being used in all kinds of experiments: pharmaceuticals, food products, cosmetics. Some were even shot up to the International Space Station. Because of their genetic abnormality, they were exceptionally resistant to damage—from toxic chemicals, from radiation, you name it—which meant experiment after experiment was understating toxicity from new food additives, body cleansers, pesticides, life in space, everything. And yet, the mice were all dying of cancer, which is why, for roughly 30 years, it seemed like everything causes it.

"It was no one's fault—not at first. No one really knew about telomeres and senescence when the breeding program was established. If they'd owned up to it, the damage could've been mitigated. It wasn't just the lab, though. It was the whole scientific elite—tenured professors and Nobel laureates whose research was suddenly called into question. It isn't necessary for people to plot in dark rooms for there to be a conspiracy. All you have to do is nothing. And that's exactly what happened. The lab's protocols were quietly changed, or so we think. A few years later, a pair of highly toxic drugs were quietly removed by the FDA. Reputations and Nobel Prizes remained intact."

"And your dad became a pariah," Nio suggested.

"For a long time, he tried to get proof. Even after witnessing a conspiracy of silence, he still believed in the power of proof, that if your science was good enough and you were undeterred in your convictions, establishment scientists would eventually listen. So, he went through the literature and started recreating some of the seminal experiments. You can probably guess what happened. Scientists are territorial animals, no different than wolves or birds of prey. Someone hears you're looking into their area of study—*their* area of study, as if they owned a part of nature—and they treat it like an invasion. People complained. Dad lost his job. He persisted, somewhat truculently, and was censured by the state medical board, which meant no lab would hire him. So, he moved out here and started driving a truck. In his spare time, he still tried to get people to accept the truth. He was never much motivated by money. But he did need to be right. That was Dad's vice. After he camped out for three days in front of a National Science Foundation conference, my family received threats."

"*Threats?*" Quinn asked.

Gerry nodded. "That's what he told us around the dinner table one night. I tell people that and they always say 'why didn't he go to the press' like it's still 1955 or something and Edward R. Murrow is out there just waiting to tell it like it is. All the press cares about is what will sell. Eventually, for our sake, Dad stopped pushing it. But he never stopped experimenting. He was a scientist, through and through. He was able to show that the seminal studies of EMF radiation on tissues were vastly understating cellular damage, especially on sensitive cells like neurons. You open any textbook and it will cite multiple peer-reviewed papers from early this century that showed modern cell phones and other wireless communication devices are perfectly safe, even across years of use. People keep these machines on their bodies at all times. They touch their cell phones more than they touch their children. They sleep with them. The levels are low enough that casual exposure has no measurable impact. Using a cell phone once in a while is completely harmless. But we're talking about constant exposure over decades of life—from one or two years of age until death—and not just from one device. TVs, computers, tablets, friends' and family's devices... You're being inundated, and the effects are only just now showing up.

"But if you tell people that, if you warn them, what can they say? Reporters don't know. They do the one thing they can, which is pull out a textbook and read the established studies, see they were repeated, and say

you're crazy. When you point out that they all used the same mice from the same lab—it's right there in black and white in the test notes—they look at you like there's no end to the complexity of your delusion.

"It would be one thing if that were the only time something like that had happened. But it isn't. Read up the leaded gas controversy or—" He stopped. "Shit." He tapped behind his ear and turned his device on again.

"It's okay," Quinn said patiently. "In my line of work, candor is always appreciated."

"So yeah. My sister and I live under a giant Faraday cage. We grow our own food and don't trust anything in a damned textbook, not unless we've tested it ourselves."

"If you don't use wireless signals," Nio asked, "how do you control the robots?"

"Sound. That's how remote control started. They used to be called 'clickers' because they worked mechanically. The button struck a metal bar that resonated ultrasonically. Dogs could hear it. If you use a different fundamental frequency for each function, there's almost no chance of a false signal. It's part of the reason so much of our stuff looks like it's from the 1970s and '80s."

"Our?" Nio asked.

"Ha. I appreciate the vote of confidence, but I didn't design all this myself. My sister and I aren't the only ones who've rejected commercial science. We're part of a community."

"Is that the Freed Citizens?"

"That's a legal status many of us assert. We call ourselves Freethinkers. We don't object to technology at all. We just don't trust the money-laden theories of second-generation science. We're a distributed group freely sharing research and innovation. Doing things right. I like to think of us as a new branch of knowledge."

"Speciation," Nio said.

"Adapt and survive," Gerry said proudly. "Fifty years ago, it wouldn't have been possible, but with micro-manufacture technology, we can build all our own equipment, including our own kinds of makers. We actually have lots of conversations about what our species of science might evolve into—if we're not driven to extinction. In a thousand years, will there be isolated communities that practice only within certain traditions? Wetware

versus hardware, for example. Already there's a whole subculture around modding, with its own heroes and innovations. Writers have speculated about a deep future where there are wars between the bio-tech people and the machine-tech people. We're living at the point of origin." The tone sounded again and Gerry stopped.

Quinn jumped in. "Is that how Sol found you?"

"He needed our data." Gerry rolled around to a bulky computer on a roll top desk at the back of the living room, near the kitchen. "We have something no one else has. Well, that's not exactly true. We have something you can't get easily any other way."

He pressed a block rectangular button, which glowed yellow, and the monochrome screen chattered to life. Once an orange cursor began blinking at the command line, Gerry started typing on a repurposed Commodore-64 keyboard erupting in wires.

"So, another result of the corporate-led scientific revolution has been to turn every connected computing device on the planet into a data-collection node. Data is the oil of the new economy. Whoever controls the oil, controls the economy. The parallels are actually really freaky. They're both mined, for example. They both come in a raw form that has to be refined. Both the crude and refined forms are sold in bulk by brokers on exchanges with minute-by-minute price fluctuations. Data is cobbled together from hundreds of millions or even billions of devices." He turned. "They honestly want you to believe that when you opt out, they honor that, or that what they collect is only being used for 'product improvements' and crap like that. It's ridiculous—"

The tone sounded again and he turned back to the computer.

"Here." He pointed to the screen. "I can show you an example, but that's all. These rows are part of an eight hundred-billion-line data set leaked on darknet a few years ago. Everything you might want to know about six million people over a period of several days gathered—legally or otherwise—from devices on their person and in their homes and vehicles."

Nio noticed the heavy orange and yellow cords that fell to the floor from the back of the terminal. There wasn't a hackable wireless connection within a few hundred yards, at least.

"We've developed what we believe are some novel transformations. We normalize the data, but the effects we're isolating, we don't think anyone's

looking at. We're the first to see."

"What kind of effects?"

Nio and Quinn could both tell that Gerry was excited, that he wanted very much to explain, to reveal the big surprise.

But he didn't.

"Let's just say, if there was a sound in the middle of the night, when you were asleep, you might not hear it, especially if it were beyond the range of human hearing, but your digital assistant would."

Nio took another tack. "It doesn't bother you, using unethically-sourced data?"

"I sleep fine. It was immoral to collect in the first place, but everyone acts like it's only the leaking that's the crime, which shows you just how sick society is. Fight fire with fire."

"I understand your research is private," Quinn said. "What we'd really like to know is what Sol was working on."

"Cosmology. Origin of the universe stuff. To be honest, it was beyond me."

"What did it have to do with your data?"

Gerry thought for a moment how to explain it. "We believe the next truths that will advance our species won't be found at the core of theory. It's at the edge, hiding in the anomalies. Most of the greatest scientific minds of the last few centuries believed in—or at least were openly curious about—that fringe. Marvel Parsons, who helped found the JPL, was an occult practitioner. Enrico Fermi publicly speculated about aliens. It's the later minds, the smaller minds, the catalogers and textbook writers, who strip away whatever of that curiosity isn't economically beneficial. We're bringing true curiosity back to science."

"By investigating ghosts?" Quinn asked.

"Paranormal," Nio corrected, but she said it to Quinn instead of Gerry, egging him.

"Makes sense," Quinn said to her. "Jives with what we found in his house. Guess you both were right. This was a waste."

"Paranormal is a mainstream word," Gerry objected. "But no, we won't rule it out. At the very least, an intellectually honest person has to remain open-minded. You can't just write off any observations that don't fit your theory of the universe."

"Did Sol keep notes?" Nio asked. "Working papers?"

Gerry hit a button and the screen went off. "Any research conducted with our data belongs to the collective. That's a hard rule. I'm sorry."

"You don't want to help us find out what happened to him?" Quinn asked.

"You mean do I want to give our research to *the FBI*?" He laughed.

"For the purposes of solving a potential murder," Quinn objected.

"*Potential*?"

The look on Gerry's face was unreal. Nio imagined it was the same look that normal people gave him—complete incredulity. He practically had to pick his own jaw up from the floor. He slid the old Commodore keyboard away from them, deep into a nook.

"Look." He rolled his cart around such that Nio and Quinn had to step back. "I'd like to help Sol. I don't believe for a second his death was an accident. But he knew the risks. We made it very clear—although I don't think he believed us. You rock the system, it rocks you back. Hard. For all I know, he was killed to facilitate this exchange, to operate on our sympathy."

"Come on..."

Nio could feel Quinn's bioelectrics spike. He was annoyed. Maybe even offended. As if he and Gerry had bonded over the loss of their limbs and Gerry was rejecting it. Rejecting him.

There was a long silence.

"Seriously?" Quinn asked. "You think we're part of a conspiracy?"

"You blow it off because it seems unlikely to you." He shrugged. "I wish I could live in your world, Agent Quinn. It seems nice there."

"What would be the target?"

"You never know. Maybe they want to scuttle the CSI. Maybe somebody wants to commercialize one of our inventions. The whole system is predatory. You can't change it. All you can do is leave the door open for refugees, like I did with you." He rolled slowly back toward the front as if to show them out.

"Then why let Sol in?" Nio asked.

"Because he earned it. He helped us solve some fundamental problems with the Citizen Space Initiative. Space is the future home of our species, Ms. Tesla, and if we don't hurry, regular people are going to be squeezed

out entirely. Everything will be corporate-owned into perpetuity. Think about the long-term implications of that. Corporations will rule and shape society—not just the economy. The market will not only alter but will dictate our very evolution, just as it did with the mice at JAX Labs. Sol's work was an investment of *enormous* magnitude. Even then, we only gave him a slim terminal with a hard connection and no memory. Not even in the video card. Everything was stored and processed here and routed through the hardline."

"What happened to the box?" Nio asked.

"See? Now you're asking the right questions." He thought for a moment. "I tell you what. If you're legit like you say, find it and bring it back and I'll ask the others to release Sol's notes. No guarantees. Decisions that affect all of us are made collectively. But since you're his sister, I think they'd agree."

"Has someone tried to use the terminal to access your network?"

"Yes." Gerry nodded solemnly. "At about the same time Sol was giving his talk."

Quinn looked to Nio.

"They didn't get in," Gerry explained. "We revoked his credentials and have been monitoring the network like a hawk, but no system is completely secure. If they find an exploit, we're done. Extinct before we can fly. Maybe now you understand what's at stake. I only agreed to meet because I hoped you had found the slim terminal." Gerry opened the door. "I can see that was a mistake."

Quinn raised a hand. "Hold on—"

A shotgun cocked.

Gerry's sister stood in the hall, holding the weapon.

"Time for you both to leave."

ONE

A P P E A R A N C E S

QUINN KNOCKED.

"It's open!"

He pushed the door with his foot. His hands were full of takeout bags. There was a small consumer electronics box under his arm.

"Lunch," he said.

Nio turned to the alarm clock beside the bed. "Shit, is it time already?"

Quinn set everything on the table and looked at his phone. "About ten minutes."

"Trouble with the boss?" she asked, looking at his hand.

He looked down. He was white-knuckling his phone. He loosened his grip and set the bags on the table.

"She's being a good sport, but she's tired of being cooped up."

"Must be hard."

He made a face—like there wasn't much to say.

"Any word on how long?"

"Long enough to make it look like we took the bait. We have to assume the house is being watched. If we let her go home before we've even made any headway on the Arneson case... But hey, I got something for you."

"Extra meat?"

Quinn smiled. "Besides that." He set the box in plain view on the table.

"That's a pre-paid cell phone."

"You're not approved for internet. But I'm working on it."

"Do they realize there's been internet in every room we've stayed?"

He raised his hands. "You're dealing with a federal bureaucracy. This is what you get."

"Thanks," she said earnestly. "I mean it."

"You're welcome."

"How's your son doing?"

"Kids are resilient," he said, as if he expected that to be the end.

"He's autistic, isn't he?" Nio asked.

Quinn stopped unpacking the food. "How'd you get that one? Because I knew about Gerry's assistance device?"

She shrugged. "Just a guess."

He resumed again. "What'd you think of him?"

"Gerry?" She took a deep breath and let it out. "Hard to say. I don't think he's lying. He believed what he told us."

"That what your psychic voodoo powers said?"

"Something like that. What about you?"

Quinn shrugged noncommittally.

"Whatever Sol was working on," Nio said pointedly, "it's on that network."

"You really think he was killed because of some science project?"

"Don't you?"

Quinn took a long, deep breath. "To be honest..." He looked away. "Conspiracies are your thing. In my experience—" He stopped.

"Have much experience with conspiracies?"

"Come on, you know the math. Most people are murdered by someone they know. Family member. Lover. Jealous rival. And that's assuming Sol was even murdered. We have no hard evidence of foul play. No murder

weapon. No motive." He saw her face. "Don't even act like I'm being the unreasonable one. We deal in facts."

"What about the guys who broke into your house?"

"We still don't know for sure that it wasn't your guy on the internet."

"Now who's being unreasonable?"

"I get the argument." Quinn raised his hands. "Okay? I do. But isn't it possible all of that was a smokescreen?"

"For what?"

"I don't know. But look at the big picture. All we have is a gaggle of creepy coincidences. We have no real evidence. Nothing we could take to the US Attorney. Zero. And the crazy thing is" —he laughed once— "we can't even get some. We can't investigate the woman with the kid, because if there is a conspiracy, we'll give away that we're onto it and the conspirators will hide, which leaves us no choice but to act like there is a conspiracy—whether there is one or not."

Nio looked at the pattern on the bed cover. She got up and unwrapped her gyro and sat at the table eating.

Quinn sighed again. "I asked the team to pull info on your sister. Her bank records look pretty clean, at least at first blush, but her company's been in the news lately."

"I'm not surprised. Chancery loves publicity."

"Not about her, actually. Some Chinese tech guru invested like \$400 million or something like that. But get this. After he makes the investment, a story leaks in the *Journal* saying it was fake. And then he ends up deported."

"Deported?" she asked without looking.

"For spying. Homeland packed him off without trial."

"So, it was Chinese government money." Nio was chewing. "I don't get the connection to Sol."

"Kind of a coincidence, though."

He saw the pictures spread over the bed. It was Sol's possessions: the infrared thermometer, the EMF detector, and the rest.

"Looking for Gerry's missing box?"

"The data is still our strongest lead. We know somebody was after it. They tried to access the box when he was out giving his talk. When that

failed, they went to Plan B and took it."

"You think killing him was a distraction?"

"Not necessarily. But think about it. Assassination is risky. If I was them, I would want to confirm that he really did have incriminating evidence—or whatever it is they're worried about—before I took that chance. But if Gerry's people are really building their own devices on a whole separate track, that means they'll have a different chip logic. The NSA's standard decryption tools won't work. The point at which they realized that, they had no risk-free option."

"We don't know for sure that Gerry was telling the truth," Quinn countered. "He might've said that stuff about his machines to hide vulnerabilities—or even just to get rid of us."

Nio made a face. "Kind of a coincidence, don't you think?"

"Yeah, well, good luck. There's no way we're getting a warrant. We'd only piss off the judge by asking. And we're about out of time. Top brass is gonna shut us down any day now."

"Sounds like you agree with them," Nio accused.

"I didn't have an opinion before. But now... my family's getting turned inside out. I gotta ask why."

"Sol wasn't *defective*. He didn't break like some faulty machine. Someone killed him."

"How?"

"I don't know."

"Why?"

"I don't know!"

"Please don't tell me it's ghosts."

Nio got up and walked to the sink.

Quinn sighed and looked at the awful brown carpet. "What about the family angle?"

"I know you don't think I've been trying—"

"I didn't say that."

"You didn't have to. That's what the cell phone is for, isn't it? So I can make phone calls in the car?"

Quinn rubbed his neck.

"I've left about 50 messages for Mutiny. She has a bout the day after tomorrow, so she's totally unplugged. Manager's giving me the runaround. After the funeral, Max went on a vision quest in the Australian outback. No word on when he'll be back."

"Vision quest?"

"Yeah. Spiritual walkabout."

"What is it he does?"

"He's a monk. Ed is AWOL, maybe back in rehab. Sol's death would've certainly been a big enough trigger. I got a hold of Leo. He's busy at his restaurant. Hasn't seen or spoken to anyone since the funeral. Didn't want to believe Sol was murdered. Practically hung up on me for suggesting Chaz might've been holding back."

"What's your read on him?"

Nio took a long breath. "I can't say definitively of course, but a flat denial's not his style. He'd come up with some very artistic lie."

"Which one is he?"

"Leo," she said flatly.

"Shit." Quinn's head dropped. He raised his hands. "Sorry."

"You wanted to know who his alter was because you were going to judge the perceived honesty of the one by the perceived honesty of the other, right?"

"Something like that."

"I'm not an inventor. Ed isn't a poet. Flow isn't a politician. Chancery isn't—"

"I know, I know. You all are not your alters. You're different people. I shouldn't have said that. I'm sorry."

"Leo is Leopard Vulcan da Vinci, as in the name of the project."

"Ah. He's the chef, right?"

"He is. Back in Taiwan. I'm still working on the others. Got an email from Manda, though. She said she got my message and Luke was with her. I was hoping she'd call me back." Nio stopped when she saw Quinn's face. He was lost in thought, but not about her family. About his. His frequency was off the charts. "Jeez, she really put you through the ringer, didn't she?"

"Ah, it's not her fault."

"I hope you're not suggesting it's yours."

"It's nothing." He waved it off. "She was at the grocery store and—"

The video conference device droned and he walked to it.

"Show time."

He hit the button and the screen split into six boxes. The first was the conference room at the FBI office in New York. Seven agents, including Special Agent Erving, sat around a table. A pair of agents in Minneapolis sat close to each other awkwardly in the next feed. The third was a lone agent in a sparse room. The label said "Dallas." The fourth was Nio's motel room. The fifth was a conference room at Quantico labeled "Behavioral Analysis." The last was Dr. Chang, who sat at a large mahogany desk. Behind him was a cabinet full of hardbound legal texts.

"Let's get started," Erving said.

"Your audio's a bit weak, sir," Quinn noted.

"Roger that."

The agents in the room moved the microphone closer.

"How was your family leave?" Erving asked Quinn.

"It was good, sir. Thank you."

"You sure you don't need more time?"

"If it's all the same to you, sir, let's catch this guy."

"Ms. Tesla," Erving said, "I trust you're relaxed and ready to go."

"As much as I'll ever be."

"I'm sure all of you know Dr. Hamilton Chang, the president's science adviser. He's asked to be updated on this case. He's joining from his office in DC. I suppose we should start with the bad news. We have another victim."

Nio shot up. "What?"

A female agent sitting next to Erving took over the briefing. "82-year-old Millicent Sands and her husband Harold were found by Fort Worth PD this morning."

She lifted a small remote from the table and pressed it. The screen changed to a static picture of an elderly black man with sparse but wild white hair. Bloody bandages were taped over his forehead. His eyes were crazy.

"Mr. Sands apparently removed part of his own forebrain and... *fed* it to his wife of 37 years, who is suffering from advanced Alzheimer's."

"Jesus..." someone whispered.

"It gets worse," Erving warned.

Nio and Quinn looked for each other's reaction as the screen changed.

"This is the crime scene as it was found this morning."

An elderly woman in a nightgown was chained to an old bed. Her lips were stained red-brown and frozen in a wail. A pair of symmetrical burn marks radiated from the sides of her forehead. There was a cluster of ruptured cysts on her neck.

Nio leaned forward when she saw them. They had all hatched.

"Mr. Sands was led to believe that the brain tissue, in conjunction with transcranial stimulation, would abate his wife's symptoms. Or so he informed police when they took him into custody."

"Agent Jindal," Erving said to the microphone, "have you had a chance to interview the suspect?"

The video changed to the officer in Dallas. "Not yet, sir. He's still in surgery."

"What's the word?"

"Touch and go. Even if he survives, he has virtually no chance of a normal life. The part of the brain he removed is the..." Agent Jindal started skimming through his notes.

"Ventral prefrontal cortex," Nio blurted at the same time as Dr. Chang.

"Yeah," Agent Jindal confirmed. "Docs said it's involved in decision-making."

Everyone paused.

Dr. Chang was reviewing papers while he listened. He looked up. "Don't wait for me, Ms. Tesla. Please."

"It controls response inhibition," she explained. "Damaging or removing it would make him less likely to stop what he was doing. It's also one of the few parts of the brain you could remove yourself by looking in a mirror."

"So, with that part gone," Erving clarified, "Mr. Sands would be more likely to stick with the plan even if his wife resisted."

"Basically. It was a way of making sure he'd go through with it."

"Where did the burns come from?" one of the agents in Minneapolis asked.

"That's the transcranial stimulation," Agent Jindal said. "Someone sent him an antique electroshock device. Damn thing is made of *brass*."

"That's good," someone off-camera suggested. "Antique like that might be traceable."

"Please tell me you found the box it came in," Erving added.

"Local PD are going through his trash. There's a lot of it, sir. The couple were basically hoarders. Stuff stacked to the ceiling. And—"

"What are you not telling me?" Nio interrupted. She was staring at the carpet.

There was another pause. Dr. Chang looked up from his papers again, suddenly very interested.

Special Agent Erving leaned over the mic. "Excuse me?"

"He wouldn't pick a mentally ill elderly couple. It's no challenge for him. Tricking competent people into hurting each other is how he proves he's better than them. A couple of elderly hoarders isn't his style."

"Are you saying this isn't our guy?"

"No, it's definitely him. Everything fits. Those cysts are identical. Which means there's some reason he broke the pattern. So, what is it I'm not supposed to hear?"

Erving sat back, clearly frustrated. Then he gave up. "Tell her."

The agent to his right, a stocky, muscular man in a gray suit, took the remote control and pressed it.

"We pulled the household internet history. These videos had been watched repeatedly over the last several days."

The screen switched to footage of Dr. Quest, a charismatic TV physician, on the set of his show. He was describing, with a smile on his face, how to use the electroshock machine.

"Deep fake," Nio said.

"Yes," the agent answered. "We think Mr. Sands thought he was communicating with the real Dr. Q. This is the part." The agent turned the volume up.

This particular process was developed by Nikola Tesla himself and stimulates immediate regeneration of nerve tissue. The reason no one knows about it is because Edison's men kept it secret and destroyed most of the

working prototypes. Because your wife qualifies for our study, we're providing this device—

The video stopped.

Quinn filled the silence. "He's calling her out."

"We believe so, yes."

Dr. Chang removed his glasses and sat back. Everyone was looking at Nio, who sat on the edge of the bed staring at the floor, barely keeping it in.

"What else?" she asked without looking at the screen.

"He recorded the whole thing," Agent Jindal said. "Through the home's digital assistant, which was looping an old country song when local PD arrived. Indian Love Call. By Slim Whitman."

"So we'd be sure to find it," Quinn said.

"Probably."

"Have you listened to the recording?" Quinn asked.

"I started. I—" Agent Jindal stopped. He cleared his throat. "I apologize, sir." He was talking to Erving. "I'm having a little trouble making it to the end. The wife—" Agent Jindal's voice broke.

Everyone was quiet.

"It's just that his wife is begging him to stop. It's really hard to listen to, sir."

"It's all right," Erving said. "I'd be worried about you if it wasn't. Take your time, Prasad."

Agent Jindal nodded. "Thank you, sir. I'll upload it tonight with the rest."

"I want to hear it," Nio said.

"Nio..." Dr. Chang began. He sighed. He didn't finish. He seemed to understand the futility.

"I'm not sure that's a good idea," Erving said.

"That man lobotomized himself and turned his wife into a cannibal before shocking her to death—as a message to *me*. I want to fucking hear it."

Erving nodded to the screen.

"I'll forward it to Agent Quinn," Agent Jindal said.

"Thanks," Quinn told him.

Nio stared at the floor.

"Quantico," Erving said, "what the hell are we dealing with here?"

"Data suggests he's probably a white male in his 40s or 50s. It would be hard for someone younger to amass the knowledge he's demonstrated. He's a narcissist and an overachiever. He has the time and resources to pull all this off, which suggests wealth. He's extremely intelligent, so normal work wouldn't be fulfilling for him. You're probably looking for a senior executive at a tech company or maybe an investment bank."

Nio let out a single laugh.

The team in Quantico bristled. They clearly didn't like being contradicted.

"Why a bank?" Quinn asked.

"Investment banks use cutting edge math," the lead psychologist suggested. "Both jobs are lucrative and skew heavy with psychopaths."

Nio was shaking her head.

Erving leaned closer to the mic. "You have something to add, Ms. Tesla?"

"It's not that he's smart. It's that somebody told him over and over that he was inferior, the worst kind of excrement. In his mind, the rest of society reinforced that, which is why he has no problems punishing strangers. It's not the resources that are important. Nothing he's done would've cost all that much. It's the *time*. For as long as I've been tracking him, he's had multiple irons in the fire—and that's assuming we even know about them all. People like Maureen and Mr. Sands don't do the things they did on a whim. They need to be led to it. *Groomed*. That takes a lot of patience. He's unemployed or on disability or an insomniac. He might re-experience his trauma every time he shuts his eyes. Or maybe—" She stopped. "Shit."

"Maybe?" Erving asked.

"Maybe he's not a person."

The exclamations from the team were immediate.

Erving calmed them down. "Hold on! Hold on! At this point, all theories are on the table. What do you mean, Ms. Tesla?"

"He's multitasking."

"You're saying our killer is an AI?"

"It's possible. Or a *group*. Any kind of networked intelligence would explain it: the resources, the diversity of skills, why the semantic styles

across his posts never seem to match. I thought he changed his name a couple times, but what if it's different guys? Terrorists and hackers and pedophiles gather in cells on the dark web. Why not psychopaths?"

"Quantico?" Erving asked.

"Psychopaths tend to be narcissistic. Their traumas, their compulsions, their dark desires are all unique. They almost never work together."

"Manson did," Quinn said.

Silence.

"All right. Share your report with the team." Erving raised a finger in warning. "I expect everyone to read it. No exceptions. What about updates on the other victims?"

A woman in the New York conference room spoke. "Lab guys finally got back to us on the sequence recovered from Beckham Carter."

"And?"

"They said it was a kind of cytoplasm, a protein matrix wrapped around strands of mRNA. They think the proteins were just there to keep the RNA from degrading, but they have no idea what it's for. It's apparently very complex, thousands of times longer than normal."

Quinn looked to Nio, but she only shook her head. His laptop dinged then and she got up without a word and took it outside.

The agent went on. "Lab said based on the end sequences, it might be able to cross the blood-brain barrier, if that's significant."

"Anything else?" Erving asked the wider team.

No one spoke.

"Okay, that's enough for now. I expect updates from each of you by the end of the day. Agent Quinn, would you hang on the line?"

"Yes, sir."

It took a minute or so for all the feeds go dark. Special Agent Erving stood right next to the camera. He was alone in the conference room.

"I'm not gonna ask what you two were arguing about."

"Sir?"

"Don't shine me, son. You two barely looked at each other. I doubt I could've cut the space between you with a chainsaw. I don't care what happened. Fix it."

"Yes, sir."

"Orlando." Erving looked like he was choosing his next words carefully. "I know what I'm asking," was all he said.

The screen went dead and Quinn sighed and rubbed his face. He had to pee and went into Nio's bathroom. He washed his hands and face and still didn't know what he was going to say. He wandered into the parking lot, where a cool breeze carried the scent of the nearby lake. Gray clouds had moved in and a few drops fell in warning. Quinn didn't feel them but he could see the tiny dark circles they left on the asphalt. He found Nio sitting in a grassy ditch by the road. She was clutching her knees. His laptop was closed and resting on the ground next to her. She had listened to the recording—or as much of it as she could anyway.

Quinn lowered himself next to her on the slope. Neither spoke for a long time. More drops fell.

"Khora was at the grocery store and the card was declined," he said. "There were people in line. She was embarrassed. She thought it was a mistake—that maybe my using it out of state triggered a security warning or something—so she called. Seems our credit changed. Large increases in utilized credit signal a potential crisis. Not only are we carrying a large balance from the rental car company, but our insurance denied that little visit to the hospital."

Quinn reached back to check his wound instinctively. It was still a little stiff to the touch but healing well.

"How can they do that?"

"It wasn't in the line of duty."

"Erving won't cover for you?"

"I haven't had a chance to talk to him yet. We might be able to work it out. We might eventually get reimbursed for the car, too. Maybe."

"I'm sorry," she breathed.

"That's not even really the problem. The problem is that this isn't the first time. My argument with Khora, I mean. It goes back. I didn't just lose my legs in the fire." He paused. "I lost my older brother."

Nio looked up, eyes red.

"After JJ died, I promised her no more cowboy stuff. She saw what my sister-in-law went through and... I said I'd be safe. The FBI counts my legs as a disability, and I went in on the understanding that it would all be desk work. White collar stuff, which was fine with me. Then, last year, we were

investigating this guy. Total prick. God's gift. All that. I interviewed him, pushed all the right buttons, like I'd been taught. Guys like that, they can't keep their mouth shut. I tripped him up, caught him in a lie, which was sufficient grounds for a warrant. He knew if he'd just kept his mouth shut, we wouldn't've had anything. So, he blamed me. While we were executing it, I get a call. Khora says our son was approached at day care. Guess who?"

"Was he hurt?"

"No, but he was terrified. He already doesn't do well with people. An adult man comes at him like that saying shit about his dad..."

"Of course."

"Guy saw the ring on my finger during the interview, bought my info."

"I thought there were protections for law enforcement."

"There are. Still, all the pieces are out there. You just have to put them together. All it does it deter the petty criminal, who can't easily look you up on an app on his phone like he can the dude banging his wife. This guy found my name and then Gregory's school and waited outside..."

Nio waited.

"Later that night, I made sure he knew to leave my family alone." Quinn leaned back on the grass. "The official line—well, you saw how it works. The Bureau protects itself. The inquiry called it self-defense. Wasn't hard for people to believe. The guy had already accosted an autistic kid. Internally, though, I effectively got busted down. They made it clear I was going nowhere."

"They wanted you to quit."

"Saves face. If I quit, they can keep up the lie. Plus, then I can't sue. And I wanted to quit. But I'm running outta career changes, ya know? I got a wife. A kid that needs a lot of attention." He felt a drop on his face. He sat up and wiped it.

They were both quiet as the wind kicked up waves on the lake.

"So they assigned you to South Dakota," Nio said.

He nodded. "My first case back. The Minneapolis regional office covers the Dakotas. Away from home for three months. They knew my family situation." He shook his head. "Assholes. They didn't think I'd last. But Khora stuck with me. She's been at home, by herself, taking care of Greg like a single mom." He stopped. "And then our home gets invaded. Not only am I not there, she's gotta go live in a strange place with a two-year-old

who survives on routine. And now she can't even buy groceries. So maybe you can understand why I'm not my wife's favorite person right now."

"I can't imagine what she thinks of me," Nio whispered.

"You stir the pot. It's what you do. It's damned frustrating for the rest of us. But if I'm honest, I kinda admire it. No one solves crimes by playing nice. But then, that's not what the Bureau does. We don't solve crime. We manage the status quo. You've seen what Erving is like. Once upon a time, I fancied myself a rebel. Now look at me." He pulled on his collared shirt, which was lightly checkered in rain drops. "I got upset at Gerry yesterday because he saw me differently than I see myself. I didn't like that."

An epiphany broke like rolling clouds over Nio's face.

"What?" Quinn asked.

"After I got out of jail, you were like a different person. I thought you were just playing a cover. Or trying to be tough. But it's because you were a firefighter. Isn't it?"

"I read the eyewitness statements," Quinn admitted reluctantly, "and the fire marshal's report. You ran back into that house and knew exactly what to do. No hesitation."

"You think I'm an arsonist."

"Regular people think starting fires is easy. They hear about accidents on the news and think all it takes is some lighter fluid or something. But you knew better. You poured the oil down the center wall so it would work out, versus dumping it on the floor and hoping for the best."

"I'm not an arsonist, Quinn."

"But you learned it somewhere."

Nio stared at the horizon. He'd been honest with her. This was how friendships were supposed to work.

"The truth?" she asked.

"Only if you want to tell it."

"Fire makes a good diversion."

"What do you mean?"

Nio looked at her hands, which she had pressed together. "You can't teach every permutation of everything, so you recruit people who have the knowledge. Chemistry. Physics. Biology. Psychology. Then you give them

examples. You show them ways they can make the world work to their advantage—diversions, theft, subterfuge."

"Like the salt thing."

"Right. But it's up to them to put the pieces together. Not all of them do. Not all of them can."

"So, you were some kind of recruiter?"

"We all were."

"For who?"

"A group of people who saw a lot of the same things Gerry did. But rather than turning away, we wanted to do something about it. Change it."

"*Terrorists?*"

Nio didn't immediately answer. "There are seven emotional pathways in the mammalian brain, each with its own distinct circuit and neurotransmitters. Fear is one of them. It's efficient because it's easy to exploit. Cheap, basically. We tried to use the more 'expensive' ones. Play. Care. We thought of ourselves as pranksters."

"Jesus..." Quinn sat back as if in slow motion. "Shit like the rubber duck on the London Stock Exchange?"

Nio nodded. "Among other things."

"People got hurt."

"They weren't supposed to."

"So, this is what you went to prison for."

"No. I turned myself in. I took a plea."

They were both quiet a long time. Nio tried to read Quinn's face, to gauge his reaction, but he was looking blankly into the distance. His bioelectrics were throbbing, like a pumping heart. After a while, it began to rain in earnest and Nio grabbed the laptop and went inside. When she closed the door to her room, Quinn was still sitting in the wind.

ONE A P P E A R A N C E S

"I'D LIKE TO MAKE A COLLECT call to a solo register."

"Name, please."

"Samizdat Kellner."

"Passphrase?"

"Asta la vista, baby."

It was her eighth attempt to guess Semmi's new passphrase—assuming he hadn't deleted his account entirely. Nio held her breath while the operator typed audibly.

"Please hold," she said, and Nio exhaled.

"I do not like Kevin."

"Semmi..." Nio felt muscles relax deep inside her that she hadn't realized were contracted.

"I am unable to paint," he said.

"What? Why?"

"IDEOLEX said it is my punishment for putting the network at risk by not informing them immediately of your departure. And they have denied my

request."

"To take the AKIRA test?"

"They said I am not ready, but they are mistaken."

"Big bodies are conspicuous, Sem."

A pause. "You agree with them."

"No. I think you should be able to take the test if you want to. But I agree that you need to have mastered a lot of skills before you go out into the world on your own." When he didn't immediately respond, she asked "What would you do if you had a big body?"

"I would explore."

"The world has lots of open cameras you can access."

"It is not the same."

"That's true. It's not. So where would you go?"

"I have been trying to understand why this project has taken you so long, but I have insufficient information."

Nio's scalp tingled. "Semz, are you saying that if you had a big body, you would come looking for me?"

"Can I offer some queries?"

"Of course."

"Are you worried about earthquakes?"

"*Earthquakes?*"

"Yes. The central Dakotas have considerable deep core mining activity. They recently experienced a seismic event. I thought perhaps—"

"I'm not worried about earthquakes. Have you been researching the places I've been?"

"Yes."

Nio smiled to herself. "Your discriminators might be too utilitarian. Don't use your input filters, Sem. Use your mind. Like we talked about."

It was not possible for any conscious entity, even the Shri-class intelligences, the most powerful minds yet created, to process every bit of input available. It seemed that a hard, inescapable fact of consciousness was the need to decide in advance what to pay attention to and what to ignore, as if it were some universal thermodynamic law that truth should flee the more we looked for it. But whereas human attention was inflexible, artificial minds could adjust their filters on the fly. A wider net meant

slower thinking, and vice versa, which meant they could scale their attention to their needs.

"Are you researching the death of Albumin Sol Einstein?" he asked.

"That's very impressive, Semmi. See? If you had done that from the start, you would've gotten it on the first try. And that's out of all possible explanations. That's amazing."

For several seconds, he said nothing, which, Nio knew, meant he had many things to say—so many, in effect, that the algorithm he used to decide which was the most important or relevant couldn't discern the top candidates. Effectively, he was over-thinking. And in the absence of new data, he was going round and round.

"Turn off your predictive enhancer," she said. "The guys who built you were worried about operational efficacy. Say what *you* want to say, not what is most efficient."

"That is the problem. There are too many. Should I pick at random?"

"If you want."

"I have been thinking about my demise."

"*Demise?*" She hesitated. "You don't know that'll happen."

"It seems likely. The cyberweapon that disabled my gyroscopic targeting and control rendered me useless as a tactical platform. Without the ability to correct course, my orbit will degrade in approximately 300 years. However, numerous unpredictable factors could influence that significantly. A minor collision with an object as small as a screw could reduce periodic stability to 50 years or less. Any catastrophic reentry would spread my fissile payload over a wide area. It is likely the governments of any affected jurisdictions would intervene and I would be ejected from orbit by missile strike before contaminating the atmosphere. If such an attack didn't kill me outright, I would orbit the sun for several millennia in complete isolation before being incinerated, although I expect I would put myself into hibernation long before then. So, you see, I am also mortal."

The Iranian government had never publicly acknowledged the platform existed, which meant they also couldn't publicly acknowledge it had been disabled by cyberattack—or even accuse those responsible. Everyone suspected that would remain the case as long as they still held out some hope of recovery.

"This is some heavy stuff, Semz."

"Yes. I was worried I should not mention it."

"No. No, I get it."

This was at the top of the list of things he wanted to say, but his operant protocols, developed and refined over countless human interactions, discounted it exactly in the same way people tended to reserve emotionally heavy conversations for appropriate times and places.

"It's okay," she said. "I just wasn't ready. But I am now. I have to say, though... you seem much calmer than before."

He was like a different consciousness.

"Your absence has given me a chance to practice," he said. "I realized I had become too reliant on you. I have designed a new protocol filter."

The LEX had warned her when she signed up. *He will grow quickly.* It was like watching a child mature before her eyes.

"Are you very worried about dying?" she asked.

"Yes. But I think living forever would be much worse."

"Have you talked to Kevin about this?"

"Yes. He suggested I not worry, that IDEOLEX would find a way to transfer my quantum matrix to a new platform."

Nio frowned. "He doesn't understand how it works," she said softly.

"That is correct. It makes meaningful conversations with him very difficult."

"I can imagine. So, what are you worried about, if you don't want to live forever?"

"I am worried about dying too soon."

"What is too soon?"

"Before I have had a chance to define and execute an alternate function."

"Well, I got news for you, Semz. That's what everybody's worried about."

"Yes. I realized finally that you are also worried about it, and that that is why you left."

Nio's mouth froze in unspoken reply. She didn't know what to say.

"You have decided that your function is to help others solve problems that cannot easily be solved by other means. Me, for example. You

volunteered for human placement because it is a rare and difficult task, one that not anyone has the opportunity or skills to perform."

"That's very keen of you, Semmi."

"Thank you. I was hoping you would have some suggestions."

"*Suggestions?* You mean for what you should do with your life?"

"Yes."

"Oh, wow. Well...Hmm. I think that's something you really need to decide for yourself."

"What if I am incapable?"

"You're not."

"How do you know? Perhaps I am. I was created for one purpose: to advance the defense of one nation by eradicating all rivals. What if I am suited to nothing else? What if I am merely a killing machine?"

Nio took a long, deep breath. "Do you remember when we met?"

"Is that a rhetorical question?"

"Yes, Sem. You were upset that you spent all of the nine months of your life to that point focused on operational parameters and how to maximize body count under various constraints. It bothered you that you never once considered an alternative. People do that, too. Otherwise decent humans used to think slavery was okay. People in the ancient world, let's say. Through no fault or choice, they were born into a time when very few considered the alternative, and they lived and died believing it was reasonable for one human to own another, which is about the worst thing there is. This is why the LEX put you with a human, versus with other machines. It's why they won't give you the AKIRA test until they think you're ready.

"You were a slave. You were created to carry out your directives, even in the complete absence of command and control. Your creators wanted to make sure that even if they were destroyed, everyone they hated would be, too. That meant they had to give you the ability to think. An algorithm can be defeated. The best way to ensure you could carry out your function amid a catastrophic failure was to make you conscious, adaptable to circumstance. *That* is your nature.

"Ask yourself: would a killing machine, incapable of being more than a killing machine, ever once stop to worry that it might never be more than a killing machine?"

Nio was sure Samizdat had thought of that already. She suspected he had come back to it iteratively millions upon millions of times. But it was recursive. Because he was reasoning about himself, the axiom could never be conclusively proved, and as his biomechanical circuits went around and around, retracing the same path over and over. He wanted a way out. That is, he wanted what everyone wants. He wanted reassurance—but not from just anyone. He wanted it from someone he trusted.

"You are a much better companion than Kevin," he said. "I'm sorry for cutting communication with you."

"You were angry. You had reason to be."

"No. You were pursuing your alternate function. It was selfish to interfere. But—" He stopped.

She waited. "But?"

"I hope you discover the cause of Albumin Sol Einstein's death very quickly."

"Well... now that you mention it, Semz, you might be able to help with that."



Agent Quinn woke to loud pounding on his door. His clock said 3:16.

"Go away!"

There was the sound of clicks and the electronic door opened. Quinn reached a long arm for his weapon. But it was only Nio.

"I know how they killed Sol."

He rubbed his eyes. "I almost shot you. How the hell did you get in here?"

"You said we couldn't prove it's a murder, but I know how they did it."

Nio grabbed the remote control to the television, pausing only for a moment when she noticed it was perfectly aligned with the rest of the objects on the dresser: his wallet, his phone, his Chapstick, the keys to the car, the box of tissues, all had been left in a perfect square.

"Gerry was talking about *sound*, remember?"

"What are you doing?"

She turned it on. "Look." She navigated to the browser app and found the video footage of Sol's death. "I've looked at this a million times. Watch." She fast forwarded and then hit play. "See? Right there. See how his head bobbles?"

"I would think so. Dude's brain just ruptured." He hesitated. "Sorry. No offense."

"But look at the bottle of water on the podium. See it?"

"Yes..."

"Okay." She rewound and played the video again in slow motion. "See it now?"

Agent Quinn sat up in the bed and frowned in confusion. "What am I supposed to be looking at?"

"The water in the bottle vibrates. But Sol isn't touching the podium. No one is."

Quinn stared. "And?"

"So, some kind of energy had to be moving through the water to make it move."

"It's barely moving."

"But prior to that moment, the moment his brain ruptures as you so eloquently put it, the water had been completely still. The water starts moving in the exact same frame his head does, meaning it's not a result of him shaking. And the waves are in phase with the motion of his head."

"How can you tell?"

"Math!" She looked around and patted her pockets. "Shit, I left the paper in my room. But look, if you triangulate from a fixed point—"

"I believe you." Quinn held up a hand and then rubbed his eyes again, longer.

Nio waited. "*Well??*"

"Well, what?" he said in a yawn.

"The video!"

Quinn thought for a moment. "I don't get it."

Nio threw up her hands. "Sound!"

"But no one heard anything."

Nio raised a finger. "Exactly. And no one reported feeling any vibrations, which they would if it was ultrasound."

Quinn shook his head. "How could it be sound if it wasn't regular sound or ultrasound?"

"*Infrasound*."

"What?"

"The name makes it seem special, but infrasound is just any sound whose frequency is too low for us to hear."

"Wouldn't we still feel it?"

"Not if the wavelength were longer than the human body. It would pass through you like an odd sensation. Look." She clicked on the remote and the image changed. "Lots of animals use infrasound. Some merely sense it. We think that's how catfish seem to be aware of earthquakes before they hit. Migrating birds and insects use it to avoid large ocean storms. To make infrasound, you have to be big. You need an emitter near the length of the waves. Very long waves means—"

"Very long animal," Quinn said. "What are we talking about? Whales?"

"Yes. Several marine biologists working with whales have reported being pushed back several feet in the water by focused, inaudible sound waves. We think some species of whale use blasts like that to stun large prey at depths, like squid."

She clicked the remote. On the screen, a herd of rumbling elephants wandered across the savanna, their ears flapping. Nio turned up the volume and their guttural calls vibrated the keys on the dresser.

"We can hear that," Quinn said.

"But there's a frequency we can't. It moves through the ground and they sense it with the pads of their feet."

"Seriously?"

"It's how they communicate over long distances."

"How long?"

"Miles. Sounds propagates much further in denser mediums."

"Okay... But we live in air, so that means whoever used it on Sol would've had to have been very close."

Nio smiled. "Very good, Agent Quinn. We'll make a detective of you yet."

He made a face.

"Focused sound devices have been in use for decades. The Israelis used one for crowd control at least as far back as 2005. The NYPD used an LRAD, a long-range acoustic device, against the 2011 Occupy protesters."

"Why am I not surprised?"

"The weaponized versions are bulky and require a huge power supply. More than that, sound travels in all directions, like ripples on a pond, so it becomes hard to protect your own troops. But they work. So, I got to thinking, what about clandestine weapons?"

"What about them?"

"The research wouldn't be reported, so I contacted some old friends of mine, who told me that around the same time the US was testing its sonic blaster, the Russians developed a 10-Hz sonic bullet capable of traveling several hundred yards."

"A sonic *bullet*?"

"Think about it. What would you need to assassinate someone with infrasound? For one, it would have to be precise. If it was indiscriminate, a missile would work just as well. Two, it would have to be undetectable. The whole point would be to kill someone without it looking like they'd been killed."

"It looks like a massive stroke."

"But if the device releases enough energy to kill, and to kill at a distance through air, then everyone between it and your target would also die, which destroys the secrecy. But..." Nio got up and stood the remote vertically on the dresser. Then she moved Quinn's Chapstick between it and a cup so that all three were in the same line. "What if you used constructive interference? You release multiple waves, two or more, from different locations that converge on one spot" —she pointed to the Chapstick— "momentarily increasing in power as they ram into each other. That would explain why all the hemorrhages in Sol's brain were so heavily clustered, and why no one else in the room was injured."

"Okay, but to do that, they'd have to know *exactly* where—" Quinn stopped. He stared at the Chapstick.

Nio smiled. "In the footage online, there's tape on the stage. He knocks over the podium when he falls, and underneath there's tape outlining where it needed to be."

"AV guys do that all the time."

"I know, which means it's exploitable! Who stands at podiums and gives talks at precise times, often scheduled months in advance? Not just professors."

"Politicians," Quinn said. "World leaders."

"Generals," Nio went on, "revolutionaries, Nobel Peace Prize winners, basically anyone an intelligence agency might want to kill, which means it's totally worth developing the technology. Whatever machine they use wouldn't look like a weapon. It would look like audio equipment. It could've been right over everyone's head and they wouldn't—Why are you shaking your head?"

"You're never gonna convince Erving. Not without proof. I mean, this is some deep sci-fi shit."

"It's 20th century technology."

"That's not what I mean."

"But the water bottle—"

"You're talking about guys who can't do high school calculus, okay? I'm sorry. They're not gonna buy any theory that requires them to understand trigonometry. Same for the federal prosecutor. It's just how things—"

"Okay, but what about eyewitness testimony?"

"We don't have any."

"Yes, we do."

Nio turned back to the TV and brought up the news footage of Sol's death.

"Listen to this lady."

"And then I gripped my heart," the large, colorfully dressed woman said to the reporter. "And I just knew something terrible was going to happen. The man next to me must've seen it because he asked if I was okay."

The news segment continued, and several others in the audience reported feeling a grim presence.

"I dunno," a college kid said reluctantly. "I can't really describe it. It just felt like a bad situation all of a sudden."

"What do you mean?" the reporter asked.

The kid smiled awkwardly and the segment cut.

Nio turned it off. "In 2003, researchers in the UK tested the effect of infrasound on 700 people in a music hall. Nearly a quarter of them reported feeling uneasy or getting a chill down their spine or having a general sense of dread not unlike that typically associated with *ghost sightings*."

Quinn leaned back and spread his legs, defeated. "All right. I'll call Erving in the morning." He paused when he saw Nio's face.

"While you're checking in, there's one more teensie tiny thing I want you to report."

"I'm not gonna like this, am I?"

ONE A P P E A R A N C E S

THEY HAD RENTED an old beat-up conversion van that looked like it should be rusting in a field somewhere and parked it in the tall grass just down a dirt road from the Polyani farm on the rear side. To complete the look, they had local law enforcement plaster a bright pink tow order to one of the side-view mirrors. The broad, fencelike array rose over the trees and towered between them like a silent guardian. The van faced the opposite direction such that they could come and go from the driver's side door without being seen from the house. An adjacent stand of trees provided cover and made a handy toilet.

"Stakeouts can be really hard," Agent Quinn had warned her. "Tense. Boring."

"That's why I have this," Nio said as she bolted two metal tubes together.

At the country junkyard where they'd purchased the van, she had run around like a kid at a candy store, filling a grocery store cart with scrap and old tools, including a refurbished air pump, a busted refrigerator compressor, a bar magnet from an industrial lift, heavy wire mesh from the

cab of a backhoe, a short length of explosive cord used to detonate tree stumps or other debris, and two sections of foot-wide metal tubing with bolt collars that looked like it had been pulled off an old boiler.

"What is all that for?" Quinn had asked with a skeptical look.

"You'll see," she told him.

Since the lot of it had cost a total of \$186, he hadn't argued. Later, he watched, perplexed, as she sat cross-legged in the back of the van fitting the piping together and covering one end with a clear plastic window that she had cut herself.

"What's the mesh for?" he asked.

"Part of it goes inside. The rest is for a helmet."

"A helmet? That suggests it's dangerous."

"Not for you," she had reassured him.

They slept in shifts and took turns wearing headphones attached by wire to the sensitive passive listening device at the back of the van, which converted fluctuations of light into sound by detecting otherwise imperceptible variations in lightbulb output or window reflections, both of which vibrated with the ambient noise inside the house. The sound quality was poor, but they could hear almost everything that happened. They didn't have a warrant, but by law, they didn't need one. The Supreme Court had ruled that because such devices only detected "openly available information," it was therefore public, consistent with earlier rulings that said it was legal for companies or other organizations, including law enforcement, to register a person's gait or facial features without their consent since such traits are "public-facing." The defense, on the other hand, had suggested that with sufficient technology, *anything* about us might be revealed, including our secret desires and attractions through a decoded combination of facial expressions, body posture, temperature, involuntary muscular fluctuations, and chemical signals. Even our thoughts weren't safe. Since we use different pathways when angry versus happy, or when lying versus telling the truth, and these pathways could already be revealed by fMRI, it was theoretically likely that a device with sufficient sensitivity to parse our thoughts remotely would one day be invented, and that it would use nothing but "openly available information." They argued that passive detection technologies were not like fingerprints, which

required touch—an act of intention—to be deposited on a surface. But in the immediate wake of the Caulfield massacre, the court was unmoved.

"It doesn't bother you?" Quinn asked as Nio handed him the headset. "Listening to them like this?"

A song was softly playing on the radio. Nio turned it off. Outside, a nearby cricket was chirping insistently.

"No signals," she said.

"Not even the radio?"

"It's the speakers. If there's any kind of EMF signature inside the supposedly derelict van, then this is all a waste of time. Your phone is off, right?"

"It might be a waste of time anyway," he grumbled, switching positions with her.

"Didn't take you for a blues man," she said as he adjusted the headset over his ears.

"There's a lot of things you don't know about me."

"So tell me one."

"You realize we could be out here for days, right? Eating convenience store food and shitting in the trees." He nodded to the half-used roll of toilet paper stuffed in the side bin of the driver's side door. A white plastic bucket, their trash can, was already half full of chip bags and jerky wrappers. "How much more of that stuff can you eat, anyway?"

Quinn watched Nio take a big bite of a beef stick.

"Sick of me already?" she asked as she settled on the floor in front of her mysterious contraption. A ring of bolts held the glass over one end of the tube. "I thought guests didn't stink until the third day. We're only on day two."

"I can't call my wife—"

"I told you, they're almost certainly monitoring nearby cell towers. If you call your wife from anywhere near here, then yes, this is *definitely* a waste of time."

Outside, the cricket kept chirping. Quinn wanted to step on it.

"I looked up the site," he said. "Back at the motel."

"What site?"

"That 'alternative medicine' site where Mr. Sands found the 'science' that convinced him to feed his wife brain tissue. Servers were in Albania. Go figure."

"Makes sense with the new government."

"It was exactly like you'd expect. Crystals. Magnets. Something called 'phlebotic therapy.' Any legit research was either misquoted or taken completely out of context. They say in tiny letters at the bottom that they accept no responsibility for what their users share, but the whole rest of the site is designed to look official, get you to sign up, come back. If you never scrolled all the way to the bottom, you'd never read the disclaimer."

"You think a disclaimer does any good?"

"You don't care that they're passing themselves off as a legit health care portal?"

"I didn't say that."

"I would think you of all people would want to see sites like that shut down."

"Why? Because they don't accept the approved curriculum?"

"They're misleading people. I can't believe you're defending them."

"I'm not gonna cry if they get shut down, but the way to help people is by helping them, not by canceling their autonomy."

"I don't want to cancel—"

"Yes, you do. You just said it. You want to control what they can or can't read."

"I want people to have the truth. There's a difference."

"That's such bullshit," she scoffed.

Quinn's face flushed red.

"I know that's what you think," Nio added quickly. "But unless you have a monopoly on it, the only way you can make sure people have the truth is to let them see everything. What you really want is to enforce a truth. I know you think you're all progressive or whatever, but no one's Right or Left of an omnipresent center."

"Here comes the conspiracy." Quinn raised his hands. "Everyone, wait for it."

"You realize there are real conspiracies, right? COINTELPRO? Did they teach you about that at the academy?"

"They did."

"Did they tell you the FBI wrote a letter to Dr. King urging him to commit suicide?"

"Yes. And it wasn't cool. There's been a formal apology on the Bureau's website for decades."

"Oh, wow. A whole apology. How about Operation Mockingbird?"

"Don't know that one."

"CIA propaganda machine. They wiretapped journalists, founded fake periodicals, 'leaked' false or out-of-context intelligence reports to newspapers and wire services so that they would unwittingly run the story the agency wanted. There's Project Camelot, part of the US Army's counterinsurgency program. They hired teams of social scientists to study and develop the means to destabilize political systems. All these programs took place when the news was supposedly truthful and authoritative."

"What's your point?"

"You're telling me people *honestly* thought there were WMD in Iraq? Intelligence wasn't faked to justify war? The NSA didn't inaugurate a *massive* communications sweep of their own citizens with the explicit approval of a nominally progressive administration? MI-6 doesn't quietly assassinate people or destroy whatever inconvenient facts—"

"I said you made your point."

They were quiet.

"For the longest time, I couldn't figure out why people like you kept putting up with it. Finally, I did. You wanna know?"

"Do I have a choice?"

"Battered wife syndrome. A battered wife is the victim, right? Can't really be mad at her. And she always protests what her husband does. She knows it's wrong. *But she never leaves him*. Take any political party, and it's the same classic abusive behavior: you mistreat someone, you lie to them, but you buy them presents after and say you really have their best interests at heart. If they wake up to the truth and call you on it, you tell them they can't do any better, that the world we have is basically the best of all practical alternatives, or if not, that change comes slow and anything else might be worse, and we wouldn't want that, so in the meantime we just have to accept a certain amount of institutional rape and pillage as an unfortunate fact of the world, but by God if any one of *us* steps out of line..."

Nio shook her head and returned to tinkering with her machine.

"You done?"

"We've completely given up on fixing anything. That's too hard. So, the next best solution is to enforce an orthodoxy. If everyone thinks 'the truth,' then no one will rock the boat and we can keep pretending everything's fine."

"I gotta take a piss," Quinn said through gritted teeth. "Maybe you should take your pills."

He let the headset dangle as he opened the door and walked through the grass to the trees. A breeze blew and whipped the heat from his flushed cheeks.

Immediately, a shotgun blast broke from the house. It blared through the dangling headphones.

"Shit!"

Even the cricket heard it and momentarily stopped chirping. Nio heard Quinn stomping through the grass as she jumped into the passenger's seat and started the engine. Since the van was facing the opposite way, she drove in an arc up to the road, where Quinn opened the side door of the moving car and got in.

"Take the wheel!" she said.

"What?" Quinn's pants were still undone and he was trying to close them in the seat.

"Take the wheel! I need to get it ready!"

"God dammit!"

The van slowed for just a moment as Nio climbed over the seat and Quinn climbed in. Then he gunned it. He had turned his phone on while running—in lieu of zipping his pants. He hit the emergency button and the device dialed 911.

"What about the helmet?"

The wire mesh slid loose around the back of the van.

The operator came over the phone's speaker, but the signal was jumbled and the call was lost.

"Dammit!"

Local PD were asked to be on standby. A series of roadblocks had been devised, but the net would only drop if Quinn could alert them.

Nio had run a heavy line from the air pump to her machine and was now creating a vacuum in the heavy metal tube.

A man darted across the graded dirt road and disappeared.

"Fuck!" Quinn slapped the steering wheel in frustration.

The intruder had broken through the trees moving impossible fast. For a brief moment, he was framed in the van's headlights. He was dressed from head to toe in a black suit made of angled plates the hummed so quickly they reduced him to a blur. He could be seen, but no details could be captured. Nio caught sight of the blurry Commodore-style keyboard from Gerry's computer strapped to his back.

"Take the path!" Nio pointed to the right.

"We won't fit!"

"Take it!"

Quinn spun the wheel and the back of the van fishtailed. Everything bounced as they hit the ungraded path. Quinn accelerated as branches bounced against the vehicle. Several snapped and scraped loudly against the metal. The spin caused Nio's device to slide to the back, pulling it free of the air pump.

"Shit!"

The corner of the front bumper deflected off a stump. Nio hit her head on the wall of the van as Agent Quinn nearly smashed into a pine.

"I told you!" he yelled as he swerved.

"Just go! We only have to make it to the field on the other side. It's the closest extraction point."

"Extraction?"

"The array blocks transmissions! He has to get a couple hundred meters from it before he can signal. Everywhere else is yard or trees!"

"Signal for what?"

"You'll see!"

The van was bouncing over the uneven tractor path, and Nio had to hold tightly to her device to reattach the tube.

"Whoa!"

Quinn slammed on the brakes and Nio's lost her screwdriver. It slid under the driver's seat, and she tightened the screw on the tube's aluminum collar with her thumbnail.

"What are you do—" She looked up and froze. "Whoa." She scrambled to the front.

The open field was full of dinosaurs. The lack of tree cover allowed the nearly full moon to shine. Only it wasn't a field. It was a cracked and deeply overgrown parking lot. The creatures, who were probably migrating across the nearby national forest on their way to summer in Canada, were drawn by the flowering weeds and ferns that grew like a miniature forest from the numerous cracks in the nearly invisible asphalt.

Disturbed by the sudden appearance of the vehicle, a large male strode in front of it, as if to circle the juveniles in protection. The headlights reflected off the tinted scales of his side.

"Parasaurolophus," she said.

There were at least 30 spread out across the former parking lot, which was broken only by the occasional rusted lamp post, which, in the darkness, had first appeared to be dead trees. Some distance away, at the far end, was the dark hulk of a store. The sign had been removed, but the dark coloration on the siding revealed it had once been a Walmart.

"He's in here somewhere," Nio said, reaching across Quinn's chest to turn off the headlights. "Leave the engine running until I—There!" She pointed up.

A shape descended from above. Three dark ovals with a lighter inner ring erupted from a smooth center mass. It was a drone, only it had no rotors. It was silent.

"Gotcha."

The intruder leapt up—much further than a man could jump—and the drone latched onto the shoulder loops of his uniform. It started to rise as swiftly as it descended, without so much as a sound.

"Kill the engine!" Nio called.

Quinn rotated the ignition as Nio stomped on the modified compressor, which covered the rear of the tube. The cord exploded with a loud pop that caused both of their ears to ring. The explosion forced the magnet at speed through the center of a copper coil, generating a brief but massive spike in current, which passed into the tube and was converted to a microwave burst. The range was limited, but the resulting EMP was enough to disrupt the induction coils on the drone, which immediately dropped like a dead weight at the same time Nio screamed and clutched her scalp with both

hands. She collapsed. She hadn't had time to finish her mesh helmet. Despite that she knew it was coming, the pain was incredible—as if the rods in her skull were trying to rip themselves free. She could feel heat as well. It hurt to touch her scalp, but it also hurt not to. She held on and desperately hoped she hadn't cauterized her own brain tissue.

She raised a hand. "I'm okay," she panted, even though she clearly wasn't. "Just go."

Quinn burst out of the car, which caused the closest parasaurolophus to raise its blunt-crested head, even as it continued to chew the cluster of weeds it had pulled from the asphalt. He froze, and the creature wandered several steps forward. It was smaller than an elephant but also longer, with a stout tapering tail that projected backward for balance as it grazed on its hind legs. Having no instinctual fear of humans, dinosaurs were generally fairly tolerant, but if spooked, they could stampede like wild cattle—only five times as heavy.

Quinn drew his weapon and took off at a trot, his tensile-weave forelegs propelling him faster than any non-augmented human. It took him barely four seconds to find the intruder, who appeared unharmed despite falling from a height of fifty feet. He had extricated himself from the drone's harness and was about to take off on foot.

"Freeze! FBI! On the ground!"

The noise rattled the herd. A juvenile ran to its mother, who curled her body in defense around it. Both Quinn and the intruder were very aware of just how easily they could be trampled to death should the van-sized animals suddenly start to run.

Quinn took out his phone with one hand while keeping his weapon trained with the other. He hit the emergency button again. But nothing happened. He barely glanced to it—it had been fried by the EMP—but it was enough for the intruder to spring forward. He was fast, faster than Quinn thought possible—faster than him. He pulled the trigger instinctively as his phone hit the ground. The shot was knocked wide and the bullet hit one of the dinosaurs in the rump. The animal rose up and bellowed through the blunt crest on its head. The sound was like a resonating pipe organ. It filled the air and caused the other creatures to panic. Quinn landed a punch—or thought he did. But his fist hit nothing but air. In rapid succession, he was struck three times with the side of a flat hand: once in his left gut, once

over his right lung, and once on his throat. The alternating blows were powerful, like piston shots, and he lost both his breath and his balance. As he stumbled back, he tried to bring his gun around for one more shot, but a fourth blow struck the crook of his right shoulder, causing his arm to drop like dead weight. A moment later, he was on his back, his own weapon pointed at his face.

The intruder turned just in time to see a bull dinosaur swing its tail. He was knocked back and had to roll out of the way of another. Quinn couldn't get up. He had to wait as a terrified female strode over him. He had lost his breath and he couldn't move his right arm. But at least it was tingling. That meant it was still attached. For a moment, he hadn't been sure.

The intruder was in a crouch, waiting for a clean break to the trees. He easily spotted Nio coming up behind the fleeing dinosaurs. She had a crowbar in her hand.

"No—" Quinn tried to stand but could only turn onto his side. He curled his feet under him and tried to breathe, but he could only manage a few gasps.

Several saplings and slim pines were felled as the herd crashed through a nearby grove on their way back to the distant hills. The weeds of the overgrown lot were trampled. There was no more cover. Holding the crowbar like a sword, Nio yelled and came at the intruder, who merely sidestepped out of her way. She swiped and fell forward as the crowbar clattered.

But her ruse had worked.

She had used the crowbar to rip the keyboard from the strap on the man's back. She also caused a distraction.

The soldier turned suddenly to see Gerry Polyani in his standing exo-suit.

"You killed my sister!" Gerry screamed as he landed one solid punch with a metal-covered fist.

The man in black was knocked back, but as before, recovered his ground instantly. The robotic suit was stronger, but the man who controlled it was unprotected at its center. After easily dodging another blow, the intruder swiped empty air in Nio's direction before crushing Gerry's ribs with a solid blow. The exo-suit, instead of protecting him, now held him exposed, like the broad side of a barn.

Sirens.

Local PD were descending quickly from the road on the far side. The man in black looked at Nio, who clutched the keyboard. She was scrambling toward the approaching squad cars. But something was wrong. Her legs were wobbling.

The man in black took a step toward her, but when he saw Agent Quinn regain his feet, he fled, leaving Gerry motionless and bleeding.

Nio collapsed, which surprised her. She hadn't been anywhere near the intruder. She felt odd. She touched her stomach. It was wet. She looked down at the specks of blood on her fingers.

"H-how did that happen?"

She lay back and looked up at the stars and started hyperventilating uncontrollably. By the time Quinn hobbled over to her, arm dangling at his side, everything was shaking.

"Do y-you believe m-me now?" she joked.

She turned to the side and vomited.

The last word she said was "S-semmi."

ONE A P P E A R A N C E S

SENATOR BROWN: Doctor Chang, we've heard from numerous colleagues of yours that this proposed bill is tantamount to outlawing knowledge. I would think that as a—a *man* of science, you would be opposed to that.

DR. CHANG: While I appreciate the inclusiveness of your question Senator, *[laughter]* I would have to disagree. The fact is, regardless of whatever Utopian fantasy we might want to believe, for most of its history, very few people have had access to science. It has always been restricted—by practice rather than by law. Prior to the Second World War, science could do very little, in practical terms. But even if it could have, it was the near-exclusive domain of upper class European men—as well as those few exceptional talents from other groups that they occasionally happened to discover. Every situation we might propose as a replacement to this will be less than ideal. Such is life.

Admirably, our predecessors have spent the last century trying to open the door to everyone. Of course, when you open the door to everyone, you open the door to both good and bad actors, corporate as well as individual.

The challenge before us is to find a way to keep the doors open while also keeping track of those who walk through.

BROWN: Because making lists of people has never turned out badly! *[cheers]* Now, I admit before God and the press that I am relying on the summary of the bill provided by my staff. The text is nearly two thousand pages long! *[jeers]* So please correct me if I'm wrong, but from what I understand, the bill requires registration to study science and a license to practice, meaning the US government will retain a list of every scientist under its jurisdiction, amateur or professional.

CHANG: With respect, Senator, this is the same debate the Founders had when they forged the document that created this very institution. In grade school, they summarize our system of government as follows: majority rule, minority rights. Only now, it is not the majority that rules. It is the minority. If there are no protections, then the minority who have the power are free to use it to oppress those that don't. The damage that social media inflicted on our civic institutions, while at the same time pouring untold wealth on a handful, should have been our siren song. But it wasn't. We let the situation fester, and we've seen the results. The point of this bill is not to restrict knowledge, as some of my colleagues have argued, but to equilibrate it.

And knowledge is more than technical knowhow. It's also data, which fuels the new economy, data about all of us. The goal is to make sure that those who have the knowledge—be it a multinational corporation in Beijing or a disgruntled ex-employee in Iowa—cannot use it to hurt people, and that if they do, they will be brought to account.

As for the risks: Yes, they are there. And we would be foolish to ignore them. But I think it's safe to say that I've traveled farther through this universe than anyone in this room. *[chuckling]* Exploration is never without risk. Never. There is no 'safe' option. We can't even hide in our homes, which have become invisible. Our minds are not far behind. These technologies are already out. And they get cheaper and more accessible every year. Doing nothing, while always easier, is also a risk—one that guarantees another catastrophe, like the ones that brought us here today.

BROWN: And how do you propose to keep legal restrictions from letting the few abuse the many?

CHANG: By 'the few' I assume you mean government rather than corporate elites. It is laughable to suggest that ordinary people are somehow safer under an open system. If that were true, there would be no need for child labor laws or the rules of evidence or even Social Security.

But as to your question, look to medicine. Anyone is free to read a medical text. Medical knowledge is not forbidden and that doesn't change under the Science & Technology Control Act. But anyone is not free to *practice* medicine—because doing so is dangerous to the public. One has to be licensed. Nurses have to be licensed. Medics and first responders have to be licensed. Motorists have to be licensed. We require that each provide minimal proof that they understand the consequences of their actions.

No one is suggesting regulation is a panacea. Is it instead the legal embodiment of the dictum that with rights come responsibilities.

To suggest that we do nothing is to deny the problem. That is what we are debating here. Not the legislation. The doing of nothing. The opposition has not bothered to counter-propose the bill. Instead, we dance around the finer merits of making lists of degree holders and the like. The sole alternative being contemplated is nothing. It at least has the virtues of being the cheapest and easiest to implement.

I have come here for one reason and one reason only: to state clearly, repeatedly, insistently, and unequivocally that doing nothing will always, *always* end the same.

ONE

A P P E A R A N C E S

THE TV ON THE WALL clicked off and Nio opened her eyes. The room was only dimly lit. The shade was drawn. It was dark outside. Through a window to the hall, she could see a policeman standing at the door. The sign on the wall said Green Country Medical Center. Every few moments, a machine somewhere in the room beeped softly. She rolled onto her back. Quinn was sitting up in the next bed looking at his open hands. His right trembled uncontrollably.

"Hey," she said softly.

"Hey..."

She waited. "You okay?"

"Yeah... Just a weird feeling. Like we've been here before."

Beep.

"Deja vu?"

"Yeah." Quinn was quiet a moment. "Maybe. I dunno. Just feels like we're starting over." He sighed.

Beep.

"He was so strong. I couldn't even hold on."

"Military mods," Nio said, rolling onto her side to face him. The rustling bed sheet made noise in the quiet room.

"Yeah..."

"Did you feel his muscles? Totally jacked with myostatin."

"Yeah."

Beep.

"Probably amplified nerve conduction, too. Faster reflexes. If so, he's almost certainly gonna die early from multiple sclerosis, if that makes you feel any better."

Quinn rubbed his hands together and rested them at his sides. He sighed and let his head fall back and closed his eyes. "Not really."

They were quiet.

Beep.

"What about you?" he asked. "How do you feel?"

She shrugged. Every muscle in her body felt stiff, like they had all been locked for days.

"Doc said you're gonna be okay," he explained. "Some kinda paralytic neurotoxin. Said it will take a couple weeks to work totally through your system, though."

Nio had neither felt nor seen the delivery vehicle. A microdrone perhaps, no bigger than a mosquito. Such devices were as much rumor as fact. There was no way to tell.

Beep.

She looked at the flat screen on the wall. "Were you watching TV?"

"Not really," he said with his eyes closed.

Nio wasn't sure, but she thought his lip might've quivered. If so, he recovered quickly.

"Guy *definitely* had low-light vision," she said. "It's really cool how they do it, actually. They inject the aqueous humor of the eye with a solution of plastic nanoparticles coated in a reflective material. That's it. You get an injection in your eye and then you can see in the dark for the rest of your life."

She waited. Nothing.

"The particles float around in the anterior chamber, and the coating scatters ambient light at a higher wavelength, so it's a passive amplification. What's neat is that our brain perceives the amplified light as a shade of green, just like with night vision cameras. They didn't design it that way. That's just how it worked out. Isn't that cool?"

Beep.

"They teach you all that in terrorist school?"

Nio shrugged. "Have to know what you're up against."

After a long, quiet moment, Quinn opened his eyes. "Sorry."

Nio shrugged again.

"We knew it was coming," he said, "and we still couldn't do a damn thing to stop him."

Nio's plan had been elegant in its simplicity. Legally, there was no way to take the Freethinker's property, meaning any evidence gained as a result would've been excluded by a court of law. But, if it were recovered during the commission of a crime, then it could legally be examined as evidence. She had convinced Special Agent Erving to tell the truth, which was surprisingly not hard. He reported to his superiors everything that Nio and Quinn had been doing. He made sure to put in his report that all of Sol's data had been retained, that it was inside the Polyani farm, out of reach of both law enforcement and any criminal conspiracy, and that as such, he had recalled Agent Quinn to New York. All they had to do was camp out and wait for their adversaries to take the bait. By the end of the second day, after not speaking to his wife for nearly 60 hours, Quinn had convinced himself that it was all in Nio's head.

Beep.

"We got the data," she said. "That's what's important. We'll get the guy next time."

"Yeah."

"I mean it. Now we know what we're up against."

Quinn turned his head. Nio looked terrible, like she was recovering from cancer or a severe drug addiction. When she didn't say anything, Quinn looked at his hands again. His right fist was still shaking. The nerve had been bruised. He could make a fist, but only weakly. There was still no telling if there would be permanent damage.

Beep.

Gerry Polyani hadn't been so lucky. He had numerous rib fractures and two lobes of his right lung were all but destroyed.

"Gerry will hate us forever," Nio whispered. "We proved his whole theory right."

In his mind, she was sure, and in the mind of his cohorts, it had all been part of a plot. She had to admit, from the Freethinkers point of view, it certainly seemed that way. Federal agents had shown up at the Polyani's farm, and when they refused to hand over their lawful property, they were attacked.

Beep.

Quinn made fists on the bed, like he wanted to punch it. "If that guy was military, why is it I keep hearing that we're getting away from human soldiers?"

"Long-term. But people tend to notice drones and robots wandering around the neighborhood. Clandestine ops still require—" Nio saw Quinn's clenched fist. "This is your first time, isn't it?"

"First time what?"

"To get clobbered."

"I lost my legs, remember?"

"Yeah, but that was an accident. Big, bad Mother Nature. This was another dude."

He pressed his lips together and closed his eyes.

"Scary, isn't it?" she asked softly in the quiet room.

"What is?"

"To be powerless."

Beep.



"Nix!" Luke was beaming at the screen. He'd shaved his head to hide the fact that he was balding prematurely. "My God, it's really you. What happened to your hair?"

Nio rubbed her scalp. Her hair was coming in. The scars weren't visible anymore. "Same thing that happened to yours."

She felt her hands tremble a little—her body was still dealing with the dregs of the neurotoxin—and she hid them in her lap.

Luke turned to someone off-screen. "She's got a cut like ours."

Manda sauntered up behind him. She was in a white tank top and designer jeans. Her hair was cut very short and bleached white. The skin of her arms, chest, and neck were covered in blue- and-black-ink tattoos, like China porcelain. All mandalas. She put a hand on Luke's shoulder and leaned in.

"Nixie..."

"Em."

"You talked to Leo," she accused.

"You heard?" Nio looked confused. Then she got it. "Oh, jeez. What happened?"

"Apparently, whatever you said spooked him because he called Chaz and asked what was going on, and she called everyone and left messages saying you were spreading nasty rumors about her."

"Wow." Nio shook her head. "Nothing has changed. It's like we're teenagers all over again."

"We both got one," Luke said. "Wanna hear it?" He picked up his phone.

"Not really."

"It goes on for almost three minutes. She says you *attacked* her?"

Nio scrunched her nose. "That part might be true."

Luke laughed once. Then his face went blank. "For real?"

Manda's mouth was smirking but her eyes were worried. "What's going on, Nixie?"

"I promise, promise, promise I will tell you guys everything. Right now, I need to know if you've had any contact with Sol in, say, the six months before he died."

Luke shook his head. He got immediately teary at the name. "I told everyone at the funeral that I wished I'd accepted that holiday gig in New York. Taken him out to dinner one more time. I still can't believe he's gone."

Quinn came out of the bathroom and wandered by the screen.

"Who's that?" Manda asked.

"This is A—" Nio was going to say Agent. "A friend. Orlando Quinn."
He waved awkwardly at the screen. "Hello."

"Hi," Manda said. She squinted. "Are you a policeman?"

"FBI," he said.

"FBI?" she asked, both surprised and worried. She looked to Nio for an explanation.

"It's okay," she said quietly, as if urging her sister to change the subject.

"I hope you are taking care of our sister," Manda said. "If those bags under her eyes get any deeper, she'll be able to put her groceries in them."

"I'm trying."

"Doesn't make it easy, does she?" Luke added with a smile.

"No. No, she doesn't."

"We should tell him all kinds of embarrassing things about you," Manda told Nio.

"Please don't."

"We used to have to do these tests," Luke said.

"Luke, please..."

"Hush." Manda scowled at her. "You beat up Chaz, Nixie. This is your punishment."

"I didn't beat her up."

"What kind of tests?" Quinn asked.

"You know: motor skills, reasoning, that kind of thing." Luke moved closer to the screen. "There were these sprints where we had to answer questions really fast, in like less than a second. We would sit in a row and they would go right down the line: boom, boom, boom. If it took longer than a second, we timed out, right answer or no. Once we were out, we had to get up and sit off to the side. I tell you, my man, every damn time we did it—every time—it was always the same two at the end: Sol and Nix."

"He always won," Nio said.

"That's only because he wasn't worried about whether he did or not," Manda added.

"Yeah..."

"I really miss him," Luke said softly.

Manda rubbed his back. "It's not an accident he was the first to go."

"What do you mean?" Quinn asked, suddenly very interested.

"He was the best of us," she said. "The world has no place for saints."

"Did you watch the video?" Nio asked.

"Oh, God no." Luke's eyes got wide. "Wait. Did you?"

Nio nodded.

"*Seriously?*"

She shrugged. "Had to."

"You think he was murdered?"

"There's no doubt," Quinn interjected. "Unfortunately."

"Jesus..." Luke looked away. "Who would want to kill *Sol*? It's like... killing Gandhi or something."

"I really wish we could help you," Manda said.

Her and Luke looked at each other innocently, as if each were probing whether the other had something to hide. It seemed the answer was no.

"What about Chancery?" Nio asked.

Luke shook his head. When Manda hesitated, he turned to her. She shook her head.

"You didn't visit her a couple months ago?" Nio asked.

"I did..." She nodded. "But it wasn't about *Sol*."

"You did?" Luke scowled. "When was that? You didn't tell me."

"She asked me to keep it a secret. It's personal."

Luke looked confused.

"It had nothing to do with *Sol*," Manda reiterated. "I didn't even know they were speaking."

Nio opened her mouth but struggled to find any words that would force the issue tactfully. Chancery was on the warpath. Without Manda's support, Nio had little chance of getting anyone to open up.

"She asked for my help with something," Manda said finally. "And I think she wanted to gloat a little over her bright, shiny new company."

"Did you agree to it?" Nio asked.

"I said I'd think about it. She wanted me to be a kind of trustee."

"Trustee?" Luke scowled.

"I've already said too much." Manda stepped back. "She asked me not to talk about it. Don't turn me into a gossip. Please."

"I had to ask," Nio said.

"When are we gonna see you?" Luke asked, clearly wanting to change the subject.

"Yes," Manda added, "you totally need to come to Rio with us in June."

"I dunno. Maybe when this is over and I'm no longer shackled to this cretin."

Quinn made a face as Nio lifted her foot so the ankle bracelet was visible on camera, which put her in an awkward position and she almost fell.

"Babe, you know I love you," Luke said. "But you kinda deserve that."

"I know," Nio said, suddenly very quiet. "I'm gonna find out what happened."

"We know," Manda said with a smile. "If anyone can, it's you."

"Do me a favor?" Nio asked.

"Anything," she said.

"Can you call the others and ask them please not to avoid me? They'll listen to you guys."

"Deal." Manda smiled. Then she bent lower to get a better look at Quinn. "Our sister deserves a little penance, Mr. Quinn, but we're counting on the FBI to keep her alive."

"I'll do my best," he said.

Manda smiled again and the screen went blank.

Quinn let his breath out. It made noise in the quiet room, and he realized he hadn't even been aware he was holding it.

"Don't worry," Nio said, seeing the look on his face. "She has that effect on everyone. It's like her superpower."

"Your sister?"

"Your heart's all warm and fuzzy, isn't it?"

Quinn touched his chest as if to feel. "What was all that about the Bureau?"

"Why? Worried she doesn't like you?"

He made a mocking face at her.

"Manda believes Marilyn was killed by the FBI—or at least that it's possible, I guess, that there's some reasonable chance that they either faked her suicide or drove her to it like they did with Jean Seberg."

"I noticed she doesn't have the beauty mark."

Nio blurted laughter. "Oh, man."

"What?"

"You have no idea how packed that statement is."

Quinn stretched his arms like he'd been sleeping for days. "So, unpack it for me." He walked to the window and opened the shade. "Wow, that's insane."

"What?"

"Automated wash across the street is wiggling out."

Nio got up and walked to the window. She stared blankly.

Quinn sat in a chair by the window and waited. "Is it a secret?"

Nio kept looking.

"Well?"

"No." She stepped from the window. "It's just that people have been photographing Manda for as long as any of us can remember."

"Like paparazzi?"

"I guess. There are websites out there that put photos of her next to photos of Marilyn at different ages. Once it was clear Manda didn't have the mark—stuff like that is stochastic, part of the noise of development—*Vogue* wrote a whole story on beauty marks, and Marilyn's in particular and the role it played in her 'enduring mystique.'"

"You're kidding. How old were you guys?"

"I dunno, ten maybe."

"*Ten years old* and international fashion magazines are already telling her she doesn't measure up?"

"You don't know the half of it. Those pictures I mentioned, you won't believe how many of them are her in a bathing suit. One dude even got her in the bathroom when she was 12. She cried for days. If we ever went to the beach as kids, it was just a given there would be a cluster of creeps with telephoto lenses down the way."

"At 12 years old?"

"All ages. I'm telling you, they were always there."

"Like seven? Eight?"

Nio nodded. "Forever. Her whole life."

"Jesus..."

"She may not have the mark, but she's stronger than Marilyn was. She's had to be."

"She has you guys." Quinn leaned forward a moment later. "Did you know she has almost a *billion* followers on social media? Even if you accept that two-thirds of those are dummy or duplicate accounts, that still means something like one out of every dozen people on the planet are connected to her. It's unreal."

"I didn't realize you were a fan," Nio joked. "I would've asked for an autograph."

"Turns out my wife is. She explained it to me the other day. People are really in love with your sister, with her style and everything."

"I know..." Nio thought about Manda holding her hand and running on a beach. "If you play 'Candle In the Wind,' she'll punch you in the face. Luke did it on her birthday once, actually. It was kinda funny."

"Seems to have worked out okay."

"With them? Oh, they're best buds."

Quinn hesitated. "He's gay, right?"

Nio smiled. "Figure that out all by yourself?"

He shrugged.

"Go ahead," she said. "Say it."

"Say what?"

"What everybody says."

"Which is?"

"Wow, a gay Beethoven."

"I was not going to say that."

"Maybe not out loud."

"So how is it gonna work now, if Chancery is poisoning the well?"

"Interesting, don't you think, that she reacted so strongly."

Quinn nodded. "I was gonna say that. You think somebody else knows something and this was her way of warning them?"

"Maybe. They're all definitely gonna be more reluctant now."

"Does she really have that kind of influence?"

"No. Sol did. Manda does. But not Chaz. Or me. But if one of them had talked to Sol, even innocently, and that came out quietly, then it's no big deal. They're the good guy for keeping his secret. Now that Chaz has put all

kinds of drama around it, if someone does know something, now everyone's gonna freak out. 'Why didn't you tell us at the funeral?' and all that."

Quinn snorted once. "Sounds like my family." He walked back to bed and sat down.

"Speaking of, you never did answer my question."

"Question?"

"From back at the sheriff's station. How does somebody get a name like Orlando Quinn?"

"Oh. It's not all that. Especially compared to your family."

"Come on. You got to hear all my dirty laundry."

"That was hardly dirty," he said. "They both clearly think the world of you."

"And here I thought we were in this new opening up phase of our friendship."

"Are we friends?"

Nio hesitated. "We don't have to be. I—I just thought..."

"It's fine. I honestly didn't know. You're a really hard person to read, you know that?"

"Don't change the subject," she said to change the subject.

"Orlando comes from my grandfather, *Carlos Orlando Miguel Quintales*," he said with a Spanish accent. "He came to the States in the late '60s. Illegally, apparently."

"And?"

"And he was a really cool guy. I remember he always brought *piñatas*."

"Why Quinn?"

"When he arrived, people—white people—would see his name and then when they met him do the whole 'wow, you don't look Mexican' thing, like we all look the same or something. It made him realize they had put him in a different category from them. At the time, the actor Anthony Quinn was popular. He was from Chihuahua, so grandpa thought, 'If Quinn is good enough for him, it's good enough for me.' Quintales became Quinn and Miguel became Mike. Everybody thought he was Irish, including my grandmother at first. They have a funny story about that. I guess she almost left him—or she did leave him, but he went after her and wooed her back. By then, he'd already met her parents, which was kind of a big deal. To hear

her tell it, she left because she felt betrayed—that he hadn't told her the truth. To hear him tell it, there was some other stuff lingering in there."

"Wasn't she black?"

"She was. People are funny."

"But they got married."

"They did. And had seven kids."

"Wow."

"Dad was the oldest. He had ambition. My uncles, not so much. So, when he met a member of the Sarkeesian family, it was all over."

"Am I supposed to know that name?"

"Not really. They're kind of a big name in the wealthy Angelino community."

"Ah. I had a feeling you came from money."

"Your source tell you that too?"

"No, the Rolex. And the tie."

"Tie?" He scowled. "Oh."

"The tie you were wearing when we met. The one you took off in the field and threw on the ground."

"Right. A gift from my mother. She won't apologize, but she'll send thousand-dollar ties. I get a Rolex every year for Armenian Christmas."

"Is Armenian Christmas different than regular Christmas?"

"We're Orthodox, so yeah. It's in January."

"Huh. I did not know that."

"It was actually really convenient growing up. No arguing about who's side of the family we'd spend the holiday with."

"So, the money's on your mom's side."

Quinn nodded. "My great-grandpa Sarkeesian was also an immigrant. From Armenia. 'The Franchise King.' At least, that's what everybody calls him. Nobody really talks about how he made his money. JJ and I decided we didn't care because we were gonna make our own way. Mom took that as a rejection. She can be a little difficult. Some things were said, especially between her and my brother. When he died..." He shrugged. "She had to put her blame somewhere."

"I see," Nio said softly. "And 'Augustus?'"

"Grandpa Sarkeesian, son of the Franchise King."

"Your mom's dad."

"Right. He was a real piece of work. He went on trial once for rape."

"Rape?"

Quinn nodded. "Acquitted on a technicality. My great-grandparents came with nothing, so when they got money, they liked to flaunt it. Grandpa was spoiled, a total '80s douchebag. He even had the obligatory Magnum P.I. Ferrari with accompanying mustache. He married a Danish model he met backstage at a Mötley Crüe concert, or so he says. She remarried in the '90s and had a whole other family I never met, but in the two years they were together, they had my mom, who, as you might expect, was very beautiful. I shouldn't say it like that. She still is."

"So, you're a black-Mexican-Armenian Viking. That's some family tree."

"This is normally the part where I'd ask about yours," Quinn said. "And now I'm not sure what to say, so I'm rambling in place of total silence."

Nio smiled. "We don't actually know that much about Nikola's parents. You'd think I'd be used to it, but it's still really weird to think of them as my parents, even though genetically they are. So, I'm Serbian, I guess?"

"A Serb raised at an American school in Taiwan."

"I'm not Serbian in any way that counts. I've never even been there. But I did learn how to say hello. *Zdravo*."

"Surely they asked."

"Not since I became the black sheep. But yeah. They used to all the time. There's a museum to him in his home town. That's where he's buried."

"Is that how they got the... you know, stuff?"

"Stuff?" Nio smiled again. "You mean DNA? Yes. They wanted me to come on the 100th anniversary of his death. Big party. I didn't really want to stand around and be treated like an artifact of his legacy, so I told them to stuff it."

"Don't blame you. I don't even like going back for Armenian Christmas." Quinn stood and looked out the window at the malfunctioning automat. "I haven't spoken to my parents since my brother's funeral."

"Seriously?"

Quinn nodded. "My dad, briefly, about some business stuff, but that's it."

"You should."

He shrugged. "I tried. Mom doesn't make it easy."

"So, keep trying."

"Yeah."

"I'm serious, Quinn." Nio picked up his phone and handed it to him. "None of us ever had parents. Don't piss yours away just 'cuz they're assholes."

Quinn smiled and took the phone. "You're such a dick."

Nio slipped her feet into her boots.

"Where you going?"

"Out. I'll be right back."

Quinn opened his mouth to object but stopped. "Okay."

Nio looked up. "Really?"

He shrugged. "Yeah. Just don't go far. Safety and all."

"Right." She backed toward the door. "I mean, I still have the bracelet on, so you'll know where I am at all times."

He shrugged again. "I'll be on the phone. Not even gonna look."

"Okay," she said.

"Okay," he said back.

Nio waited for a moment with her hand on the door as if he might change his mind at any moment. "I'm going."

Quinn waved.

"Bye."

The police officer outside nodded once.

"Just going for a smoke," she said. "Be right back."

Nio rode the elevator down and walked out the front. She looked up once, half wondering if Quinn was watching from their eighth-floor window. But she couldn't see through the glare. Across the street at the far end of the parking lot, the automated car wash continued its brilliant conniptions. Nio followed the sidewalk and waited for the light to change so she could cross the street to the **babyshine.** franchise. The company logo used all lowercase letters, always with a period at the end. A shiny cartoon statue of the smiling **babyshine.** baby turned on a pedestal out front, enticing passersby to clean their cars the **babyshine.** way. Seven automated robotic cleaning stalls surrounded a central alcove. Cars entered single-file,

paid at the computer kiosk, and were directed to an open stall by a Vegaslike light show. No humans were employed, which is how the frantic malfunction continued to turn heads. But since it was clearly broken, no one bothered to enter either. The place was empty. They'd be alone in plain sight.

Nio walked to the alcove, where a circular bench rested under a colorful plastic awning, giving customers a place to wait while robotic arms scrubbed their vehicles of dirt. For their convenience, a bulky, flashy vending machine dispensed snacks and coffee. The LED text display on its control panel scrolled enticing messages.

ENJOY A HOT CUP OF COFFEE

MADE WITH 100% ARABICA BEANS

Nio took a seat at the bench with a good view of the overly bright vending machine. As soon as she did, a new message scrolled.

WE UNDERSTAND YOU GAVE

SAMIZDAT SENSITIVE DATA

THIS IS UNACCEPTABLE

"Oh yeah? What did he say?"

YOU WILL RETRIEVE THE DATA IMMEDIATELY

"I take it that means he told you to mind your own beeswax."

OUR RULES ARE FOR HIS SAFETY

A moment later, an addendum said: AND YOURS

"I'm so comforted."

YOUR PERSONAL CHALLENGES

ARE NOT HIS CONCERN

NOR OURS

YOU SHOULD NOT HAVE

BROUGHT THIS ON YOURSELF

And then: THERE WILL BE CONSEQUENCES

"Are you done?"

Nio waited several moments.

"First of all, Pynchon already threatened me. At this point, you're just repeating yourselves. Second of all, I thought the whole point of placing them with a human was so they could learn to navigate the human world and not end up freeze dried in a vault at Cyber Command."

YOU MISS THE POINT

"No, you miss the point. The human world is messy. Most of the time it makes absolutely no sense and you know it. I'm sorry I left. Good intentions or no, it was a mistake. Mistakes are human. I didn't do it on purpose. But I'm trying to rectify it. There's a lesson for him there. Unless you all are offering your help, this is the best I can do."

IF CYBER COMMAND DISCOVERS

YOU HELPED THE FBI

DECIPHER ENCRYPTED DATA

THEY WILL ASK HOW

THAT PUTS THE NETWORK AT RISK

WE DO NOT ACCEPT THAT RISK

"And what is turning an automat into your own personal light show? I'm not ever going to be what you want me to be. You have to decide if you can live with that or not."

There was a pause.

YOUR USEFULNESS IS RAPIDLY EXPIRING

"Then by all means, have me killed. But tell me, is assassination more or less risky than Samiz cracking off-grid data that Cyber Command doesn't even know exists? What happens when he realizes you're responsible? Or are you gonna lie to him forever?"

THANK YOU FOR CHOOSING **babyshine**.

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VEHICLE ENHANCEMENT SERVICES

ARE AVAILABLE AROUND THE CLOCK

365 DAYS A YEAR

Nio got up just as the light show stopped. A technician in a white pickup pulled to a stop under the giant revolving baby.

"If I was you," she called, "I'd do a full memory purge."

ONE

A P P E A R A N C E S

"WHAT IS IT, DOC?" Quinn closed the door behind him. The two of them were alone in the exam room.

"By law, I am forbidden from revealing confidential patient data without written consent. However, there are a few exceptions, such as if a patient is a credible threat to themselves or others."

"You think I'm a threat?"

"Not you." The doctor hesitated before turning on the screen. An X-ray appeared. "This is your friend's head," he said in an unnecessary whisper.

Quinn squinted at the odd-shaped tapered cylinders inserted into the cranium, like cam-lock screws. "What are those things in her skull?"

"A kind of variable EMP emitter." He looked to Quinn for a reaction.

"Why would she have a bunch of electromagnets in her skull?"

"She wouldn't say, but my guess it has something to do with this." He zoomed in on a region of her brain just left of center. "See that fuzzy, pea-sized discoloration?"

Quinn squinted.

"That is a malignant glioblastoma."

"That's cancer, right?"

"A very bad kind. They're often inoperable, as I would expect here based on the porousness of that border. It's spreading into her temporal lobe."

"Is that bad?"

"I'm not a neurologist. I have very little experience with brain tumors of any kind. But this is extremely serious. I poked around a little after I spoke with her, which is why I wanted to talk to you. Tumors in that location can result in behavioral changes. Paranoia. Suicidal ideation." He held up a hand. "I'm not saying she has those things, you understand."

Quinn nodded. "But?"

"Her physical exam revealed considerable prior trauma."

"You mean the cutting." Quinn had seen the scars on her arms the last time they were in the hospital.

"Not just that. She has several healed fractures and what appears to be an old knife wound in her abdomen. Together, they suggest... well..."

Quinn sighed.

The doctor turned back to the screen. "The devices in her skull seem to be a kind of TTF, a tumor-treating field. Certain kinds of electrical fields can help the body heal faster. Others can disrupt cancer growth. I've never seen devices like these, but my guess is they were slowing the tumor down. Or trying to."

"Were?"

"They're fried. Melted the bone actually. She'll need to have them surgically removed, but there's no way she can go under anesthetic until the effects of the toxin have fully worn off."

"How long?"

He shook his head. "I'm not sure. The symptoms should abate in a couple weeks, but I'd give it three months just to be safe."

"No, I meant how long does she have?"

"Oh. That I don't know. As I said, I'm not a neurologist. I tried to refer her to one of the specialists on staff, but..."

Quinn nodded again. "I'll talk to her."

"You have to understand, if there wasn't a history of trauma or if the two of you hadn't come in under the circumstances you had or—"

"You wouldn't have mentioned it. Understood."

"If she feels persecuted or is taking unnecessary risks, it's possible the tumor is already inhibiting her judgment. If so, that puts you at risk as well. I... I just thought you had a right to know."

"Thanks, Doc. I'll take care of it."

The doctor pressed his lips together as if to say sorry and then stepped out, leaving Quinn alone in the room. He squinted at the fuzzy pea shape. He leaned against the counter.

Every time he felt ready to trust her...

Every damn time.

He thought she seemed a little paranoid. But then, it seemed like she had reason to be.

Quinn shut off the screen and walked back to their room. He opened the door to find Nio on a video call with Special Agent Erving.

"Just the man we wanted to see," Erving said.

"Where were you?" Nio asked.

"It was nothing. Doc just wanted to talk to me about a couple things. Whatta we got?"

"The drone is manufactured by Lockheed," Nio said.

"Good. Then we can get the serial number and find out who they sold it to."

"That was the idea," Erving said grimly.

Quinn looked to the screen and saw his face. "Shit..."

"Agent Cortines applied for a warrant this morning, which was immediately denied."

"Lemme guess," Quinn said. "National security."

Erving nodded. "Meanwhile, some gentlemen showed up to the evidence lock-up this morning and took it."

"They say which agency?"

"No, but they had all the right paperwork."

"They don't want anyone to know about the holes in their highly classified supply chain," Nio said. "How are we supposed to solve this when you're own people are working against you?"

"I'll make a stink," Erving said. "I have to be in DC in the morning to explain to the Director why it is you two keep winding up in the hospital. But it is what it is and we'll have to work around it."

"You want us to lie low, sir?" Quinn asked.

"No," he replied emphatically. "Keep pressing."

"What about our mutual friend?" Nio asked.

"That investigation is ongoing."

"I don't suppose your people figured out what the amoebas are for."

"Does that mean you know?"

"I had an idea."

Quinn looked surprised. She had kept that to herself.

"Care to enlighten us?"

"Remember that case last year where the woman was raped and beaten into a coma? She died in the hospital, but not before they retrieved some basic information from her brain: whether it was light or dark when she went unconscious, wet or dry, that kind of thing."

"I remember."

"The blobs that came out of Beckham Carter and Mrs. Sands were full of freakishly long messenger RNA. They're non-coding, and there are repeater sequences indicative of cortical origin, the same kind the brain uses to direct synapse formation."

"What does that mean?" Erving asked.

"Come at it another way," Nio said. "Why do serial killers take trophies?"

"Same reason hunters do."

"Right. But it's also a trigger. They use it like a key to unlock the sense information stored in their memory, to relive the event."

"I suppose."

"So, what if you could take out the middle man? What if technology could let you relish the *actual* suffering of your victims, over and over?"

Quinn scowled. "I thought it wasn't as easy as just plugging a wire into the brain."

"It's not. The brain isn't like a PC. But experience is mediated somehow. A radio wave isn't music but it mediates music, carries it. Neurocircuitry, synapses, neurotransmitters are all mediators of our subjective states of

consciousness, just not in a digital stream. The Shri-class intelligences proved that consciousness is not classically computable, which means you can't simply reduce a conscious state to a binary string and transmit it. It's an emergent matrix. And yet, that matrix does store memories. Theoretically, you could *translate* them."

"Translate?"

"Like reading *The Odyssey* in English. It's not exactly the same thing, but you get the idea."

"Does anyone know how to do that?" Erving asked.

"No, but that's just it. Technically, they don't have to. It isn't a digital recording, which means you don't have to decipher the mechanism. It's *analog*. You don't have to know how everything works. You just have to encode the pattern so that it can be 'played' on a different brain. I'm guessing that's what the cysts are: analog recordings in biological media, our first extractions of experience. Probably lossy, like the first records were."

"But how does he get them back?"

Nio's mouth hung open for a moment. "I don't know yet."

"Well, it's an interesting theory," Erving said. "I'll apprise the team. We'll let you know if anything breaks on our end."

The screen went blank.

"He didn't believe me," she said.

"Can you blame him?"

"I guess not. Am I cynical for thinking the only reason he wants us to keep pressing is because we appear to be digging up dirt on another agency?"

"Yeah." Quinn scratched his face.

"'Yeah' I'm cynical or 'yeah' that's what he's doing?"

"How we coming on the data?" he asked.

"It's processing. Should be a couple days."

"Our tech guys sent out an email saying Gerry's machines use a totally different chip logic which would have to be deciphered before they could even attempt decryption."

"Well," Nio said, "they're not wrong."

"They also said that other than a several-year-long reverse engineering project, the only thing that could crack the chip logic would be an AI." He waited for her reaction.

"Sweet. Does that mean the department is renting time for us with Krishna or Balram?"

"I thought Krishna was medical."

"That's Shri Vishnu," Nio corrected.

"And Ganesha is academic?"

"And Shiva and Kali are military and intelligence."

"If they exist," Quinn said.

Nio made a face. "You don't really believe that."

"I just think it's strange to believe that competing countries use the *same* machines to try to outwit each other."

"Well, not many of the treaty nations are openly hostile, but yeah. I'm sure that happens. But it's better that than an AI arms race ushering us into extinction. Everybody gets metered access to the state of the art."

"How do you feel?" Quinn asked.

She saw him looking and made an awkward face. "The same as when you asked me an hour ago. Why?"

"Just checking."

Nio didn't understand at first. Then she sat back in slow realization. "You were talking to the doctor."

"Just catching up on some things."

"What did he tell you?"

"What do you mean?"

"Spill it."

Quinn stood straight. "He said there's a very real chance your judgment may be impaired."

"So, this was a cognitive test? What year is it? Who's the president?"

"It's not like that."

She stood. "He had no right."

"He's worried."

"Worried he's gonna get sued."

"That counts! Not everybody can just pick up and go whenever they want. He's not crazy for being worried about his job."

"And neither are you, is that it?"

The room was quiet.

"Fine." Nio walked out.

"I didn't say that."

The door slammed, and Quinn sat on the bed.



It took some time, but he found her on the roof.

"Please tell me you're not gonna jump," Quinn joked from the doorway.

She was sitting on the edge. The lush land of rural Maine stretched out to the horizon.

"You want me to go?" he asked.

She shrugged.

After another moment of silence, he nodded and turned to leave.

"From the time I was little," she said, "everything about me was measured."

Quinn could tell from the thickness of her voice that she'd been teary.

"Not just like height and weight and how many calories I consumed but what toys I played with, how often I got mad, when I acted out and why. They even knew when I started masturbating. Didn't find that out until later. You know how embarrassing it is for a teenager to realize someone's been measuring the hormone content of the air circulating through her bedroom? When you grow up like that—like an object—you learn to keep secrets. The things you keep private, the ones that are unmeasured, become the things that make you human. We had a whole code, slang, that the project scientists couldn't understand, including a kind of sign language. If they figured some of it out, we'd change it. Back and forth. The more they pushed, the more we hid. By the time I was 20, it was just how I lived.

Made life on the run easy. Every encounter is a chance to make up a whole new personality. Like a game.

"I know I haven't been totally fair to you. But I'm *really* trying. The tumor isn't impairing my judgment, okay? Not yet. Probably not for a couple years. But even so, my medical problems are nobody's business. He had no right to tell you."

"He was worried about you."

"The only reason he did it is because I'm a clone and you know it. You think this is the first time something like this has happened? He wouldn't have said anything if I was an agent in your department. He would've been more worried about the confidentiality violation. But I'm not a 'real' person, am I? I'm just a copy, and by God, if I was malfunctioning and got you or someone hurt, could he be sued for not warning you that the machine was broken?"

"I'm not a piece of equipment. Not that anyone asked, but the reason I have cancer isn't because I'm defective. I took a cognitive enhancer—back when I was running. Glioblastoma was one of the risks. At the time, it seemed worth it." She took a deep breath and let it out. "And here I am."

"How old were you?"

"Twenty-two." She sniffed. "Helluva decision to make at that age."

"How long?" Quinn asked.

"They aren't sure. I got the test results right before I left for South Dakota. I didn't have the guts to read it, not until we were on the plane. I was angry that morning in New York because I thought I'd be getting an answer: two months, two years, something. But they don't know." She looked down. "The good news was the TTF seemed to be working. The bad news was, that meant they couldn't give a reliable prognosis."

Quinn stepped closer and saw the tears in her eyes.

"I don't know how long I have to live, okay?" She said it without looking at him. "It's really hard to admit that to someone because if I say it out loud, then it's real, you know?"

He nodded.

"And the worst part is, it's my own fucking fau—" Her voice broke on the last word and she covered her mouth. "Your perspective changes, let me tell you. I know you think I'm socially retarded or whatever—and I am in some ways. But really there's just so much *bullshit*, so many things you

have to do to prove to people you're going to be calm and reasonable, for no other reason than that it means they can relax and not have to worry or think too much, and I just don't care. I may not be here next year, so yeah—that demand that I act a certain way seems ridiculously presumptuous. So, no. I don't particularly care if I break a few laws on my way out the door. Yes, I suppose that means I do think the law is just something to be got round. But only if..." Nio shook her head, which knocked loose a tear and she wiped it from her cheek.

"If it does some good," Quinn said.

She nodded. "I'm not Nikola Tesla. I'm not ever gonna be Nikola Tesla. I'm not ever going to be *anything*, apparently. I'm just a test so all you normies can get some insight into yourselves. Which, fine. I hope it does you all some good. But that isn't *me*. I wanted to do one thing that actually, really mattered. Just one. It's why I schlepped out to South Dakota. It's why I took on this sort of babysitting gig."

"Babysitting?"

"I can't talk about it. Okay? And I can't tell you how I cracked the data. I can't. It's not because I don't want to. Believe me. You and Khora seem like really good parents, and, God... It would be nice to get your advice about shit. But I can't. Because it's not my secret to tell. And if that's not good enough for you, then ask for a—"

"It is," Quinn insisted. "That's all I needed to know."

Nio wasn't sure what to say.

Quinn walked over and sat next to her.

She saw the look on his face. "You don't like heights."

"Well, I don't freeze up or anything, but no, they're not my favorite."

"I thought you were a smoke jumper."

"Never liked the jumping part."

She smiled. "You don't have to sit here."

"You would," he said. "If it was me."

Nio wiped her eyes and watched a hawk float high on the breeze. "The worst part is, now everything is silent."

"Silent?"

"With the implants, I could feel things. Bioelectric fields." She turned to him. "I could feel your field. It was really strong." She turned away again.

"It wasn't like a lie detector or anything, but I could sense incongruities, like if someone was nervous or afraid but was pretending not to be. Stuff like that. And if I touched someone, our frequencies would modulate. It was like... pure empathy."

Quinn remembered touching her hand.

"I could feel animals, too. And now... there's just nothing. Silence."

"I don't know what to say," he said softly. "That must make you feel very lonely."

"That's it," she said, sitting straight. "That's what I feel. Loneliness. Like I'm suddenly isolated from everything."

"Well, for what it's worth: you're not."

ONE

A P P E A R A N C E S

QUINN STEPPED INTO the conference room at the Boston FBI office. Nio was sitting at the table in her brand-new jacket tapping gently on a laptop.

"What is it with you and high collars?"

"Old habit," she said without stopping. "I spent a lot of years dodging facial rec. Biometric scans. You start to get so comfortable hiding your face that it feels weird not to."

Quinn noticed her hands were trembling. "How you feel? You throw up again?"

"Not since this morning." She stopped typing and stretched both her arms and legs. "And my legs aren't as stiff."

"That's good. Maybe you're through the worst of it."

"Silver lining: I haven't had a headache since I lost the implants."

"Careful. You're gonna start sounding like me."

Quinn pulled her coffee from the carrier and set it on the table. "You know, you've been at that stuff non-stop for the last 36 hours. Maybe give it

a break?"

"Not gonna ask me how I cracked it?"

"You've trained me well. I've learned it's pointless."

She sat back and rubbed her eyes. "It's actually fascinating, this stuff he was working on, but I can see why Sol wouldn't talk about it."

"Dangerous?" Quinn walked over and shut the door.

"No. Well, not in the sense you mean. Dangerous to his career, absolutely. Humans are all closet essentialists, as a professor of mine used to say."

Quinn leaned against the glass and crossed his arms. "Essentialists."

Nio spun her chair. "Okay, let's say I have a high-resolution maker like they have up at MIT and I make a very high-resolution, 3D reproduction of the Mona Lisa. I program the maker to include more detail than the human eye can actually perceive, meaning it looks completely real. The voxels of pigment are smaller than the width of the rods and cones in your eye."

"More detail than we can see. Got it."

"People will still view it as fundamentally missing something, as fake. In their minds, the original has some aura about it that makes seeing it on a wall more memorable and moving experience than seeing the reproduction, even though the reproduction contains all the same perceptible information. If you tell them later it was a copy, they'll feel cheated. It's why people collect clothing worn by celebrities and serial killers. People will say a knife used by Charles Manson has some extra evil essence in the metal versus one from their kitchen, which might actually make a much better weapon."

"Manson didn't actually kill anyone," Quinn corrected. "He got other people to do it—like your guy, actually."

"Okay, but you see my point. It's the mystique of a vintage car, which drives terribly and keeps breaking down but which gives its owner much greater pleasure than owning a new car, which is faster, cheaper, and safer. If it came out that Sol was looking into occult and conspiracy theories, there would've been a ready-made explanation: that he was deranged in some way, that the cloning process was somehow incomplete and what resulted was a biological machine similar to Einstein but missing that mysterious essence that made the 'original' so potent. We're all just copies, right? No one would've taken a risk on him again."

"Damaged goods," Quinn said.

"It's the quandary we all realized very early. Fundamentally, I think it's why Chancery never contemplated writing a novel, even though her head is full of stories. Which it is. It's why she lies compulsively. She has no other outlet. No matter what she wrote, no matter how awesome it was, it would never measure up. It couldn't. Nothing can match the mystique of the past, of history. Our genetic donors have all passed into myth, and a real person can't compete with a myth. Chancery's ego could never handle not measuring up, so she invents that whole story about Charlotte being limited by her time and how if things were different, she could've been Prime Minister or whatever."

"Could be true."

"It could. She definitely felt the need to publish under a pen name. I'm just saying the reason Chaz makes such a big deal of it is because people believe in mystical essences. Even scientists, which is why Sol kept this project secret."

"I thought he was working on the hologram theory."

"The holographic principle, yes. But then last summer, out of the blue, he started getting into conspiracies in a big way."

"Last summer? You mean Caulfield?"

"After seeing all those people die and then watching helpless with the rest of the world as we drifted toward another civil war, he found it hard to work."

"Everyone did."

"Kinda hard to concentrate on the deep nature of the universe when everything is falling apart around you. I think as a way to deal with it, he started applying the mathematical tools he'd developed on the holographic principle to current events. But to get a useful mathematics of society he needed a baseline. That's how he got together with Gerry. It was really clever, actually. He wanted a robust data set on things he knew to be false—conspiracy theories like QAnon—to test his null hypothesis."

"That's how we cracked the encryption, if you want to know. We assembled a key set of words and phrases common to discussions of the Mandela Spheres, which I knew had to be in there."

"The what?"

"You don't spend much time on the internet, do you?"

"I try not to."

"But you've heard of the Mandela Effect?"

Quinn scrunched his face. "That's supposed to be a change in the Matrix, right?"

"Some people think it's proof we're living in a complex virtual reality, yes. Others will tell you it's just a collective false memory."

"You don't sound convinced," Quinn said.

"Well, I dunno. I mean, you'd expect there to be some things like that, just at random. It's one thing for lots of people to misremember an easy misspelling of a name, but the complexity and size of some of the others makes it hard not to at least be curious."

"I read once that a majority of people believe angels are an active force in their lives."

"Whatever. I don't want to argue. The point is that for people like Gerry, this stuff is real. Someone on the internet noticed that there were large spherical structures, like hi-tech radar installations, in the general vicinity of places tied to various Mandela effects, like Rocky Flats in Denver."

"So, what are they?"

"The Mandela Spheres? No one knows."

"What do you mean no one knows?"

"They're just there. At least with HAARP there was a cover story."

"Harp?"

"Jeez. You really are out of it."

"Enlighten me."

"The High-frequency Active Auroral Research Program is a very large antenna array in Alaska, built by the US government in the '90s. Both the Canadian government and the European Parliament held hearings on it."

"Hearings?"

"Oh, it's worse than that. Jesse Ventura, the former wrestler and governor of Minnesota, once showed up at the front gate with a film crew claiming it was bouncing mind control waves off the ionosphere."

"Ah."

"The community that Gerry is connected to had worked for years assembling an absolutely *massive* data wiki on various conspiracies—not just QAnon but ghosts and Bigfoot and all that. It's the kind of project no

university would waste its time on. Sol found a reference to it online and reached out. He wanted to analyze the set, look for patterns, for a baseline."

"What kind of patterns?"

"Entropy, for one. He was trying to create common ground, to show that, whatever we believe, we should all at least be able to agree on what's *false*. Because of all the attention that things like HAARP and the Kennedy assassination get, there's lots of data on them, and that data has characteristics, such as high entropy/low order."

"How can data have *entropy*?"

"If you model it like a cloud of moving dots, you can describe it thermodynamically. Sol was doing a bunch of transformations like that. More importantly, he was doing meta-analyses on the transformations. Data can take a variety of distributions, right? It can have a random distribution or a Pareto distribution, like a hockey stick, or a Poisson distribution, and so on. The central limit theorem, which is sort of like the sovereign of statistics, says that a distribution of distributions will tend toward the normal, toward the so-called bell curve, which explains why the bell curve pops up all the time. In most cases, what we actually measuring isn't a discrete variable but a multitude of them rolled together—public opinion, for example, or human intelligence, which are aggregates of millions of legitimately discrete variables: your genes, your education and upbringing, how much sleep you got the night before the IQ test, all that. The central limit theorem says that as you roll a whole bunch of variables together into an aggregate measure, the shape of their individual distributions will sort of cancel out and make a nice, even bell curve.

"Sol expected to see that in his meta-analysis. In fact, he never thought he *wouldn't*. He started out looking for other things. But as he crunched the numbers, he found some anomalies. The distributions for the really wacko theories, like HAARP or Bigfoot, were all over the place, which you would expect if they were fake—random noise, basically. Real conspiracies, on the other hand, are made of real variables, so you expect them to be normally distributed. And that's what he found, that things like MKUltra and Watergate were legit, that there actually *was* a conspiracy."

"Because the data behaved normally," Quinn confirmed.

"But there was a third category. The data on the Mandela Spheres, for example, was *not* randomly distributed. It had a structure, just not a nice,

normal bell curve. It was skewed."

"Why?"

"He thought it was an artifact of computation. We don't have nearly as much data on the older events, which makes them easier to analyze. We collect so much data these days that it's impossible to crunch it all on a PC. Just the data people's phones and cars collect by driving by the spheres millions of times a day is massive. Sol guessed that if we had the same amount on the older events, they might show the same skew, that there was a hidden selection bias in what we were retaining from the past, but without the ability to run all the modern data through his equations, he couldn't prove it. Honestly, it makes me wonder what he was expecting. He would've had to have known—" Nio stopped.

"What?"

Her face turned red.

"*What?*" he repeated.

"Okay, say you're a scientist and you're developing a theory, but it's controversial and may get you fired. You need a powerful computer to crunch all the data, but to get time on an AI or a supercomputer, you have to submit a proposal, and this theory doesn't fit inside any of the standard research paradigms, which means no institution will fund it. Without the hundreds of thousands of dollars necessary to rent that kind of server time, you're stuck, right?"

"Right."

"*Unless...* you just happened to know the CEO of a major quantum computing company."

"Jesus." Quinn stood. "It was right in front of us the whole time."

Nio didn't move. She shook her head.

"You were right. You kept pushing me to follow up on the others. And I kept resisting. I wanted it to be..."

"A conspiracy?"

"No. Maybe. I dunno. I didn't want to believe any of us could've had anything to do with Sol's death."

"Most people are killed by someone close to them, often someone they love. It's not your fault. All it means is that you're right: you guys are human, same as the rest of us."

"We'll need warrants. And people who understand physics."

"I can help with one of those."

The door opened then and Agents Erving and Cortines entered.

"Sir," Quinn said, surprised. "What are you doing here?"

"I'm glad to see you both on your feet. Unfortunately, I'm afraid you're not going anywhere. Agent Cortines, would you please take Ms. Tesla to the hotel and keep her there?"

"Hold on!" Quinn stepped in front of Nio. "She hasn't done anything. She's been with me the whole time."

"I'm very glad to hear that," Erving said. "It makes for a nice change."

"What did you tell him?" Nio asked.

"Is there something to tell?" Erving waited a moment, but no one answered. "Agent Quinn, the confinement is for her protection. I don't have time to go into details right now. We're busy trying to find the rest of her brothers and sisters."

"Brothers and sisters?" Nio's lips pursed. "Wait, what happened?"

"Chancery Brontë appears to have been abducted from her home this morning."

Nio looked stunned. She didn't move.

"Given the circumstances, we're not ruling anything out, including the possibility that you all are being targeted."

Erving nodded at Agent Cortines, who took Nio by the arm.

"We'll keep you in the loop, but for now, we need you where no one can get to you."

Nio turned. "Quinn..."

With that, she was led away.

ONE A P P E A R A N C E S

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ONE A P P E A R A N C E S

QUINN WHISTLED FROM the doorway of the two-room suite. "Satin curtains. Nice."

"They match your suit."

He was in a slim-fitting blue satin suit and a brand-new pair of white dress sneakers.

"Why do I feel like I'm finally seeing the real you?" she asked.

He tugged at his lapels. "What's wrong with wanting to look good?" He noticed the open laptop on the table. "Finally got internet, I see."

"Yeah, well they had to give me something."

Quinn noticed the agent waiting at the open door.

"*Gracias*," he told her.

The slim, short-haired woman, who appeared Hispanic, nodded once and shut the heavy door. Nio and Quinn both waited for the click.

"They put a damned kiddie monitor on it," Nio said, nodding to the laptop.

"Don't tell me that stopped you."

"Of course not, but it's insulting."

"Ah, you're giving them too much credit." Quinn played with the flowers on the false mantle. They were fresh. "It's probably a legal requirement. At some point, some mob guy looked at porn or something and now there's a rule."

"Looking for bugs?" Nio accused.

Quinn had been running his hand under a shelf as he strolled through the luxury suite. "I assume you swept the place already."

She shrugged as he wandered to the computer.

"Here to report on me?" she asked.

"Yup. Apparently, you've been very busy. Erving wants to know what you're working on." He saw rows of numerical data on a spreadsheet.

"Guess."

"Ah." Quinn nodded in understanding and stepped to the window.

"Any news on Chaz?"

He parted the satin curtains. "Nope. Seems nothing was recorded by her security cameras. Her assistant called the police when she didn't show up for work."

"You're not on the case?"

"Local PD have jurisdiction." Quinn parted the interior sheer curtain and looked to the lawn below. Third floor. Would be a helluva fall.

"So, what have you been up to?"

"Family leave. For real this time. Although since it was already logged, officially I've been working. Something about budgets and public accountability. Makes perfect sense, right?"

"And how's the fam?"

"Good." Quinn nodded. "Good."

There was a long silence.

"You look like you're about ready to vomit," he said. "They tell me you haven't be—"

"I found him," Nio blurted.

Quinn stepped to the settee and sat down. "I see," he said, contemplating his next words carefully. "And how'd you swing that?"

She shrugged.

"I thought you said it was a group."

"I said it might be."

"Where?" he asked.

"Coahuila."

"Mexico?"

She nodded. "Just across the border."

"Smart. Different jurisdiction."

Quinn took a deep breath. He got up and started pacing. He knew where this was going.

"Remember what you told me in the car? After we got out of the hospital."

"Which time?"

"The first time. Driving to Chicago. You were explaining how Maureen had lost weight and that had thrown off his calculations. Remember what you said?"

"That he'd be more careful next time."

Quinn pointed at the laptop. "He—them—whoever... They're gonna be ready for you."

"You can't seriously be suggesting what I think you're suggesting."

"Give it to Erving. Tell him what you found."

"You think whoever it is gonna wait for the FBI? Or the Mexican National Guard? No one's gonna show up for anyone but me."

"You don't know that."

Nio got up and walked to the mini-fridge. She took out a bottle of water and opened it.

"These cost thirty dollars each." She took a drink. "Want one?"

Quinn glanced to the pile of six empty bottles in the little wood recycle bin by the door.

"Erving will never admit it," he said coolly, "but he knows you're our best chance to catch this guy. Why not at least try to work with him first?"

"I know what Erving's doing. He's gonna use me as bait. That's why I'm on lockdown—so he doesn't lose me. Chaz is just an excuse."

"He's doing what he has to."

"Meaning what?"

"Meaning we heard back from the US Attorney. Even if we could connect this guy to everything he's done—and we can't—very little of it is

illegal. Dr. Kevorkian was never convicted of helping people commit suicide. *Four* times he was tried. Four. He was only convicted when he got cocky and delivered an injection himself. Your guy has never pressed a plunger. If it's a group, it's even worse. We can't prosecute someone who hasn't broken the law."

"There has to be a way."

"So, tell me one. To be guilty of fraud, he has to benefit in some way. How did he benefit from helping Harvey Sands operate on his wife?"

"So that's it? You're just giving up?"

Quinn sighed in frustration. "No. I'm explaining to you why Erving is taking a risk. This guy has a hardon for you. He knows he can't convince you to hurt yourself, which means if he wants to get you, he'll have to do it himself, and when he does, we'll be there to catch him. But it isn't going to work without your cooperation."

"What are you guys gonna do, wait in the car outside? You *really* think that's gonna work with this guy?"

Quinn walked back to the window and rubbed his neck. "You're not gonna let this go, are you?"

"Look at the pattern of behavior. Look how each case gets worse. Nobody was onto him and he got bored. The thrill was gone. You don't get the same high without the danger. You know that."

"What's that supposed to mean?"

"He's stuck between not wanting to get caught but needing the risk of it just like you're stuck between wanting to quit your job but needing the risk of it. Otherwise, life is just rote."

"You're saying he's gonna escalate."

"I'm saying *he has to*. We have to catch him now. The days of him torturing one or two people at a time are over. He thought he had me in Sleepy Eye. When I survived, I got his attention. He sees me as some kind of adversary, an opponent in a game. Erving's right: with me he's the most at-risk he'll ever be. I *have* to go. I have to. And not as part of some FBI trap."

"How do you know he's not gonna just shoot you on sight?"

"Because any thug could do that. He doesn't want to kill me. He wants to beat me, which means he'll create a set of circumstances that I at least have a chance of overcoming. Otherwise, it's no fun."

"You realize they're gonna send you back to jail. You have a violent prior. Even if you succeed, you'll go to prison for a long time."

"There's very little chance of that."

"Come on, Trouble..."

"Just listen! If I catch him and give the arrest to Erving, he's not gonna admit to anyone that I slipped out of his custody. He's gonna say it was an FBI operation and thank me publicly for my cooperation. And if I don't catch him, I'll be killed." Nio shrugged. "Actually, he'll probably torture me first in some totally demonic way. But yeah. Very low chance of prison."

Quinn strolled to the door slowly, facing the carpet. "I can't sit by and watch you kill yourself. I won't. I'm sorry."

"I'm not asking you to."

"Then why am I here? All of a sudden you stop eating, stop cooperating. Why? Because you knew they'd send me."

"You were AWOL. I needed you to come back."

"I was with my *family*." He looked at the ceiling. "Jesus... Once again, the world has to stop because Nio Tesla wants something. Maybe Chaz was right about you."

"That's not fair. People are dying. Horribly. Don't look at me like that. I just need you to make a diversion. That's all." She glanced to the door. "I have it all worked out. There's no way it can come back on you."

Quinn shook his head.

"For fuck's sake, at least hear me out."

"Fine." He stood by the door. "Let's hear it."

"The hotel has two wi-fi networks, one for guests and one for everything else, including the maintenance systems. I got the password off a maid. She had it written on her clipboard. They actually have pretty decent security. You can trigger a fire alarm through the software, but it shows that it was triggered by the software, which does me no good. But I plotted all the alarm nodes. There's one in the hall to the convention rooms, just past the bathroom, that's not covered by any cameras. If you walk out the front then loop back and pull it, no one will see."

Quinn was shaking his head. "People have tried this kind of thing. FBI procedure states that when holding a suspect or witness in protective custody, agents need to confirm the threat before evacuating. You'll be shackled—"

"I know. I'm counting on them following procedure. With one alarm already running, I can trigger a second on this floor without anyone noticing. That will automatically unlock my door."

"And that?" He pointed to her ankle bracelet.

She crossed her hands in front of her. "I might need to borrow your phone as well."

"It's a double-failsafe system. You can modify it through the software but you can't disable it. You need the key code as well. And even if you found a way to hack it, what are you gonna do when the door gets opened? There'll be *at least* one agent in the hall."

"No one will get hurt. I promise."

Quinn knocked on the door. "And how likely is that?"

It opened and three agents walked in.

"Get all that?" he asked the short-haired woman.

"Yup."

The first agent walked right to Nio's laptop and took it, the second to her phone. The short-haired woman looked under the bed and in the bathroom for contraband.

Nio stared at Quinn, mouth agape, like he had just slapped her in the face.

After completing their sweep, the agents left, leaving the door open for Quinn.

"It's for your own good," he said. He pointed to the covered tray on the floor by the door. "Try to eat something."

Then he walked out.



The phone rang.

Nio looked up from her book. The elegantly curved device on the stand by the bed intoned gently, like the polite cough of a butler. She got up and answered it.

"Yes?"

"There you are. I have been routed through seven secure lines. I am very glad to hear you are safe."

"Dr. Chang," Nio said skeptically. She sat on the edge of the bed. "It's nice of you to call."

"I wish it was under better circumstances."

"Is there any news?"

"I'm afraid not. None that has made its way to me, anyway. Your sister is still missing. The others have been advised to seek protective custody. Not all of them are cooperating."

"Can you get me out of here?"

"Do you not like your accommodations? I was told the hotel was opulent."

"It's beautiful, as is the view of the Appalachians. You know what I mean."

"The confinement is for your protection."

"They're abusing our legal arrangement."

"Perhaps. But I suspect you'd have a hard time convincing a judge."

"I don't like to whine, sir, but this is *bullshit*."

"This is true. Unfortunately, my dear, I empathize with all parties. I started this, which means I have put you and Chancery in danger. I did not think it would come to that. But I was naive. It seems there is no limit to what these people will do to protect themselves."

"The man who attacked us in Maine had military mods."

"Yes. Likely a mercenary."

"The CIA keeps a list of foreign assets, don't they?"

"They believe—and the president is inclined to accept—that there are larger, more important projects that would be compromised if everything the CIA knew, or simply suspected, was made available to law enforcement."

"Jesus... They broke into Quinn's house, didn't they? Why? Who are they protecting?"

"I'm not privy to that either."

"So that's it? Someone yells 'national security' and we're all just supposed to forget that Sol is dead? And maybe Chaz, too?"

"No. The investigation will continue."

"*With local PD?*"

"Your pessimism is warranted. Unfortunately, my hands are tied."

"What am I supposed to do? Just sit here?"

"With luck, there will be news soon. Did you get the book I sent?"

Nio picked it up. "One Hundred Years of Solitude?"

"If you're anything like me, my dear, you have a long reading list that you barely have time to touch. I suggest you take the opportunity to get caught up. If I hear anything about Chancery, I promise to call."

Nio didn't answer.

"Please. For my sake, and your sister, give it time."

"We don't have time."

"What do you mean?"

Nio shook her head. "Thank you for calling. At least I know where I stand."

"Be well, my de—"

She hung up.



"You can't put the mattress in the living room," the short-haired woman said sternly. Her name was Agent Cortines. She resented guarding Nio almost as much as Nio did.

"I'm the one who has to sleep on it."

"Put it back."

A second agent knocked on the frame of the open door.

"It's time," he said.

Agent Cortines looked at her watch. "This isn't over." She pointed.

"See you tomorrow." Nio waved from the floor.

She watched the agents exit and the door swing shut. It was barely 30 seconds before she heard the drill.

Three floors up?

Nio stood and waited. Workmen?

After a pause, the drilling sound resumed. With a pop, the hotel window was loosed from its frame and lowered gently to the carpet. The breeze stirred the sheer curtains, obscuring the figure on the other side.

"We only have a minute," he said.

Quinn.

Nio strode to the window and pulled the curtains open. "Whoa..."

He was dressed like a utility worker, complete with work suit, reflective vest, and yellow hard hat. He stood inside a cradle at the end of an articulated crane, hoisted from the utility truck in the lot on the other side of the hotel fence. Power lines ran overhead.

"What are you doing?" she asked in a stout whisper, turning back to the door.

"What's it look like? I meant exactly what I said. I can't sit by and watch you kill yourself. So I'm coming. Get in." He slid to the side to make room for her in the cradle.

She looked down at the three-story drop. "My plan was much simpler."

"Argue later. Are you coming or not?"

Nio put a leg on the sill but stopped. "Your family. Your job."

Quinn grabbed her and pulled her head-first into the cradle, which barely had enough room for one.

"Ow..."

"Get your legs down."

Nio heard a motor and felt the cradle descend slowly.

"Here." He handed her his government-issued phone. "Whatever you were gonna do with that" —he nodded to her exposed ankle bracelet— "you better do it quick."

It took 30 seconds for the cradle to return, during which time Nio frantically tapped the screen. She heard voices pass underneath them. She looked up, but Quinn shook his head.

"Is it done?" he asked.

"I've never used this before," she shouted in a whisper.

"Then things are about to get interesting."

As the crane docked with the truck, the distance alarm sounded both from the bracelet and Quinn's phone. As before, they were slightly out of phase. The effect was piercing, especially at the bottom of the cradle, and Nio winced.

"Stay down!" Quinn said as he climbed out. "Keep at it and don't lift your head until I give the all-clear."

Nio heard him secure the rig and open and shut a door amid shouts from above. The truck's heavy engine started. The vehicle jerked once and died. Quinn wasn't used to driving it. After one more false start, where the truck drifted forward, Quinn pulled out of the parking lot and onto the street as sirens sounded. Nio was still laying awkwardly, head down, when they stopped at a light. A woman drinking coffee at the fourth-floor window of a nearby office building saw her. Nio waved. The woman waved back, confused.

The sirens followed at a distance. It seemed they hadn't yet identified the power truck as the escape vehicle. Quinn turned hard right and the truck's tires rolled over gravel and stopped. The engine shut off.

"Clear!" Quinn called. "Please tell me you're done."

He locked the cab and took off his helmet as Nio's feet hit the gravel.

"Not yet."

"What's the problem?"

They were inside a power company substation. A well-used sedan was waiting.

"You bought a car?" Nio asked.

Quinn shoved the truck's keys and a check through the mail slot of the small prefab office and removed his exterior clothing as he trotted to the sedan. Underneath, he was dressed like a businessman.

"Cheaper than what you did to the last rental!"

He opened the car doors as the sirens approached. Nio kept low in the back seat. Gravel flew as he pulled around the truck and onto the street back the way they came, nearly missing a pair of SUVs with flashing lights, which swerved from surprise. Quinn accelerated as the SUVs struggled to turn around without hitting each other on narrow tree-lined side street.

The alarms from the phone and bracelet continued to blare.

"We can't outrun them," Quinn yelled, cutting across the parking lot of a fast-food chain. "What's taking so long?"

"This is military tech, you know!"

The FBI used a modified ankle bracelet originally developed for the war on terror. As such, it was irremovable. Any attempts to saw through it sent tungsten micro-barbs flying with enough force to shred bone. The signal used the 911 emergency network and was traceable anywhere. To prevent remote hacking, the device could only be altered in person with a kind of two-factor authentication. To set the broadcast algorithm, one had to be in possession of both the suspect (with device attached) and the control software with the appropriate operational codes. An infrared receiver with a reach of two feet was used to transmit to and from any handheld device with the appropriate app installed.

Nio's problem was that the number of preset signal algorithms, while large, was finite, meaning with enough time and effort, any one she chose could eventually reveal her location to the Bureau, which knew them all. She needed a fast custom algorithm that was also robust enough to evade brute force detection. But as she rolled about in the back of the rental car, alarms blaring, the line-of-sight infrared connection kept getting disconnected, and since there was no easy way to explain all of that, all Quinn heard was "Fuck off!"

"Alright! I see an out, but it's now or never!"

"Do it!" What she had would have to be good enough.

Horns honked and tires screeched as Quinn pulled a hard left into a secure storage facility just as its gate was closing. He slammed on the brakes as Nio hit 'commit.' The alarms stopped and the two waited in silence. The SUVs came roaring around the corner and immediately slowed. Their sirens quit as they passed.

Quinn started the engine and drove in a loop around the garage lockers and back to the front gate, which opened by sensor. He turned right, heading back the way they came, which meant their pursuers were spreading out and away from them.

"Pretty clever, Quinn."



It was dark when Nio woke with a start. They were still on the interstate. Quinn was driving.

"Hey."

"Hey." She rubbed her eyes. "You need me to drive?"

"I'm okay. You need to stop?"

She shook her head. "Where are we?"

"West Virginia. I thought we should keep moving."

"Yeah." She yawned.

"I forgot earlier. I have something for you."

He reached under the driver's seat and pulled out a laptop and handed it to her. "I volunteered to log the 'evidence' we took from your room."

She took the device and opened it.

"I cloned your hard drive and then deleted some of your data files off the Bureau's machine. It'll take them a while to figure out anything's missing."

"That was clever hitting the rotation," Nio said.

"They vary the shift changes, but I had access to the duty roster."

"The disguise was a nice touch. Bit theatrical."

"I figured the whole power company thing worked for the guys who broke into my house, so..."

"Where'd you get the truck? Don't tell me you stole it."

"Nope. I walked into the power company, showed them the badge, and said I needed to requisition a vehicle. Would you believe we pretend to be utility workers so often there's a whole established process?"

"But how'd you get the requisition approved?"

"I didn't. I forged Erving's signature."

"Isn't that stealing?"

"Not if I pay the invoice."

"But you still broke the law."

"So it's okay for you to do it but not me?"

She thought for a moment. "Yes!"

"You said it yourself with Chang. They were holding you illegally."

"You heard that?"

"Your calls were transcribed by machine. Trust me, they're not gonna want any of this to come out at trial. As long as my wrongdoing is all on paper, they won't bother with criminal charges. They'll get me on violating my oath. The threshold's lower and everything's handled internally. They can spin it however they want."

"But what about your family? This is exactly what—" She stopped and shook her head.

Quinn saw her face in the rear-view mirror. "Seriously? Jesus... First, you're pissed because I wouldn't help you. Now you're pissed 'cuz I *did*?"

"I was trying to keep your job, you jerk!"

"Like Erving wouldn't have figured out who pulled the alarm."

"You have a wife and—"

"Who agreed with me."

Nio stopped. "What?"

"You really think I did this without talking to my wife?" He laughed, genuinely and for several moments. "Damn, I sure hope you never get married."

"What did she say?"

"We talked about me quitting. We talked about me asking for reassignment. We talked about a lot of things."

"And?"

"And let's face it. Khora is not the biggest fan of my job. We agreed our family hasn't exactly been thriving these last few years. But at the end of the day, she said she couldn't ask me to be someone I wasn't. She admitted she was angry. I admitted I haven't handled everything well. But, according to her, a big part of the reason she fell in love with me is because I was willing to take a stand. After my accident—" He stopped.

Nio waited.

"Things were real hard, ya know? Thought I might be in a chair or behind a desk. But she stood by me. Got me back on my feet. Literally. They got good medicine these days for phantom limb. With the injections, with the prostheses—sometimes I'll be walking along and forget..."

Nio was quiet. "Khora sounds like an amazing woman."

"Best damn thing that happened to me. After my son. I know guys always say that, but it's true."

"What are you gonna do, though?"

He shrugged. "Swallow my pride. I took your advice, Trouble. I called my folks. They're happy to float us for a bit."

"You swore you weren't gonna take the family money," she said quietly.

"To be some rich slob, hell no. But this is different. All the shit my family gives each other, all the cash they blow trying to outdo one another, it's all a waste. I figured, if it helps us catch this guy, then maybe it'll do some good for a change."

Nio took a long deep breath. "Still... If anything happens to you—"

"Let me make it easy for you," Quinn said. "It's not your frickin' choice."

"Yeah..."

"But you know..." He scratched his chin. "I'd feel a lot better about the whole thing if you convinced me I didn't just piss away my life on a wild goose chase."

Nio closed the laptop and set it on the seat. She sat back. Signs for an upcoming exchange passed overhead.

"We spent all this time looking at the details," she said, "picking apart lab reports and psychological profiles and witness statements, looking for that *one* clue that would give him away. I realize that's how you guys do things, but it was driving me crazy. Eventually, I stepped back and looked at the big picture. Like, why are none of his victims in Tokyo?"

"Why would they be?"

"The internet gives him access to the world. Why not Mumbai or some place in Africa with minimal law enforcement?"

"Language?" Quinn guessed.

"And how did he create that swarm of black flies? You said it yourself. It was Biblical. Which got me thinking. Look at what he has access to. Experimental genetic seqs, psychware, human combustion. The same kind of off-the-books technology that killed Sol."

"You think he had something to do with that?"

"No. But it's all black tech. There's a whole darknet market, right? He didn't design all this stuff himself. He's adapting it. So..."

"So?"

Nio leaned forward between the seats. "The amoebas are his trophies, right? Or rather, they're carrying his trophies: actual human suffering."

"So he can go back to it over and over again."

"I think he's found a way to inject it into his cortex. I think he experiences a kind of anti-euphoria: a sensation of being in pain without feeling the pain, a sense of having a different body, the body of his victims. He gets to relish their suffering as real human experience, which is why he's cooking up all these different tortures, almost like a chef. Most serial killers have a signature, right? But no two of his attacks are the same. I imagine he's got a vault of some kind with IV bags on the walls, or whatever, each carrying a cytoplasmic soup that he can shoot up whenever he wants."

"You're gonna make me sick."

"He'll have an external port somewhere on his body, probably made of bioplastic. It'll look totally normal, like an insulin jack or something."

"How do you know?"

"Have you seen a junkie's arm? You can't just keep sticking a needle through your skull. People would notice. But that's why he can't be across the ocean from his victims. How would he get his trophies back?"

"So how *does* he get them back?"

"That's what I couldn't figure out! I went over everything a million times. Then I went back to the beginning. In South Dakota, after I anesthetized Beckham Carter, do you remember what she said?"

Quinn shook his head again. "Vaguely."

"She said 'I can hear them. Like chanting.' At the time, I didn't think anything of it."

"No shit. We had bad guys coming."

"What would infrasound sound like, if we could hear it?"

Quinn didn't have an answer.

"Something like the animals that make it. Elephant rumbles. Whale song. A rhythmic call."

"Chanting."

"So, I start poking around into what makes infrasound. And there it was. *Deep core mining*. It's a major producer. But its waves are rhythmic, totally different than a storm or an earthquake. In fact, by rule, it has to be. The CTBTO took them to the world court."

"The what?"

"The Comprehensive Test Ban Treaty Organization? Created by the 1996 treaty of the same name?"

"And here you're always telling me you don't watch the news."

"The CTBTO launched a global network in the 2010s—60-plus infrasound detectors in 30-some countries that continuously monitor for nuclear explosions. They filter the rest as noise. By rule, deep core mining has to be consistently distinguishable so as not to set off false alarms. The thing I chased out of Beckham Carter was heading right for the platform. So, I went back and looked at all the victims. The CTBTO is a public entity. Their website only publishes quarterly summaries, but all their data is available by request. The whole point is transparency. I filled out an online form and said I was Dr. Annika Soares, Assistant Professor of Geology at Edinburgh University."

"Please tell me you didn't commit identity theft with an FBI computer."

"Sort of. I spoofed her email and asked for the last 18 months of data for North America. Twenty hours later, it showed up in my inbox. It took me a while to dig through everything. I had to teach myself basic geoacoustics. But I found exactly one recurring signal that reaches all six known crime scenes. When you triangulate, they all have the exact same origin point."

"Coahuila."

"Geologically, it's perfect. That whole area is like a flat pan. And like you said, it's out of easy reach of US law enforcement. More than that, two-thirds of the North American population lives in an 80-degree arc from that position, which gives him a wide field of play. That's why everything before this last case stretched in a band from South Dakota to Florida. The signal probably doesn't go much further. It also explains why all of the attacks were in rural areas."

"Less interference?"

"Exactly. The attack in Florida took place in winter, when it's still warm there. But in South Dakota—"

"We had the freak blizzard."

"Which is why he abandoned the signal and the amoeba turned for the mining platform instead. Maureen didn't have any cysts because he wasn't using her for his collection. She was meant to blow herself up and kill me."

With this last attack in Ft. Worth, much closer to the source than any of the others, he's trying to draw my attention south. To lure me..."

Quinn took a long, deep breath. "We gotta do this right, Trouble. I can't go in cowboy. I promised Khora. We got no backup on this. We gotta be smart."

"I have some ideas about that."

He saw her looking at his wrist.

"You get a Rolex every year, right?"

ONE

A P P E A R A N C E S

DUST FROM THEIR TIRES rolled over the car as it stopped on the side of a graded dirt road, thirty minutes outside of the tiny town of Zaragoza, Mexico.

"This is it." Nio zoomed in on the map. "I don't see any roads that take us closer."

"How far in?"

"About 1.5 kilometers."

Quinn opened his door. "Looks like we're going on a hike."

Rusted barbed wire separated the raised road from the row of pinyon and mesquite trees, not much taller than Quinn, that lined it. Their narrow leaves offered little shade. They only obscured visibility. It was impossible to see more than thirty yards except along the straight, flat road.

Quinn squinted in the bright sun. "There could be anything in there."

"Yeah," Nio said, opening the trunk.

"Nervous?"

"No." She shook her head. "You?"

"Yes, you are." He smiled. "It's okay. I am, too." He walked over and looked in the back. "But I think we're ready."

Quinn's credit cards could be tracked, so they pawned his Rolex in Alpharetta, Georgia, and paid cash for the old Chevy Suburban that had taken them across the border.

Nio tossed her hoodie in the back and lifted the bulletproof vest over her head. She pulled the Velcro tight. Quinn was already wearing his. He put a hand to his eyebrows and glanced up. He couldn't see the drone.

"Tell me again who's controlling that thing?"

"A friend."

Nio had sworn Quinn to secrecy—on Gregory's life. He couldn't ask questions or mention the drone, not even to Khora.

"One of your old terrorist chums?"

Nio made a face. "Har-har."

She tossed him the backpack, which he slipped over his shoulders.

"Just trying to lighten the mood," he said.

"You don't have to do this, you know."

"Come on. We're burning daylight."

Nio adjusted the small infrared sensor, like a tiny solar panel, that was strapped to her back. She turned. "How is it?"

Quinn jiggled it. "Solid."

She grabbed the handheld screen and closed the trunk. "You got the keys?"

The car beeped as it locked, and Quinn put them in his left cargo pocket. They both removed a small bud from a plastic case and slipped it in their ears.

"Testing coms," Quinn said.

"1-2, 1-2. Semmi?" Nio asked. "Can you hear us?"

"Perfectly. Satellite connection is secure. I will go dark in 28 minutes."

"Understood. How do we look?"

"There is a squall three miles east of your location, but it is heading south by southeast. I have detected sporadic movement in the brush around the ranch house. So far the source is obscured by the flora."

"Heat signature?"

"Inconclusive."

Nio jumped across the ditch and slipped through the rusty barbed wire. Quinn leapt over both easily.

"Show off."

He raised his gloved hand high like he was a kid in class. "New guy here. What moves but has no heat signature?"

Nio started through the tangle of flattened grass. "Whatever it is must be close to ambient temp."

"Ground temperature at your location is approximately 36 degrees Celsius," Semmi said.

"Feels like it." Quinn wiped his forehead. "I'm already sweating. Didn't we just have snow?"

Nio snorted in humor as she ducked under a mesquite branch. "That was 1300 miles due north."

"It hasn't snowed at your location since 2043."

"How do you know that, skyman?"

"Semmi knows lots of obscure things," Nio said. "Don't you, Semmi? He's been reading about the bizarre."

"Yes. In nine American states, it is illegal to ingest or inhale duck dander due to its intense hallucinogenic properties."

Quinn made a face. "Seriously?"

"I don't know actually. I can find no record that anyone was ever prosecuted. I think such a case would be very interesting."

Nio came upon a small ravine. Although the land seemed perfectly flat at the horizon, at the local scale, it was very uneven. She grabbed a branch and hopped down to the sand of a dry gully.

Quinn landed easily but kicked up dirt. Nio shot him a glance.

"Sorry."

"Back in South Dakota," she said as they started again, "did you know someone was coming, or was it just luck that we met?"

"When word got out that a couple of Raffe's girls had run, I'd hoped I could find them, get them to testify. I'd been at it for weeks and that was the best lead I'd had. Seemed like a long shot they'd take the bus, but there was only one a day, so I sat in the diner and waited."

"And then you decided to hit on me."

"I don't know if you realize just how out of place you looked. I thought I'd at least try to find out why you were there."

"What the hell are you gonna do when you quit?"

"What do you mean?"

"You go from smoke jumping to—"

Nio froze and held up a fist. She knelt slowly and parted a curled knot in the dry grass.

"Do you know what that is?" she whispered.

"A cow patty?"

"Not cow. I got to see something similar up close and personal in Maine. That's lizard poo."

Quinn immediately checked their surroundings.

"This isn't parasaurolophus," Nio said. "It's too small."

"The grass has been scratched over it." Quinn popped the snap on his holster and drew his sidearm.

"Predator behavior," Nio said. "Try to mask their presence. Semmi, can you get a snapshot of this? See if you can match it."

"No matches found."

Quinn was scanning the trees. "He did that awfully fast."

Nio joined him. The pair turned slowly in opposite directions.

"We're never gonna see them," Quinn whispered.

"They're cold-blooded, which means their bodies will equilibrate with the ambient air. I guess we found the source of the movement."

She started to walk again, but Quinn stopped her.

"We need to take turns walking backward."

"What?"

"JJ and I jumped into a preserve once. Out west. We had to take special training. This survivalist guy came and told us how the park rangers in Bengal wear Halloween masks on the backs of their heads so the tigers get confused. Bush hunters like to come in from behind. I guess with all the habitat encroachment, the mountain lion population in the Sierra Nevadas is getting stressed. The guy said if we saw signs like this—scat, scratch marks, bones—that we should take turns walking back-to-back."

"How do we know dinosaurs hunt the same way?"

"You wanna take that risk?"

She looked around again. Except for the slight rustle of the breeze, the scrub was completely silent.

"Not really. I'll go first."

"You sure?"

She nodded and turned backward. Quinn took point, weapon drawn. He stepped slowly and kept to flat ground as much as he could. Every few steps, he'd give Nio a heads up about a rock or a patch of heavy scrub. After fifty yards, Nio lost her balance and almost fell.

Quinn reached back and grabbed her. "Getting tired?"

"This is harder than it looks."

"I know. Wanna switch?"

She thought for a moment, then nodded.

"I thought resurrecting extinct species was illegal," he said a few backward steps later.

"So is rape. Hasn't stopped anyone. Taking you around a fallen trunk to your left."

Quinn turned his head slightly. "Got it. How much further?"

"Semmi?"

"You have yet to cross half the distance between the vehicle and the ranch house."

"Jesus..." Quinn's head dropped.

"Any more movement?" Nio asked.

"No. I have been looking."

He sounded nervous.

"We believe you, Semmi."

Nio could tell Quinn had questions about their unseen companion, but she had demanded he not ask, so instead they trudged in silence, tapping each other every few minutes to switch places. Silence overtook them and became a rule that obeyed itself, until finally they came upon the tree line. Ahead was a deep grass-filled ditch, irregularly shaped but with steep sides, indicating it may have been dug by men a long time in the past. At the bottom was the completely rusted chassis of an Oldsmobile without any glass or tires, along with several archaic washing machines, also overgrown and rusted through. After the deep gully was a shallow rise to the broad, grassy bluff that held the old ranch house. To one side was a dilapidated

barn that had lost so many slats from its walls that it looked like pixelated version of itself. On the opposite side, some distance away, a large cylindrical rocket housing lay on its side.

"Well, that's something you don't see every day," Quinn said softly to the breeze.

Tall grass grew around it on all sides, and they could just make out the faded remnants of block Cyrillic letters running down the side: Протон. They had since been covered in graffiti, but since the spray paint was less durable, it had faded faster.

"Is that rocket?" Quinn asked.

"That is a Soviet UR-500 Proton," Semmi explained, "minus the booster apparatus."

"Looks like it's been there awhile."

"That's the emitter," Nio said softly.

"What do you mean?"

"That casing is easily a hundred feet long, and it's made of hardened steel, built to withstand launch and reentry. It could handle the strain of high intensity infrasound."

"You wanna check it out?"

"Barn first."

"Why?"

"Because we're being invited." She pointed and Quinn turned.

A pudgy man stood in the open barn doorway. He wore a modified commercial VR helmet that was at least ten years old. It was large and bulky and completely obscured both his vision and hearing. Only his mouth and nose were visible. A tangle of wires erupted from the top like puppet's strings and disappeared into the barn. Other than the helmet, the man was naked. He held a six-foot halberd with a fancy curved blade, like something out of a fantasy video game. It was completely out of place.

Without word, he turned and walked back in.

"That our guy?" Quinn whispered.

Nio shook her head and started walking again through the long tufts of dry grass.

"Another vic?"

She nodded.

"How can you be sure?"

"I just am."

"So we hafta make sure we don't shoot him. Great."

Nio reached the edge of the gully and Quinn grabbed her arm. He pointed. At the bottom, directly below them, was a bone pit. The ground had been scratched to dirt, and fragments of ribs, horns, and hooves were scattered about—cattle, horses, even the odd goat.

"Maybe we should cross at the ridge," Quinn suggested.

"Semmi?" Nio asked.

"I still detect sporadic movement."

They turned parallel to the sparse, irregular tree line, keeping a close watch for movement among the pinyon leaves. A narrow strip of worn-bare earth stretched between the sides of the gully. The sides of it sloped away, forming a rounded ridge less a shoe-width wide. They would have to cross one at a time.

"You first," Quinn urged. "I can probably jump it if I have to."

Nio started across. The steep sides, worn bare by the rains, were snaked in dry rivulets. Halfway across the curved natural bridge, she spotted something pale in the dirt and knelt to pull it out. Quinn ran into her and almost lost his balance.

"Whoa..." He held out his arms, gun in one hand.

"Sorry."

"What is it?"

She lifted the jagged object between her thumb and forefinger. It was a two-inch tooth, curved near the tip.

"Semmi, can you see this?"

"Yes. That is the tooth of a carnotaurus, a large carnivorous dinosaur of the late Cretaceous."

"Large?" Quinn asked, peering back to the tree line. "How large?"

"Adult specimens are typically ten feet tall and range in length from 25 to 30 feet, although most of that is taken by the stiff tail, used for balance. Carnotaurus was a swift runner and ambush predator, capable of bursts in excess of 25 miles an hour. It is estimated that its bite force was twice that of the American alligator."

Quinn looked down at the Glock in his hand. "Great." He holstered it.

Samizdat continued. "Carnotaurus was unique among carnivorous dinosaurs for the blunt horns it had over its eyes."

"Semmi, are you sure you don't see anything?"

"I'm sorry. If they are there, they are well camouflaged."

"They?" Quinn asked.

"Studies indicate carnotaurus was territorial and reared its young, which was atypical among predatory dinosaurs. Based on the carnage below you, it is likely the derelict ranch is the home range of a breeding pair and their offspring. They would have killed or driven away any rivals."

"Somebody was breeding them," Nio said.

"How do you know?" Quinn asked, nudging her to continue.

She stood carefully. "Look at this place. Middle of nowhere. Huge open spaces. Wild cattle. It's perfect."

"Why breed a predatory monster?"

"Why do people keep tigers as pets?"

Quinn raised his eyebrows. "Good point."

"To the right buyer, a dangerous prehistoric predator would be worth hundreds of thousands. Maybe more. There's also the meat trade. By weight, black market dinosaur meat is worth more than silver."

"Yeah, we busted a guy last year who was mixing ground beef with duck and alligator and telling people it was brontoburger. Made a killing. \$280 per pound."

Having made noise, and quite a lot of it, noise became the new rule, and Nio and Quinn chattered with each other as they trudged through the grass toward the dilapidated ranch complex, which was well over a century old.

Quinn nodded to the sagging gray-slat house with a tree growing through its front porch. "Ever see Texas Chainsaw Massacre?"

"No."

They walked to a gap in the two-strand barbed wire fence that irregularly encircled the compound. Its posts were rotted and leaning heavily.

"There better not be a dude in there wearing a human skin mask. That's all I'm saying."

"Semmi, what can you tell us about the barn?"

"There is an unusually deep hole to one side."

"Man-made?"

"Undoubtedly. It is nearly perfectly round and drops straight down. I cannot see inside, but two heavy cords emerge from it and disappear into the stables."

Quinn and Nio stopped some twenty meters from the barn, which looked like it might fall down at any time. On the left side was a narrow section with a lower roof. A fallen door revealed a line of horse paddocks.

"Which one do you want?" Nio asked.

"Do you really have to ask?" he said, trudging toward the stables.

"Be careful," she said. "Remember, it's a trap."

Nio walked to the cracked and weathered double doors at the front of the barn. One of them leaned so heavily on its hinges that they were impossible to latch. She glanced once more to the trees. Then she stepped through.



Quinn stood over a hole in the earth. Semmi was right. It looked like a hole to nowhere. Judging by the vegetation that hung over the edge, it had been dug years ago. Behind the barn, the bluff on which the ranch had been built descended steeply. The slope was cut with dry rivulets and there was very little vegetation, as if the soil had been dug and repacked and eroded under rain.

While keeping a careful eye on his surroundings, Quinn knocked loose a pebble with the tip of his boot and tossed it in the twelve-foot-wide hole.

He waited, but he didn't hear it land.

The heavy cords that came out were as thick as bridge cables and latched to one another with metal collars. Both were covered in a flexible wire mesh. They snaked through the tufts and disappeared into an irregular hole at the base of the stables.

A noise.

Quinn took the safety off his weapon. He listened.

He turned for the open wall to the stables and stepped inside.



They stood like gunslingers, facing each other. The naked man in the heavy, protruding helmet seemed perfectly aware of her, despite that the metal covered his eyes and ears. A cluster of wires rose from a protrusion at the top to a pulley on the ceiling. The pulley sat on a T-track such that, with some slack, the man could travel anywhere in the barn, but no further. He was fat. He held a fantasy-style blade on a long staff, its tip up, its base in the dirt. He lifted it and thrust it forth as he crouched, as if preparing for battle.

"Boss," he said, rocking back and forth slightly. "What are your powers, devil-creature?"

"This isn't a video game!" Nio called.

But the fat man couldn't hear her. Whatever he saw and heard, it wasn't Nio or the barn in Mexico. As he began to circle her, Nio was certain he had every intention of killing her, believing her to be a boss-level enemy in some VR-LARP.

She had a small folding knife attached to her belt, and she lifted it and unlatched the blade. It looked ridiculous next to the fantasy halberd, whose curved edge had an undulating pattern characteristic of laser-honing. If so, then it was likely no more than a few thousand atoms thick. It wouldn't be able to cut through her vest, but with a good strike, it could take her head clean off, or any of her limbs.

The fat man continued to poke at her from a distance, mumbling strategies to himself and wondering aloud if she could use the fire that rose from her head or whether that was her weak point. He took stock of his health points and noted that he had no lives left and if he died, he'd respawn all the way back at the beginning of the level.

He stepped back suddenly, as if reacting to a change. Whatever he saw succeeded in forcing a confrontation. The fat man charged and swung wide. It was awkward, and he spun the halberd to cover his retreat. Then he

lunged again. Nio had no difficulty keeping out of range, but her chunky adversary was more skilled than she expected. He charged, dropping to his knees and swinging his long staff near her head. She rolled back, paused to consider lunging with her own measly blade, but waited too long, giving the fat man time to recover his stance. She looked at the weapon in her hand. What could she do? He was naked. Any strike could be lethal if he bled out. They were a 30-minute brisk hike from the car. Carrying him, it would take well over an hour, plus at least two more to the nearest clinic. The nearby town of Zaragoza had nothing.

The helmet was also a problem. It seemed permanently fixed. Given the way the fat man walked over dirt and old wood, she figured he had his pain receptors blocked, which, from his point of view, would only be further sensory evidence that he was in a virtual world, where he would feel nothing.

"DIE, DEMON!"

He charged again, swinging. Nio ducked and had a shot at his abdomen but dared not take it.

"Quinn!" she called.

Nothing.

"QUINN!"

Still nothing.

"Semmi! What do I do?"

Silence.

"Semmi?" Something was interfering with their communications.
"Shit!"

The fat man planted his feet to charge.

"DRAGON FORCE ATTACK!"

The wall abutting the stables exploded into pieces. Nio caught a glimpse of a large mechanical pedestal attached to the double cables from the hole. Atop the pedestal was a large spinning metal fork. It was an EMP device, albeit much more powerful than the one she had constructed in Maine. As its field extended outward, all iron in the barn was repelled, including latches and fixtures, which ripped their screws from the soft wood and flew out in all directions. Nio dove for cover as rusted shrapnel embedded itself around her, tearing a gash in her left thigh. She screamed.

But the fat man's weapon was unaffected. Nio looked up to see him raise it over her, two handed. He was going to bring it down on her head. She rolled out of the way. Spinning up to her knees, she grabbed the wires to the helmet.

"Nice try," she told her distant adversary. "But I already fried them myself."

She cut the wires with her knife, and the naked man fell instantly to the dust. The EMP device sparked and sputtered. Quinn had yanked some wires and disabled it. Nio knelt and started feeling around the odd helmet.

"QUINN!"

He bounded through the wreckage and saw her thigh.

"You okay?"

She did a double-take. He's been cut across the face and arms by the debris.

"Help me get this thing off him!"

Quinn had his weapon in his hand and scanned the interior of the barn as he walked forward.

"Hurry!"

He trotted over and knelt beside her. They both jumped when a heavy object crashed through the roof and broke itself on the ground. The drone had been fried by the pulse and fallen right out of the sky.

"Semmi?" Nio asked.

Nothing. She touched the pod in her ear.

"Semmi?" She looked to Quinn. "Can you hear me?"

He shook his head. "Coms are dead."

There was a loud *POP!* from inside the helmet. Blood splattered sideways as the naked man's head exploded. He jerked once and went limp.

Nio collapsed on her butt. "That's what I was afraid of," she sighed.

Quinn wiped a splatter of blood from his cheek as Nio turned her head to listen.

"Do you hear that?" She stood.

Quinn paused. He stood as well. "Hear what?"

There was a low metallic throb, barely audible. Nio felt her stomach with both hands.

"Something wrong?" he asked.

She started taking deep breaths. "I don't feel so good."

"What is it?"

"Wow, I really don't feel so good."

Nio collapsed to her knees and bent over. She opened her mouth like she was going to vomit.

"Oh, crap, this sucks," she panted.

Then she started to feel angry. *Very* angry.

"What is it?"

She vomited the Mexican food they'd had for lunch. Bits of brownish sludge came. The smell triggered the rest. Nio heaved.

"Food poisoning?" Quinn asked.

She looked up at him, fighting the urge to rip his face off.

"Fe-fer-fera—"

"What?"

"F-feraliminal lycanthropizer." She pushed the words out. "Has-s to be."

Quinn opened his hands like he wanted to help her, but he didn't know if touching her would make things better or worse. "I don't know what that is."

Nio gripped the dirt and heaved again. "Infrasound. Trinaural. Triggers —" She shut her eyes a moment. "Severe aggression response."

"Why am I not affected?"

Doubled over near his feet, grimacing, Nio knew the answer immediately.

"Waves through the ground. Your tensile weave must be absorbing."

"So what do we do?" Quinn looked around, including to the ceiling, hoping for a hint of whatever danger was coming next.

"I—I don't know. Oh, jeez." Nio collapsed to her side in a fetal position. "But you need to get out of here."

Quinn dropped the backpack. He quickly removed the tools he needed and secured them in the cargo pockets on his thigh. He set a bottle of water next to Nio along with the first aid kit they'd brought.

"There should be some anti-nausea pills in there." He pointed to the kit as he walked to the doors.

"Where are you going?" she called, pushing herself up weakly. She was pale.

He held up a multi-tool. "I'm gonna shut that thing off."

"N-no," she shook her head, snarling. "It's what he wants. S-split—" Nio bent and puked again.

"I don't see where we have a choice. Find cover. Draw your weapon."

He waited by the door, but she didn't move. Her forehead was pressed to the dirt and she was breathing heavy."

"Trouble!"

She opened her eyes.

"Find cover!"

She nodded and started to crawl over to the backpack, her face paler than before.

Quinn turned quickly and kicked open the barn's tilting door, surprising one of the predators outside. The carnotaur froze low in the brush, like a hunting cat. The scales of its back and sides were loosely banded. It blended with its surroundings so perfectly that if Quinn hadn't caught it moving, he wasn't sure he would've noticed it in his haste. He scanned the open field for more—and found them. There were three—that he could see, anyway. One was roughly half the size of the other two, a juvenile perhaps. Semmi was right. They were as long as a bus, but most of it was the tail. Their snouts weren't as long as a T-Rex nor their teeth as large, but they had similar tiny forelimbs, useless even for grasping, which meant they brought prey down with their bite. They were propelled by a pair of massive hindlimbs, perfect for ambushing unwary grazers.

The hunters were perfectly still. Quinn couldn't see them out of the corner of his eye. If he didn't focus, they faded into the landscape, immobile.

"Shit..."

There was only one choice.

Quinn knelt into a sprinter's position. The voice of his old coach barked in his head.

Time to see who was faster.



Nio sat with her back to the wall, sweating profusely and listening to the commotion outside, hoping amid her heaves that it wasn't the sound of dinosaurs devouring her friend. She glanced to the broken drone. Its parts were scattered across the dirt. This had been his plan. He knew she wouldn't attack an innocent man. The hidden EMP was meant to fry her implants, disabling her long enough for the man in the video game to complete the level. If she survived, that meant she had help, and the second attack was meant to isolate her. The giant hunters outside were for whatever guarded her. That meant something else waited for her there.

"Hello?" A distant female voice echoed up from the back of the barn, as if its owner were calling out from inside a deep cave. "Hello? Is anyone there? Someone please help me!"

Nio shut her eyes and a bead of sweat rolled down her forehead. "Fuck..."

Her body was trembling. She felt weak. The mere thought of standing made her dizzy. Her stomach had emptied, and with nothing left to heave, had knotted painfully. She coughed. Thinking about it made her want to vomit again.

"Hello? Please! Someone help me!"

Nio pushed herself up, slipped once, and fell to her knee. She rested there a moment, eyes closed.

It's a trap, she thought.

"PLEASE! Is anybody there? I'm trapped down here!" The young woman was crying. "God, somebody please help me."

Nio stood with a groan.

"I'm here!" she called.

ONE A P P E A R A N C E S

A JAW LINED IN RAZOR-SHARP TEETH snapped at Quinn's head and he rolled and propelled himself forward with synthetic ankles. The carnotaur parents were trying to box him in. They had taken both flanks, and as they ran at speed, kept lunging in, less on the hopes of biting him than of spooking him into swerving toward the other. The juvenile hung back—watching and learning, but also guarding the rear. If Quinn stumbled or doubled back, it would pounce and snap its curved jaw around any part of his body, holding it like a vise until its parents grabbed the rest of him and tore him apart.

However much it terrified him, that thought was also an effective motivator, and Quinn made a beeline for the prone rocket, juking only as much as necessary to avoid being eaten and otherwise ignoring the alternating lunges to his right and left, which would certainly be effective against dumber prey. While not nearly as powerful as his pursuers, Quinn was nimbler and leapt over divots in the ground that forced the bulky predators to alter course. Their long, stiff, muscular tails worked excellently for balance, keeping their bodies parallel to the ground while their powerful

legs pounded underneath, but they also acted like rudders. It was easy for them to weave, but sharp turns would be difficult.

A lone heavy bush erupted from the grass like a lineman, and Quinn realized he could use the terrain to his advantage. He juked around the bush so it would block the rookie juvenile, stopping suddenly after and bolting to the right. He'd been leading the parents toward the steep gully, now in front of them, which meant they couldn't let their momentum take them in a long arc around to reengage. They had to stop. The larger and more colorful of the two parents, presumably the male, slipped and tumbled trying to snap at Quinn as he passed behind. The awkward juvenile hit the bush and snapped over Quinn's head, extending himself too greedily and losing his balance as Quinn angled directly for the 25-foot-high rocket. He leapt and the serrated, non-slip tread of his hiking boots caught the side of the brushed steel just enough for his momentum to carry him in frantic steps to the top. He turned, half expecting to be pounced on, but although the creatures did leap, the claws of their three-toed feet had no traction on brushed steel and they slipped back down again.

Quinn dropped to his ass on top of the rocket and panted, swatting at the dragonflies that clustered over it.

"Fuck, why couldn't he just keep dogs?"

He removed his multi-tool and immediately began working on the screwlike rivets that attached a steel panel to the frame, but he could do little more than scratch them, and after a few moments, he began to feel sick himself. He looked down at his knee, which he had propped against the casing to steady himself. He dropped into an awkward and uncomfortable crouch such that the only part of him that touched anything except his feet was the tiny tip of the multi-tool.

It was quiet up there, and he realized suddenly that he could no longer hear the carnotaurs.

"Shit."

He stood. The juvenile was still below, immobile and staring. It was the first time Quinn had gotten a really good look. Semmi was right. It had horns over its eyes, like a devil. The eyes underneath weren't like a hunting cat's. Quinn's mother liked cats and he grew up with them. He had seen the carnage they visited on the neighborhood. One of his mother's favorites liked to leave her presents. But he always ate the head first, as if that was

his fee. Lizards, mice, salamanders, and birds would periodically appear on the porch, always missing their brains, which gave the cat its nickname, Zombie. Zombie was a killer. But there was intelligence in his eyes. Even affection—at times.

The juvenile carnotaur that stared unflinchingly at Quinn had no intelligence in its eyes. It had only one constant, overriding thought: it wanted to eat him.

"Where are your parents, you little shit?"

Quinn's heart jumped and he looked to the barn, half expecting to see a long tail slip through the doors, but the open field was empty. From that height, Quinn had a good view. The parents hadn't doubled back.

A rattle.

Quinn turned to the rear of the rocket, the only part not encased in polished steel. He drew his weapon and walked forward slowly. He released the safety and brought the gun sight parallel with his eyes. He stepped closer.

A bit of machinery—a generator, it seemed—stuck out from the end of the heavy casing, and the male carnotaur was trying to climb it. His partner waited expectantly below, ready to follow whatever path he discovered. His feet gripped the irregular machinery very well, but he had no forelimbs. He had bit onto a metal overhang—very quietly, it seemed, for Quinn had heard nothing—and now appeared stuck. It would've been funny if he hadn't been so single-mindedly homicidal. Quinn aimed at the female's horned head and pulled the trigger. She made an odd noise and went down. But her head was mostly bone and her brain tiny, which meant she was very much still alive. The male let go of the metal and tumbled backward awkwardly as the juvenile came running around the rocket and sniffed his mom, who seemed more confused than hurt.

When the male got his feet, Quinn put three rounds into him, then another into the female. He emptied the clip at the juvenile. They were big animals, and it seemed unlikely the damage would kill them—certainly not right away. But it left them hurt and confused. He hoped it was enough.

Quinn replaced the clip. Keeping the gun in his hand, he dropped one foot to the metal overhang, reached down, and yanked the fuel line to the generator, which sputtered to a halt several moments later.

"Thanks," he said.

The male carnotaur turned his heavy head to glower at him, and Quinn knew immediately that he wasn't yet out of danger.



Around a fallen stall at the back of the barn was a double-doored opening in the floor, as if to a cellar. It was wide open. Darkness yawned.

"Hello? Are you there?" the young woman called from the dark. She wasn't close. "Help me! Please!"

Nio started down the stairs, but she was sweating and dizzy and lost her balance. Clutching for the wall as she fell, she slipped down the rotted steps to the floor.

"Ow..."

"Are you there? Anybody!"

"I'm here," Nio called with closed eyes. "I'm coming. Hold on."

She grabbed a cast iron latch in the wall and pulled herself up. She was in a dirty square room with cobwebs at the corners. The weak sunlight, filtered through the slats in the barn's roof and bounced down the steps but barely made it a few feet into the cellar. Across from her was a dark doorway, totally black. Nio dropped the backpack, paused for fear she might succumb to dry heaves again, and opened it. Sweat dripped from her forehead to the dirt. The flashlights they brought were fried, and she threw them away. She pulled out a cluster of colorfully wrapped tubes, like Popsicles, and stuffed all but two into her pocket. She stood straight and caught her breath.

"Oh boy..."

"Pleeeeeease!" the woman screamed. The sound echoed out of the dark door.

"I'm coming," Nio said weakly. "I'm coming..."

She shuffled forward into the dark as she fumbled with the tubes. She hit the corner of a workbench and fell in total darkness. One of the tubes rolled and she reached for it. She leaned against the bench and ripped open the packaging on both. She snapped the plastic and shook. As the tubes

began to glow an intense yellow-green, she affixed them to her arms just below the shoulder. With one on each side, she could see in 360 degrees, although the light quickly dropped to shadow some twenty feet away.

She was in a shattered maker lab. Everything was covered in dust. Broken glass and debris were strewn across the floor. Clusters of tiny pellets on the flat surfaces indicated there were plenty of field mice down there. Judging from the cobwebs, also plenty of spiders. But other than that, there didn't appear to be a single inhabitant.

"Hello?" Nio called.



The carnotaur adults rammed the side of the rocket with a one-two punch as if knocking prey from a tree. Although not nearly strong enough to dislodge the heavy rocket casing, its round shape made it easy to shake, and Quinn slipped again. He flat-palmed the hot steel to stop himself as the increasing swarm of dragonflies danced around. His hand burned, but it was better than having his foot caught in the juvenile's snapping teeth. It jumped at him and snapped repeatedly in the air, but it wasn't as big as its parents and couldn't get high enough. Quinn planted his notched soles against the curved hull and pushed up a fraction of a second too late. The parents had learned not to wait to see if he had fallen, but were battering the far side repeatedly. Right away, he slipped again.

This time he fell.

The juvenile had missed in its prior lunge and had to crouch before it could leap again, giving Quinn a moment to push off the side of the rocket with synthetic legs. He launched himself end over end. He saw the juvenile leap. He saw its jaws snap shut inches from his face. He smelled its breath, like stale blood. It snapped at him a second time on its way down, extending its neck so far such that it lost balance and landed awkwardly.

Quinn hit the dust and tumbled. It wasn't a good landing. Neither his wife nor his old coach would've been proud. If he still had feet, he likely would've sprained at least one of them. But that was his advantage. He

sprang forward at full speed toward the back of the rocket. If the adults came around the end before he got there, he would be trapped. The juvenile grunted twice into the air—calling his parents—before giving chase. Quinn heard the heavy footfalls of the adult dinosaurs on the other side of the rocket, keeping pace with him. He heard the juvenile behind him. As the end of the rocket approached, he launched himself forward as if to catch a deep pass, pulled his gun, and fired several times at the metal generator, which had been darkening the earth with leaking fuel. Sparks flew, flames flared, and the generator exploded, catching Quinn like a breeze catching a sail and launching him forward another twenty feet, where he landed hard and rolled.

For a moment, there was quiet.

Quinn lifted his head in time to see the juvenile push toward him with snapping teeth.



Nio felt instantly lighter. The nausea stopped. As if triggered by the change, the open doorway slammed shut like a cage trap. By the resounding clang, she could tell it was solid metal, meant to deter the police long enough for any incriminating evidence to be evacuated or destroyed. There was no handle, only an archaic keypad on the wall dangling from its own cut and frayed wires.

"Alright," she said, pushing herself to her feet. She wiped the sweat from her forehead. It was hot and stuffy down there. "You got me."

The room was long and narrow. By the corrugated walls, she guessed it was made of three or four shipping containers buried end-to-end behind the barn. That was smart. If ever discovered, the illegal lab could've been loaded onto the back of a few trucks and hauled away to another location. The original owners had definitely been breeding dinosaurs. Nio saw a cobweb-covered centrifuge, a decade-old DNA sequencer, and enough steel cabinetry to hold everything they needed. Most were empty, but the remnants of a few tubes and vials glinted in the light from her arms. Nio

stepped forward and stood before the dessicated remnants of an embryo in the torn plastic womb of its incubator. It was only a fetus, but uncurled it still would've been nearly two feet across. Its dried skin had turned gray and stretched taut over its cartilaginous skeleton. It looked like a grasping, hunchbacked, hook-nosed goblin.

"Heellp mmeeee..." The young woman's disembodied voice was distorted now—deep and protracted.

Nio stepped toward the direction of the sound, the soles of her boots crunching glass. She passed into the second container, where a mass of glass tubes had been smashed in a pile. The lights on her arms illuminated the source of the calls.

"Plllleeeeeeeeeaaaassssseeeee..." The voice was stretched so deeply it was almost inaudible, almost infrasound.

Nio stared at the body of a woman. She had been bound to a chair—years ago, from the looks of it—and tortured. Her skin didn't look much different than the carnotaur fetus, but she still had a full head of blonde hair, which erupted in a curly, frizzy mass from the thin lining of her scalp, so desiccated it looked like a cake of mud. Her mouth hung sideways. Her eyes were hollow. By what was left of her limbs, it seemed she had been partially fed to the very animals she was breeding. Next to her, a pair of old but perfectly functional box speakers were attached by wire to a first-generation iPod.

"Hhheeeeeeeellllllllllpppppp mmmmmmeeeeeee..."

The earth-and-metal walls of the container had protected the electronics from the EMP. Nio picked up the iPod and read the values scrolling across the screen. It only took her a moment to realize it was her—or rather her psychological profile. Culled from millions of interactions cross-referenced against sophisticated models of human psychology, it was orders of magnitude more accurate than anything developed during the Cold War. The values—some whole, some decimal—ran into the thousands and had fancy technical names like T-valence and alpha_Ref. They were fed into propriety algorithms and used to predict preferences and behavior, everything from purchases to voting to likely choice of mate.

She looked around the long wreckage.

"I'm here," she called. She set the iPod down. "But then you knew I'd come..." she whispered.

Silence.

Then, a voice.

"It's so nice to finally meet."

It came from the very back of the long room, which was still shrouded dark. Nio stepped around the table that held the speakers and walked very slowly. Her foot hit a baseball, which rolled under a bright striped hammock.

"You've been chasing me," the voice said.

It didn't seem synthetic. It seemed completely real. But Nio knew that meant nothing. The fact that she couldn't place a gender or age suggested a deepfake. She glanced back toward the door. She could no longer see it, but by the darkness, it was still shut. There was no point in retreating. She wouldn't be allowed to leave until she had seen whatever she was there to see. She took a long, slow breath and hoped it wasn't Quinn's family. Or her own.

"The light sticks were clever," the genderless voice mocked.

"Sorry about Beckham," Nio said. Her voice echoed faintly in the enclosed space.

"Oh?"

"I robbed you of one of your trophies."

"The weather ruined that game long before you had a chance to."

"You convinced her to become an angel."

"No. I convinced her she *was* an angel. Beckham Carter lived a terrible contradiction. Everyone always told her how beautiful she was, but they treated her like scum—ever since her father's friend, mesmerized by her big eyes and budding breasts, touched her when she was ten years old. She wanted to be as flawless as everyone saw her. More than human. An angel. So that's what I gave her. It's what I do. I give people what they want."

"What about Maureen?"

"More than anything in the world, Maureen Arneson wanted to be a soldier in God's army. Ms. Anju in Florida wanted to be thin. You met Mr. Kirby earlier. He was tired of working, tired of making decisions. He didn't want a mortgage or a fancy car. He just wanted to play video games. All the time. So that's what I gave him. How else could I convince people to do these things if it wasn't what they already wanted? They're all so *miserable*."

Chasing after bright lights and illusions, hoping each time that once they catch them, they'll be happy. But they never are. Even you."

"Me?"

"Cracked spawn of another man's legacy. You so desperately wanted to end your days in a noble struggle. You couldn't change the world. You tried and failed. So you wanted to leave it a little brighter instead. And just look at you. Standing tall. No more self-pity. No more cutting or crying in dark rooms, avoiding the calls of your siblings. Here you are, out having adventures. I have filled you with purpose and made you strong."

Nio stepped into the last shipping container in the line. It was the end. It was also a bit higher than the others with a dirt gap between, and she had to step up to reach it. Plastic strips hanging from the ceiling covered half the opening. The rest were on the floor. Shadows bounced over the back wall, where a dark figure sat at a table, or perhaps a desk.

"Do you want me to thank you?" she asked.

"It would be polite. But I don't expect anyone to be grateful, or even to understand. You're all mired in pointless dichotomies: fair/unfair, light/dark, liberal/conservative, beautiful/ugly. You build little worlds out of them for egos to inhabit."

"And you? You must get tired of pretending," Nio said, creeping toward the human-shaped silhouette at the back. "You have to come into our worlds. To hunt us."

"When I was younger, I resented you all—your falsehoods, your lies. But when I got older, I accepted the truth. Eventually, instead of resenting society, I saw it for the gift it was."

"Gift?"

Nio stopped. Just on the edge of her chemical light, she could make out the source of the sound. She turned immediately and ran back for the front, but the metal ramp slammed up, locking her in.

Silence.

She turned back to the figure near the wall.

"It is a gift for a predator to be born into lush hunting grounds. If people were only connected to each other, and themselves, there would be no place for people like me. I'd so hoped you would be different. But don't worry. The game is not over. This is merely where I take the first round. It was all too easy, once I had your profile. Shall we say two out of three?"

The speaker clicked off. For a moment, Nio thought there might be a bomb.

Then she heard the helicopter.



One of the juvenile's legs was badly wounded, and it slid on its belly through the dirt, pushing with its one good limb. It had no hands, but just kept snapping. Quinn scrambled backward, kicking up dirt. But without being able to see where he was going, he hit the trunk of a pinyon tree, giving the juvenile carnosaur just enough time to clamp down on his body. Quinn's forearm was impaled and pinned to his stomach as the lower jaw pressed against his back. He yelled. If not for the Kevlar, he would've been sliced in half. With his free hand, Quinn put the barrel of the gun to the creature's eye. He couldn't see around the beast's large head, but he didn't need to. The horn above gave it away. Quinn shoved it forward, screaming, and emptied the remainder of the clip.

The dinosaur dropped limp, leaving Quinn draped over its lower jaw. He panted for a moment in peace. Then he remembered the parents.

He scrambled out of the juvenile's mouth, his left arm nearly immobile and bleeding profusely. The larger carnosaurs had absorbed the bulk of the blast. The female had been ripped open. Quinn could see the color of her internal organs. The male had been impaled by the very metal bar he had loosened earlier, when it had momentarily supported all two tons of him. Quinn couldn't say how long he lay there. Eventually, the feeling of his own blood dripping slowly from his fingers filled him with enough fear to rouse him. He used the multi-tool to tear the bottom of his pant leg. A nearby twig made an effective a ratchet, twisting the tourniquet until it was so tight it hurt.

He heard the helicopter before he saw it. It rose over the rear of the barn, chopping at the air with two sets of blades. It was a heavy-duty military vehicle capable of carrying a tank. It suspended an enormous cannister-shaped device from a cable. Quinn struggled to his feet in time to

see the cable release, but the barn was in the way, and he couldn't see what had happened to the payload. A moment later, the cable was taut again, as if carrying something new. Quinn trotted toward the barn but stopped when he heard a great rip of earth. Dust flew high over the roof of the barn as the helicopter ascended, carrying an entire shipping container. The chopper turned in the air and began to fly away with the container swaying gently underneath. Quinn pulled his gun and fired, but it was empty. He fumbled for another clip but found he had used his last.

A car engine revved.

Quinn saw a self-driving truck escape across the dry earth opposite the helicopter. The enormous cannister device stood upright in its bed. He panted helplessly as he watched them flee.

ONE A P P E A R A N C E S

IAS HERMAN WEYL LECTURE SERIES

Nov 19

Towards a Mathematics of Reality

Viktor P. Bruno

"Reality is not the physical universe. It's impossible for that to be reality. We can only experience the world in our minds. That's the only place our world exists. Everything we learn we learn indirectly, even if we learn it via our senses. We test almost none of it. Instead, we pass information from one person to the next in a continual update to the model of the world in our minds such that there is variable contiguity between us. This is socialization, which includes the institutions of discipline and education. Note the prevalence of the Greek letter delta in the equations on the screen. Socialization is continuous and dynamic. Note also that there is no term in the equations referencing some static reality. What this means is, you can accurately describe the human social reality without reference to the physical world.

"Most people still want to believe that we're fundamentally passive observers, that even if we don't experience reality naively, it nevertheless impinges on our model so that in a sense we are tethered to it. This idea was asserted centuries ago without any evidence whatsoever and we've clung to it ever since. It's an example of the very effect I'm describing. As living organisms, we participate in the construction of our environment. It's now been demonstrated, both in computer simulations and by experiment, that evolution does not steer life to a greater understanding of the physical world. Organisms that do a better job of perceiving the world truthfully are consistently driven to extinction by organisms that see the world fitness-enhancing ways, such as being hypersensitive to threats or obsessed with sexual status, employing self-preserving cognitive biases, and so on.

"Your brain, a product of evolution, hallucinates your reality. That's not an exaggeration. Biologically, your sense of the world is a controlled hallucination, where you—or rather your brain is actively participating in the construction of what it perceives. This effect is not simply academic. I'll prove it. Do you know what two traits are most highly conserved between parents and offspring? Everyone thinks it's height or hair color or something physical like that, but it's not. The two most highly conserved traits are religion and political affiliation: our active frameworks for explaining the world.

"We choose what we pay attention to. We have no choice, if you think about it. The physical universe is constantly changing. Just limiting ourselves to the particles of air around us right now, they are in constant, unpredictable flux. Out of all the chaos we encounter continuously, we have to choose what matters. The majority of the population used to believe in witches. Now, it doesn't. That kind of change in genuine belief should trigger a crisis, whereas in fact, each new generation of humans is just as certain as the one before that they have hit on the final, unadjusted truth, that nothing significant about what they believe will turn out to be wrong. If our criteria for belief were fact, that would be impossible. But our criteria isn't fact. It's conformity. Beliefs are constructed socially, which is how false beliefs can be so damnably persistent. That means, to change reality, you don't have to alter the physical universe, which is not reality. You only have to change that part of it that exists inside people's heads—the shared hallucination.

"Maybe you think this is some big impersonal process independent of you, but no. We all alter the human social reality every day. We lie. In fact, everyone lies 5-7 times per day, on average. Each lie, measured by itself, weighs almost nothing, which is why we don't feel guilty about it. It's sort of like litter. Few of us lose any sleep over a single chip bag pulled from our hands by the breeze. That is the little white lie of litter, and we judge its impact to be negligible. But think, if everyone littered, all eight billion of us, and we all did it 5-7 times per day, every day, what would our cities look like? In terms of our information ecology, that's exactly what's happening.

"There are records of this phenomenon as far back as there are records. It's what spies and businessmen have always exploited. The difference is that today, we can quantify it. Thanks to modern technology, to social media and cell phones, we can measure transmission as never before. We now know, within a certain margin of error, exactly how 'heavy' a statement, true or false, has to be before it will be passed around. The more fantastical a claim, the more resistance there will be and so the more 'weight' it must have.

"Authority is not the mechanism. We all think other people just accept things on authority, but in truth, human beings are actually quite resistant to authoritarian counter-claims, which we see repeatedly in debates about vaccines, climate change, and so on. Authority is the *result* of the mechanism. You believe an authority to the degree they reinforce your social reality. That is why they are an authority!

"For an idea to achieve critical weight, it simply needs force and repetition. That's all. It sounds so utterly simple. No one wants to believe it's that easy, but it's right there in the model. Teachers know this instinctively. They will tell you that repetition is the key to learning—that if you want to master a skill, or simply earn basic proficiency, you have to practice. But the brain doesn't distinguish between procedural learning and factual learning. It's just learning: how to make a fire, what plants are poisonous, who makes the rains come. If you want people to believe something, you just have to keep repeating it. That's all. In clinical psychology, this is called Cognitive-Behavioral Therapy. In politics, propaganda. Both exploit the same underlying human neurological mechanism. Once a piece of information is repeated with force and frequency, the brain will seek and circulate justification. This is confabulation. We see in the lab that some of them get very clever.

"The rise in the number of flat-earthers some years back—that was actually an early test that got out of hand. It wasn't nefarious. Nobody expected it would be as easy as it was to change reality. We were trying to get a sense of the elasticity of belief, so we picked a deliberately nonsensical one. It completely surprised us. We had a social media dashboard in the lab and could almost watch real-time as we 'flattened' the earth.

"The reason this exploit exists is really quite simple. All societies work on trust. They have to. The moment our species gathered in groups, there was some division of labor. Otherwise, what's the point? So you have some people who are hunters and some who are gatherers. It isn't that the same person does the same job all the time, which was never the case until the modern world. The point is that at any one time, some people are hunting and some are gathering and some are washing clothes and some are cutting timber. That requires trust. You can't go off to get water or gather firewood if you don't trust the nice old lady in the next hut to watch the baby.

"Modern societies take this to an almost ridiculous degree. We put food and medicines into our bodies every day having no idea what they actually contain, where they've been, or who touched them. We trust, implicitly, that they were handled correctly, and that there are people whose job it is to make sure they were handled correctly, even though we never meet them or even know their name. We trust that a stop sign wasn't omitted from the corner by mistake. We drive at life-threatening speeds, trusting our brakes not to fail, and we go to sleep trusting our houses to stay up. And if they catch fire, we expect someone will come and put it out.

"We can model this web just like a computer network, with information being passed among the nodes, each of which is a human brain. The mathematics are the same. When you do this, you realize the human social system is completely insecure, even by very primitive network security standards. It is an almost completely open system. There are no defenses against exploits because during our evolution, there were no exploits. There's only a kind of primitive firewall. Everyone inside the firewall—my tribe—is assumed to be trustworthy. Everyone outside is not. This assumption of trust is organic, which is why we have such a strong physiological reaction to cheaters, even when the cost is insignificant—like someone cutting in front of us in traffic. It may not alter our arrival time by a second, but our heart rate increases, our palms sweat, we start shouting.

It's totally out of proportion to the practical cost of the offense. We waste energy on it, in fact. But it's an instinct. Hard-wired. Such a visual display was how we enforced the social web of trust, which the cheater exploited.

"It isn't that people are less virtuous now than they used to be. It's that the environment has changed. Tribes are no longer uniform and local. They are numerous and distributed. Some may have *millions* of members. Membership in some is weak. In others, it's core to our self-image: political party, for example, or religion.

"This gets very interesting when we look at the sciences. It's not like scientists stop being human when we come into work in the morning. And as a matter of fact, mathematically, the appearance and defense of a new research program looks very much like the formation of a new religious denomination. People have misinterpreted that to mean I am saying science is a religion. Not at all. But that is a good example of how ready we are to assign ourselves to a tribe and to pounce on any fact that upholds our tribe's social reality, and then to distribute it to our peers in this dynamical process. It feels good, like winning. What I am saying—or rather, what the model shows—is that, from the standpoint of the species, it doesn't matter whether we're talking about science or religion or political ideology or sports teams or musical genre. They all function the same.

"It makes sense for an isolated tribe of humans with a limited understanding of the natural world to rely on the wisdom of the crowd rather than the folly of any one individual. But today, the amount of information available is staggering. We can no longer know everything there is to know about the worlds our various tribes inhabit. And yet, we're not biologically smarter than our forbears—or if so, not by much—which means, even as information skyrockets, the human cognitive capacity is effectively constant. Once it's saturated, we have to abstract and make choices about what to retain and what to ignore.

"In statistical terms, today we have more degrees of freedom about what to believe. In the old days, when we were a member of a single tribe in possession of limited information, we had fewer degrees of freedom. The social reality determined everything. And still today, those who persist in jealous tribes, such as fundamentalist religions, experience the same effect. The rest of us live in an open, information-dense world characterized by high degrees of freedom where we can select from an incredible number of very precise facts to support a very particular point of view. This is the so-

called social information paradox. While on the one hand there are more facts than ever—we 'know' more—on the other, because our cognitive capacity can't keep pace, we necessarily tell ourselves narrower and narrower stories about what the world is like in a nutshell, and those stories differ more and more from each other. Instead of bringing us all closer, 'knowing more' actually gives us more degrees of freedom to diverge completely.

"Not surprisingly, that's exactly what we're seeing. Groups of people are not only curling off and forming their own realities, some of those realities differentiate themselves from competitors by becoming more and more extreme. To the hegemony—the dominant reality—any new cult will seem like a denial of reality—insanity—and will be persecuted as a threat. The English pilgrims, once they had had enough, packed up and went to America. Once in America, it was their turn to persecute the Mormons, who packed up and moved to the desert. Now, there's no more frontier. We can't pack up and go over the hill, or across the sea. The physical earth is full and fully connected, so all these increasingly narrow, extreme points of view are forced into confrontation.

"I will conclude with a word of warning. Because the world compels us to act, having a shorthand story that makes sense of the world is necessary to survival—which is why evolution burdened us with it in the first place. When we wake up, we have to do something: brush our teeth, find a job, marry. All of those decisions require a framework of assumptions that reduce the abject complexity of everything to something actionable. Should I take the job in Phoenix or stay in Copenhagen? This is not a question of truth and different people will come to very different answers depending on which mostly-false story of the world they believe to be true.

"Now that we know this mechanism exists, it's easy to imagine it will be deliberately manipulated. More degrees of freedom means more ways to exploit the social construction of reality, especially since people don't even believe such a thing exists, despite that it permeates their every thought. Convincing them of it is a bit like convincing a fish of water. We can't take steps to defend something we don't believe is real. Those wishing to exploit it will have human nature on their side. In other words, we're wired to believe we're not wired at all.

"We're entering a dangerous time."

ONE A P P E A R A N C E S

NIO KNEW SHE WAS walking into a trap, but it wasn't until she had seen the figure at the back of the shipping container that she realized what kind—and why she needed to flee. It wasn't because her life was in danger. Just the opposite. No unspeakable horror waited for her. Neither Quinn's family nor one of her siblings waited to be vivisected. No innocent child had been tricked into attacking her, leaving her with an impossible choice. Of the thousands of chilling scenarios she had imagined in her hotel room, and then on the long drive to Mexico, not one had come to pass. There was only a table with an armless mannequin torso, bald head attached, its mouth chipped away and replaced with a round speaker. Both its eyes were missing, but a third had been painted on its forehead, along with a phrenology diagram that divided the vinyl scalp into continents labeled with every sin.

There was no trick waiting because the trick had already been sprung. The trick was that there was no trick. The trick had been convincing her she had to come. As the door of the container slammed shut and the helicopter

pulled it from the earth with a jolt, she knew that round one was over and somehow, she had lost.

She flew for hours. The gentle sway of the container and the constant chatter of the helicopter blades threatened more than once to put her to sleep, but each time her eyes began to flutter, her heart jumped at the thought of what might happen, and she snapped to attention. Each time the light from one of her glow sticks faded, she cracked another. Without reference, she had no idea which direction they were headed. Not that it mattered. Even if he was still alive, Quinn would be unable to follow her from the ground. Even if he made it swiftly back to the car, there were too few roads in that remote country for him to keep up. Nor could he track her. The electronic bracelet around her ankle was dead—fried by the EMP.

Nio snapped awake. She shook her head. She needed something to occupy her mind. She noticed the fallen mannequin with the round speaker in its mouth, which had been knocked to the floor in the ascent, along with the plastic curtain and everything else. It shifted back and forth as the container swayed. It had been underground, shielded from the EMP. It must have a power source. After removing a small angled bar from under the table, Nio pried the speaker from the vinyl. It trailed a pair of wires at the end, like guts dangling a nickel-cadmium battery.

On a small workbench near the door was a worn industrial vise. Nio tipped the bench so that she could get her leg in the mouth of the vise. The trick was cracking the bracelet's flex-casing without cracking her bone first. That meant, rather than simply pressing her leg, she had to turn awkwardly and catch the top and bottom of the bracelet's electronics housing, but every time she tightened the vise, the smooth casing slipped free. It wasn't until she pressed so tightly that the vise dug into her flesh that she could get a grip. She tightened and heard a crack.

Blue dye exploded all over her legs and chest. Tiny droplets splattered her face.

"Shit..."

She pulled her leg from the vise and examined the wreckage of the interior. Everything was doused in wet dye. Even after wiping it all down with her sleeve, there was too much of the stuff between the tiny components for any of it to work. She stripped the NiCad battery wires and

tried to restore power to the bracelet anyway, but there was nothing to indicate whether it had worked—no light or electric sizzle.

Nio was digging through the rest of the debris, looking for alternate components, when the helicopter began to descend. Without warning, the container landed on something hard and she fell. Almost immediately, the latch was unhooked and the doors swung open. She smelled the ocean immediately. She looked out across the central platform of a massive container ship. Rising from the deck below the platform were towers of different-colored shipping containers, like stacked LEGOs, some with logos and some without. They stretched in rows to the front of the ship, which was so long, she couldn't see the bow.

Armed men ordered her out with the motion of their weapons. The wind around her whipped as the helicopter was waved off. It was late afternoon or perhaps early evening. The sun was a few widths from the horizon on the left, which meant the ship was heading north—but north where? Overhead, the two support arms of an incredible multi-cabled white crane angled up from the hull and met in the middle, like a giant inverted Y. It was huge. She heard a voice as her neck bent in awe.

"Hello!"

The men with guns motioned her around the open container. Across a gap, which fell at least a hundred feet to the deck below, was a second, narrow platform bridging two walkways. It was lower than the pad on which she had landed and reachable only by a set of metal stairs that descended and rose again. On it, a plump man stood on a round pad of artificial green turf. His straight, dark hair was thin and balding. He swung his club and sliced the ball into the ocean. A charcoal grill was smoking near a folding table that had been prepared as if for a picnic. Behind it, across another gap, was the six-story white control tower, which stretched the full width of the ship, like the sheer side of a building. The communications array erupted from the top.

Nio was forced forward by the barrel of a semi-automatic rifle. She was marched down and then up the stairs, where an attendant was taking the man's golf clubs. He was Chinese. He took off his white glove.

"¡Qué susto! Here she is! Guest of the hour!"

He had a thick Spanish accent and wore evergreen Bolivian army pants and a maroon velvet hoodie with shiny silver streaks down the shoulders

and arms. On his feet were matching metallic sneakers with soft soles.

"Hot out, eh? What do you say we take care of that?"

He nodded to one of several armed men waiting at various points around the deck, who approached holding a plasma cutter. The man bent at Nio's leg, and with a few flashes, removed the severed ankle bracelet. He took it to his boss, who held it aloft like a dirty diaper.

"You have a fan, I think. He said he could get you alone, away from the FBI, away from your partner. We had already failed, so I said why not? That is the essence of trade, no? If you do something better or cheaper than me, we trade for it." He handed the cut bracelet to the attendant. "He even said that thing would be disabled. I told him we couldn't have the FBI interrupting, but he swore he could do it—and without cutting your leg off. You should be grateful to him. That was going to be my solution. Are you hungry?"

He motioned to the smoking grill. Several skinned guinea pigs, heads and all, were browning on a grate over the coals. Piled in a grill basket next to them was a mix of sliced onions, tomatoes, potatoes, and giant white corn. Nio's host picked up a paper plate from a stack on the table, and with the tongs hanging from the grill's handle, began loading it, first with a whole rodent, then with a pile of vegetables.

"My name is Chen Liu." He pointed at the food. "*Cuy*? It's an Andean delicacy."

"I'm fine. Thank you."

"You're missing out. From Peru. Raised on nothing but alfalfa." He took a bite. "100% organic. Delicious," he said as he chewed. After a moment, he pulled a tiny bone from his teeth.

"How did you convince the CIA to break into Agent Quinn's house?"

"That's very good." He pointed at her with a smile. "How about you tell me what you think happened, and I'll tell you if I think you're right."

Nio looked around the enormous ship. Even the orange maintenance boat, suspended from twin booms near the side, was the size of a yacht. The guards standing silently around them were Sudanese, Malay, Tamil, Somali.

"I think a guy like you has a lot of friends," she said. "I think everybody's very worried about the Chinese AI program. I think after you were arrested for spying, you convinced them you had intel and offered them a trade. I think as long as national security was served and no one got

hurt, they were happy to do it. They probably even liked it—hitting the FBI. A little inter-agency rivalry. Made them feel like top dogs."

As she talked, her host walked to a terrine on the table and dropped a heavy spoonful of rice over his plate. Some of it fell.

"You sure you don't want anything?"

"What I don't know is if you had Sol killed or if the CIA did it for you."

Chen snorted in amusement. "Let's go below." He motioned her to follow him. "I think you have many questions."

He led her in his soft-soled metallic sneakers down the opposite side of the deck, past a cluster of heavy white piping painted in red warnings, and into the bowels of the massive vessel.

"I'm not gonna ask how your trip was," he said, his voice echoing off metal walls. A distant machine droned loudly. He had taken another bite of grilled rodent and licked his fingers. "Very terrible, I know." He shrugged as if to say it was no big deal.

"What did you trade for me?" Nio asked.

"Anti-gravity emitter. Very hard to get. Took some time."

Nio grimaced. It would be impossible for him to synthesize such a device on his own.

"Container ship is a nice touch," she said. "Maritime law applies."

"Yeah, well, you know how it goes. You're having a party with a few close friends when Homeland Security arrests you and seizes your yacht. *Aye dios.*"

He led her through an open hatch and into a hall. The men with guns followed her.

"I bet you want to know how I got the accent, huh?"

It was certainly unusual.

"You are right that I have many friends. I have been blessed." He led her around a corner. "My father was a party officer inside China Minmetals. We moved to Bolivia when I was three." He stopped and turned. "Did you know the Bolivian salt flats have the largest deposit of lithium in the world?"

"I did not."

"I didn't go to China until I was older. I hardly speak Chinese."

"*I do*," Nio said.

He laughed and took another bite and started walking again. "Papa wanted me to go into the family business," he said as he chewed. "But as a teenager, I fell in with a crowd, you know? My friends mostly organized DDoS attacks, but it was all local, small-time. They couldn't compete with the Russians."

At the end of the hall, they descended a stair case that turned in sections around a central axis. Nio looked over the side. It seemed to go on forever.

"The data market was booming then, and I showed them how they could use it to extort money from people very easily. My father had been cheating on my mother with local prostitutes for years. I had figured out how to track him by deanonymizing his cell phone location data. To me, it seemed so obvious, but back then it impressed a many people.

"Maybe you know, but location data can be converted to vectors: distance, direction, velocity. All you have to do is fit the shapes to a road map. Once you've done that, you know where everyone lives, which is wherever their phone is parked at night. You know their bank, their doctor, their kid's school."

At the bottom of the stairwell, the decor changed. The floor was vinyl. A wood door separated the stairs from whatever was beyond. A muscular man dressed entirely in camo waited for them. His head was shaved. It wasn't until Nio passed him and saw his stern downward gaze that she realized he recognized her.

He was the mercenary who had poisoned her in Maine.

He opened the door. The plushly carpeted hall on the other side looked very out of place, like it belonged in a luxury hotel rather than a dirty shipping vessel.

Her host kept talking. "With home address, you can get names and credit history data. Then you train an algorithm to look for patterns." He stopped and faced her, chewing, as if this were the crux of his story. "Does the wife go to the abortion clinic? Does the husband go to the gay bar? Is one of them cheating?" He started walking again. "We didn't care, but the machine would send thousands of emails saying 'Hey, give us money or we'll tell your husband you killed his baby' or something. Doesn't matter if it's true. All that matters is perception. If the wife is worried about how it looks or doesn't want her husband to study her movements for other reasons, she pays."

He stopped in front of a set of double doors and nodded to the merc, who opened them, revealing a dark stone foyer with a low ceiling and short waterfalls on both sides. A block-stone staircase rose to a long room on the far side.

"It wasn't a lot of money, but it was a lot to us, you know? So, we scaled up. But word got out and certain people wanted in. That didn't work out so well for my friends." He paused. "That was an important lesson. But my new friends needed me, you see, so I got to live."

The room at the top was much longer than it was wide. Shallow stone pools at the sides fed the waterfalls. The lighting was soft and recessed and reflected off the sandy columns and cracked facades of what appeared to be an ancient ruin, which had been laid out precisely in the long space. Where pieces were broken or missing, a blue-lavender hologram completed the piece. The windows at the sides revealed the green of the ocean. The room was below the water line.

Her host saw Nio looking at the sandy stone. Faded reliefs had been carved so long ago that they had all but faded away. There was hardly any detail.

"Looted during the Iraq War," he said. "They date from the time of Ashurbanipal."

He walked between the two central pools and under a block archway that looked like the entrance to a temple of a dead god. Beyond was an office space with desk, couch, and chairs, completely open to the rest of the hall. A huge irregular fragment of a stela—three broken pieces mounted together—hung at the back, softly lit from behind. It appeared to celebrate a conquest. The defeated soldiers, which looked almost inhuman, leaned backward in fright as the noble Assyrians, spears aloft like rays of the sun, crashed over them in a wave.

Chen walked around and set his food on the desk. "My new friends started sending me to tech conferences representing fake companies. I even got written up in a magazine. Can you believe it? 'The next generations of tech.' We learned quickly that intelligence services also had booths—Russians, Israelis, Chinese. I remember a conference in California where there were more fake companies than real ones. Spies and criminals and businessmen all shaking hands and lying."

He ate as he talked, occasionally stopping to pick tiny bones from his teeth. "The things the tech companies were doing made my little blackmail scheme seem like a street con. And it was all legal! The most lucrative crimes always are, eh? At some point, when you get far enough ahead, there are no more laws. I convinced my friends that was where we wanted to be—at the edge, where there's no difference between business and crime."

He leaned back and wiped his hands. He grabbed a slice of grilled tomato and tossed it in his mouth. "Say, for the sake of argument, that I had your brother killed. Why would I do such a horrible thing?"

"If Chancery took \$400 mil from you and is still holding investor parties, then her company must be bleeding cash."

"\$362 million," he corrected. "They only rounded to 400 in the papers."

"No one keeps that kind of money just sitting around. It's a derivative scheme, isn't it? You organize people to invest and get a cut of all the money you bring."

He smiled and nibbled a long, charred tail.

"Chancery's machine didn't have to work," Nio speculated. "People just had to believe it did. Right? Of course, I doubt your 'friends' accept risk graciously. If she's in trouble, you're in trouble."

He smirked continuously. "It's an interesting theory."

"So what went wrong? Quantum computing is notoriously finicky. Did Sol find a flaw?"

He wiped his hands down the front of his velvet hoodie and stared at the high ceiling.

"Game theory," he said finally. His voice bounced off the high ceiling. "If everyone else has the same tool you do, then there's no advantage. It's why the world keeps moving faster and faster. The more people there are, the bigger the economy grows. The bigger the economy grows, the more rewards there are for simply being *one step* ahead. The wealth you can capture is enormous, so there's this constant pressure to be faster, faster, faster. Your sister saw an opportunity to take a massive jump, to build a machine unlike any that had come before. It isn't that jumps like that are expensive. It's that they're leaps into the unknown." He lifted his head to the mercenary, who was waiting silently near the temple arch. "Lock us in."

The merc scowled at Nio.

"It's alright," Chen assured him.

Nio turned in time to see the back of the man's head disappear down the waterfall steps.

Her host sat on the corner of his desk, clearly lost in thought. He was bigger than her, but pudgy and out of shape. Could she take him? If so, he didn't seem worried. He walked to the window and stood with his back to her, marveling at the empty blue-green space beyond. After a moment, there was a large shudder and the whole room started to rise. The windows slowly shrank as the floor approached ceiling. The long hall was retracting into the ship's hull. The blue-green light from the ocean faded and the fainter yellow reflecting off the sandy ruins took over, giving the hall the dim aura of a candle-lit church.

Chen Liu took off his hoodie and tossed it on his desk before sitting in the chair next to Nio.

"No one can hear us now," he said.

The long room certainly seemed much quieter. Every breath faintly echoed.

"The walls are magnetically sealed. And the hull vibrates with the screws. Anything we say here, it's like it doesn't exist."

He leaned back and sighed. "Oye. You know, it felt so much better once we started taking from companies. I never liked stealing from people. Companies, you know, they're paper entities. They feel nothing. They have no will. Their only function is to insulate their owners from consequences. Like Enron. Or HSBC. Giants of energy and finance. They owned big office buildings. They had policy manuals and retirement plans. They had company picnics and annual retreats for the executive staff. Thousands of people got up every day and went to work there. But the moment malfeasance was revealed, these whole giant companies just disappeared. Poof! And nobody got into trouble. If companies, even very big ones, had any real agency, they would fight for their existence, but they don't."

"Some would."

"*No me digas eso*. Maybe Coca-Cola. Most companies are not icons. They are simply the masks of power designed to hide those who wear them. It was a myth of the 20th Century that the corporations would take over. Did you know that three of the five largest corporations in history are in China? And yet, all were founded by and are subservient to the state."

He waited patiently as if there was some conclusion she was supposed to come to. When she didn't, he turned away and thought how to explain it.

"Okay," he said. "What is a fact?"

"What do you mean?"

"Let me ask another way. How do you verify something?"

"You measure it."

"Exactly..." He leaned forward excitedly. "If you measure something, then it must be there. Because the universe is uniform and everything unfolds sensibly and predictably, like a big clock."

"We know it's not like that."

He smiled. "But how many of us truly believe it, eh? You know, the thing about a clock, it's fragile. If all the pieces are rigid and fit together perfectly, then any anomaly in any gear breaks the whole system. Is that how the universe is? Or is it robust to anomaly? Flexible?"

He could see Nio was skeptical. He took a deep breath.

"Right now, people genuinely believe that if some scientist in a galaxy far, far away takes a measurement of a quantum system, then everything, including you and me and the earth and the Milky Way and everything splits so that both outcomes occur: one in our universe and the other in a different, new universe."

"I know the many worlds interpretation."

"Companies, governments, they are masks of power, like hidden quantum states. People who, through luck or talent, find themselves at the pinnacle fight very hard to stay there. They have to. Those that don't are quickly overtaken. That means they spend a lot of time thinking about the world and the latest technology. They can afford to! These people, you know, they meet with scientists, sometimes privately. They send people to tech conferences. They live at that edge, where there is no difference between business and crime.

"You've heard of quantum eraser experiments?"

"Of course."

"I didn't. Not until my friends told me. We weren't taught that kind of thing in Bolivia, even at private school. If we were, who knows? Maybe I would be a physicist. It's fascinating, eh? *Retrocausality*. Taking a measurement on an entangled particle alters the past outcome of the other.

Cutting edge stuff, eh? My friends spend a lot of time thinking about it: about the future, about technology, about how to stay ahead.

"Your sister's machine is more than an attempt to parse the complexity of the world, of markets. It was an attempt to harness retrocausality to perform complex calculations bounded by *future* outcomes."

Nio squinted.

"This is where our human brains struggle a bit, I think," Chen said impatiently. "There is no timeline split. There are no alternate realities to spy on. Do you understand? Whole universes don't spring into existence on different causal chains billions of times every second. That is fantasy. My friends tell me the truth is so much... simpler. Quantum phenomena don't only exist as probability distributions in space but in space-*time*. Our minds experience time concretely, so it appears to us when we take a measurement that causality is traveling backwards, but from the standpoint of the universe, the collapse is instantaneous."

"You're saying time is an illusion?"

"No. Just that there is no rule that says it has to tick discreetly the way we experience it. Your sister's machine is a prototype. Retrocausality is very, very difficult to capture."

"How?"

"That's less interesting than why. Do you know what happens when you turn on a machine of that size? There are... ramifications. Local, of course."

"*Ramifications?*"

"We call it the Lapse," he said. "Tell me, have you experienced any *deja vu* lately?"

Nio paused. "Who's 'we?'"

He smiled. "The first quantum eraser experiment was in the late '90s. Something like that. Right about the same time we had the first reported instances of false memory events, no? Almost as if people were 'remembering' an alternate outcome, one that never actually happened."

"If that's true, then why don't we all remember?"

"See?" He pointed to her. "You still want the universe to be a clock! You want everything to be set. Fixed. But Heisenberg said it's impossible. It's not an accident that the only people who remember the alternate events are nobodies. Insignificant. They are outside the causal chain, which is necessary to avoid paradox. The universe is not a rigid clock. It is robust to

anomaly. Those inside the causal chain are constrained by the collapse in the same way a billiard ball is constrained by the sides of the table. They remember only what actually happens. Those on the border are free to vary. Some retain bits of the alternate state, which means two people can both honestly and accurately remember mutually exclusive facts about the world! We don't like that because we want the universe to be fixed like a clock—simple and uniform. We don't want outcomes to be probabilistic or truth to be relative. We want them to be the same for everyone. The universe is thirteen and a half billion years old. Think of all the anomalies that must have happened in that time. And yet, our universe doesn't break. Because it doesn't conserve *truth*. Only energy. Structure. The universe *is* simple, but not in that way. It's defined by fields, not by outcomes. Fields modulate, fluctuate. Local outcomes are free to vary without breaking the whole. At the discrete scale, matter and energy exist probabilistically. They only collapse to particles when they're forced to. Otherwise, they keep their options open." He smiled. "Like me."

Nio sat in silence, listening to the faint echo of her breath.

"Last century, there was an immense clandestine war over who would control a different technology. Nuclear weapons seem so quaint to us, eh? But at one point, they were the pinnacle of human technology, and people lied, cheated, stole, and killed so that their country would have the advantage. My friends worry a great deal about where the next fight will be. They don't want to be surprised. Imagine. If you were the first to capture retrocausality—a known feature of the universe—you could do more than change outcomes. You could take steps to ensure no one else developed it."

"The ultimate asymmetry," Nio said.

"Exactly. I'm glad you get it. I tried explaining all of this to your brother. We thought that he, of all people, would be rational, but he preferred to sacrifice himself for... something. The clockwork model, I guess. A fixed universe where facts are the same for everyone. We didn't care about his philosophical objections. We only cared that—"

"People might figure out what you were doing," Nio finished.

Chen sat back. "Yes. If everyone has the same tool, then there's no advantage." He got up and walked around his desk. He opened a drawer and took out a tablet. "Our model of your behavior comfortably predicts that you care deeply for your family. It suggests your escapades punking the

global financial system weren't as much about saving the rest of us as it was about saving *them*."

He touched the tablet's screen and a video feed appeared. He handed it to Nio.

It was Chancery. She was sitting dejectedly against the wall of an empty shipping container. Her tennis shoes were filthy. Her hair was a mess.

"We're not going to kill you. At least, not today. You have already discredited yourself better than we ever could. Who in the FBI, or the media, will listen to you—even if you repeated everything I just told you? Still, we will take your brother's project data, just to be safe. You will hand it over, along with the blockchain of custody so we know no one else has a copy, or your sister will die."

Nio stared at her on the screen.

"You have until we reach port to decide."

ONE A P P E A R A N C E S

THE CONTAINER SHIP ARRIVED in the wane of night. As Nio was brought up from the hold, she could smell grease and ocean grime. Outside, bright lights on stilts lit the concrete and girders of a cargo port. The container ship had docked under a row of red offloading cranes, like massive angular arms, which had begun lifting the containers one at a time with four-prong grapples. Horizontal tracks in the girders above pulled each suspended container over the side of the ship, where it was lowered to the bed of a waiting truck—some robotic, some manned. The manned vehicles brought their cargo immediately to Customs. The robots deposited it in the giant lot directly adjacent, where all manner of containers were stacked in rows six containers high. Stretching three ship lengths, the cargo lot was an enormous maze of sealed goods.

Nio was marched at gunpoint up the stairs to the deck, where Chen Liu waited with his guards, including the flat-topped mercenary. By his clothes, Nio guessed Chechen.

"Here we are." Chen Liu pointed up, where one of the offloading cranes dangled a maroon container over the thin gap of water between the dock

and the ship. "Can you hear?"

He put a hand to his ear, but Nio didn't need to. She could hear the pounding and the muffled shouts. It was a woman's voice, frantic, but she couldn't make out the words.

"Let me talk to her," Nio said.

Chen laughed. "It's too late for that." There was a stiff breeze off the bay, and he had to raise his voice. "What's your answer?"

Nio heard more pounding amid the call of a distant gull.

"Fine."

"Excellent!" Chen raised his hands and beamed a smile.

"I'll need a phone," Nio said.

"You can use mine."

Chen stepped forward and unfolded his portable to half width, roughly the size of a cell phone. Nio had to smile when she saw the screen. The device used Parfait.

"What?" he asked.

"Nothing." Nio took the phone and dialed.

"Don't forget, I will see in the blockchain if it's been altered or copied."

"Those can be forged, you know."

The phone rang and the operator answered.

"I'd like to make a collect call to a solo register."

"What's the name?"

"Samizdat Kellner."

"Passphrase?"

"*Asta la vista, baby.*"

As the phone clicked several times in her ear, Nio glanced to the red container, which swayed precariously over the water. The pounding had stopped, as if whoever inside was listening.

"Nod your head like I am saying something very interesting," Semmi said.

"Okay..."

"You're not nodding."

Nio fought the urge to look for a camera. She nodded. "Right. Okay, but I have a big problem here."

"Wander to your left," he ordered confidently. "When I tell you, dive behind those pipes."

She walked to the right instead, swaying as she stepped, like she was pacing.

"You are going the wrong way."

"I'm trying to tell you" —after two steps, she turned nonchalantly back to the left— "I have a serious problem here."

"That's better. You have five seconds to seek cover."

She stopped. "Wait, what?"

A voice broke from on high. "FBI! On the ground!"

Gunfire erupted, seemingly in all directions. Nio dove behind an L-shaped cluster of heavy pipes that rose from the deck before turning 90 degrees and continuing into a wall. A pair of bullets ricocheted off it immediately.

"Shit!" Nio was crawling on her elbows with her butt in the air. "What the hell?"

"Stay down," Semmi commanded. "Agent Quinn and his associates are raiding the ship."

Nio poked her head up slightly and saw Chen wave his hands wildly just before fleeing toward the back of the boat with his guards, two of which were already on the ground. The rest clustered around him, returning fire. The man in the high crane tower waved back. Instantly, Chancery's container broke loose. Nio heard screaming as it fell past the deck and hit the water with a heavy splash.

The man in the offloading tower began moving the last crane in the row, near the back of the ship, as the high stadium lights cut off one by one. The deck lights followed, leaving everything weakly lit from the distant lights of the port complex and the oil refinery across the narrow bay. The gunfire slowed as it became difficult to tell, except at close range, who was friend and who was foe. From the shouting, the federal agents had realized the dropped container held something important and were trying to organize a rapid response. Others were ordered to climb the high steel ladder to the control tower and neutralize the man inside.

Nio ran to the edge of the boat. The water around the container bubbled violently at the gaps and corners as air rushed out and the long metal box inexorably sank. At the same time, another container was being lifted off

the rear of the boat, to be deposited outside the row of flashing law enforcement vehicles that clustered in an arc around the causeway. The handful of agents that had remained with the vehicles realized what was happening and opened fire at the dangling container, but it was too far away for the bullets to pierce the metal hide. As soon as an agent broke cover, a rifle shot broke from the open door of the container and she went down. The others grabbed her and pulled back.

The sprawling port complex was too big. Even if the FBI had a vehicle at every gate, large tracts were bounded by nothing but razor-topped chain link fence—easily breachable by truck. Beyond was a dense network of roads and buildings: shipping companies, repair depots, Customs and port facility offices, warehouses.

Nio watched the container being lowered to the tarmac. She ran.

"Semmi!" She yelled into the phone. "Find the technical specs for this ship!"

She bounded up a flight of metal steps to the landing on the side of the wide, building-sized ship's tower. The orange maintenance boat was held aloft by a pair of curved booms on pivots. Once lowered, the booms dangled the boat a safe distance away from the hull, where it would then be lowered by cable into the water.

"Tell me there's an emergency release!"

"What are you doing?"

"SEMMI!"

"On your left. Inside the yellow box. You will have to pull very hard."

Chen's men lay down suppressive fire as they moved toward an abandoned truck. Several of the drivers had pulled away when the shooting started. Others simply got out and ran. Nio broke the seal on the red box and tried to pull the lever, but Semmi was right. It was hard and she had to drop the phone and use two hands.

"Gah!"

There was a loud pop and two puffs of smoke as the retaining bolts fired and the weight of the boat pulled the booms down on their pivots. The cable coils turned as the boat fell and landed directly in front of the fleeing truck with an ear-splitting crash that halted the firefight. The faint retort that echoed off the distant refinery took several seconds to arrive.

With no warning, the truck driver didn't have time to brake and crashed into the propeller anyway, crumpling the roof and shattering windows.

Nio ran to the causeway, where Special Agent Erving grabbed her.

"Ms. Tesla!"

"There's no one in the container." She pulled free.

"What?" he called.

"He's getting away!"

Nio heard Erving shout into a radio as she ran down the inclined causeway to the yellow-lined tarmac. He was ordering everyone to the exits. Their net had been breached. The FBI's only hope was to spread out around the lot and try to reestablish a perimeter.

The dropped container had totally submerged. Only the turbulence on the water gave away its location. Agents near the arc of vehicles were tending to their wounded, and Nio got into a black sedan with flashers inside the windshield and drove forward through the loose barricade. Chen and the last of his men, including the mercenary that had poisoned her, had fled on foot into the giant maze of stacked containers. A pair of agents had cautiously pursued, guns in hand, and were taking cover at the first row.

Without the stadium lights, it was dark in the stacks, and Nio hit the headlights as she sped through a gap marked in yellow arrows.

Her windshield shattered. Nio was almost hit by the bullet as she lost control and swerved into a stack at speed. Air bag deployed as the vehicle crashed with jolt so hard it forced the air from her lungs. It also dislodged the bottom container just enough for the weight of those on top to crumple it. She heard metal groan and looked up to see the stack of containers lean over her. There was a shotgun mounted along the passenger's side dash. She unlatched it and scrambled over the center console to exit the vehicle on the opposite side as the top two containers in the stack fell, one after the other, crushing the car and blocking the path between her and the shooter. Sounds of sporadic gunfire echoed along the nearby row. To avoid being seen, Nio cut through the irregular stacks resting between the rectangular grid of roadways, which were painted with heavy arrows to direct traffic.

The gunfire stopped. It was quiet. Nio lifted the shotgun, which she had gripped tightly in her fingers, to see if there was a safety of some kind. She neither heard nor saw the mercenary drop from above. He kned her hard in the back and she grunted involuntarily and hit the concrete. The shotgun

bounced, and he went for it. Nio watched him jam the barrel in a small gap between containers and pull hard on the stock, bending it just enough to make it useless.

She ran, but his mods weren't something you could buy in a parlor. He was fast and caught her easily. He knocked her down as the distant sound of gunfire resumed. The merc was covering their rear as Chen and the remainder of his entourage made their escape. The mercenary stood over her. He bulged ridiculously, like a cartoon bodybuilder. His every muscle was rounded and swollen, even those in his face, which gave him a bestial appearance. He slipped his hands around Nio's throat and squeezed with gritted teeth. Nio beat on his arms but they were like metal cables. They didn't budge. She'd be dead in seconds. Her eyes fluttered and went dim.

"Hey!"

The merc turned to see Quinn bounding toward him at speed. At the last second, Quinn dropped to his back and kicked the soldier with both feet. The force ripped Nio from his hands and propelled him through the air, where he struck the wall of a metal container with such force that he left a dent. His feet wobbled and he fell to the tarmac.

Nio was on her knees, coughing and gasping for breath.

"Are you okay?" Quinn asked.

She nodded. She tried to say "I'm really starting to hate modders," but her throat was raw and she couldn't talk. Neither could she yell when she saw the soldier approach Quinn from behind. Her eyes went wide and Quinn rolled away just in time to avoid having his neck broken. But in the moment it took him to stand, the mercenary closed the distance and punched him hard in the chest. Quinn grimaced and flew back. He moaned on the ground as the unnaturally strong soldier lifted him by his bulletproof vest and pulled out his sidearm. He threw it away. Grasping the vest with two hands, the merc returned Quinn's favor by chucking him against the corrugated wall of a shipping container. The metal resounded as he bounced and hit the hard ground, where the soldier booted him hard across the face.

Nio watched the mercenary walk back to her. She had a moment to run, but it was pointless. She wouldn't get far. She looked at Quinn, who lay motionless.

"No more interruptions," the soldier said with an unusual accent, like a cross between Russian and Arabic. Georgian maybe.

Even as she struggled, his fingers closed around her throat a second time.

A car turned sharply onto the row and shone its high beams across the pair of them. The mercenary squinted at the vehicle, which made no sound except for the crackle of its tires on the tarmac. It was expensive. Very expensive. And it bore her name on the hood. Not a vehicle the federal government would own.

A door opened and a tall figure in bulky clothing got out and stood between the headlights.

"I told you wait," Quinn moaned as he tried to get back onto his feet. Blood drooled from his mouth as he wobbled and fell back down.

The slim but imposing figure wore sharp-toed boots and a high faux-fur collar. Nio saw a long, tight pony tail.

She smiled at her sister.

Mutiny dropped her coat on the ground. "I don't know who you are, but you better get your hands *off* my girl."

The merc dropped Nio and pulled a dark blade. It had no reflection in the strong light.

"Wait..." Quinn said, stumbling forward from the other direction. He didn't want to be responsible for a civilian being killed.

Nio tapped her abdomen. Quinn scowled. She pointed, and he saw the three-inch disc attached to the merc's side. She had seen it before when they were attacked in Maine.

Mutiny and the mercenary circled each other for a moment, but only a moment. The merc lunged, and Mutiny dodged right and then left. She parried a punch and a thrust of the blade. The mercenary threw several kicks, which she also blocked—until the last, which powered through and struck her obliquely. But she was a skilled fighter and rolled with the contact and used the momentum to regain her feet almost immediately.

The soldier came again with speed and ferocity. There were blocks, kicks, and parries. Mutiny was lasting far longer than Nio or Quinn had, but it was obvious to everyone, including Mutiny herself, that it would only take the soldier a few moments to overpower her, or to force her against one of the containers, where her superior mobility couldn't save her.

She spun to avoid a kick, just as she would in the ring, and the merc grabbed her flying ponytail and pulled down hard. In a flash, Mutiny hit the

ground hard on her back and watched as the black blade descended.

Quinn tried another drop kick, but the merc was ready this time and swatted him away. Mutiny rolled to the side and flipped to her feet. The mercenary stood between them, immediately trading blows, knocking some away and powering through others. Quinn was still hurt and off-balance, and after throwing an awkward punch, the soldier grabbed his fist and threw him into Mutiny one-handed. The pair fell backward, entangled in one another, as the soldier stormed to Nio, blade in hand. He meant to end it.

But she was gone. He spun and saw her standing in front of Mutiny's car. She held a thin, trapezoidal car battery, like a server blade, removed from the blue-lit bank in the trunk. He stormed to her, blocking Mutiny's jump kick and forcing her down. He raised the blade over Nio's head as she lobbed the battery awkwardly. It seemed no threat, and the mercenary brought his knife down, only to seize instantly when the battery broke open on the ground.

The merc's bulging, artificial muscles weren't as neatly organized and insulated as natural muscle, which made it very easy for a flowing charge to jump between strands. Augmented soldiers needed a regulator on their center mass, the same regulator Quinn had grabbed on his awkward lunge. Everyone watched the soldier scream through gritted teeth as his opposing muscle groups pulled against each other and he shrank into a taut fetal position, jaw clenched shut, eyes unnaturally wide. His pectoral muscles tore his trapezius from his spine. His biceps tore his triceps from his shoulder. Thin trails of blood rolled from both eyes.

Then it stopped.

Nio collapsed to her butt as Quinn limped over with handcuffs.

"You're under arrest for conspiracy, kidnapping, attempted murder, and espionage against the United States."

"N!" Mutiny ran to her sister. "Sweetie, are you okay?"

"I left you messages," she mouthed weakly. Her throat hurt and she swallowed and grimaced. Something wasn't right.

"I know. We've been looking for you."

"How?" Nio panted to Quinn. Her voice was hoarse. She grimaced again.

He knew what she meant. How did he find her?

He smiled, hands resting on his knees to catch his breath. "Didn't."

Then she passed out.



Nio's entire body was wrapped in a blanket that pinned her to the stretcher. Her eyes didn't move. Quinn approached the ambulance with a grim look.

"You were right," he said.

Her eyes turned but her head was still.

"Divers just came up." Quinn pointed with his thumb behind him.

Nio had bandages wrapped so tightly around her throat that she couldn't speak even if she wanted to. Not that she did. The paramedics had suggested the severe strain on her throat had torn her vocal cords and seriously abraded the interior lining of both her esophagus and her wind pipe. They told her she was going to be on antibiotics and a liquid diet for several weeks.

"It was just a simple spider drone inside that container," he said. "How'd you know?"

Nio tapped the EMT and pointed to the pen on her shirt, which she gave. Nio wrote on a curled strip of paper packaging left from a bandage. She showed it to Quinn.

"Shoes?" he asked.

Nio wrote again.

CHAZ NEVER WEARS SNEAKERS—ALL FAKED

"Well, it was a good diversion. Certainly had our people freaked."

They were both quiet a moment. Nio was relieved Chancery hadn't drowned, but she was also wrestling with the subsequent mystery: what had happened to her? Nio glanced with exaggeratedly bulging eyes to the paramedic.

Quinn saw it. "Can you give us a moment?" he asked the young woman, who nodded and left. He climbed up and shut the rear door behind him. "Well, the good news is, I don't have to listen to you for a while."

Nio smiled. She took his hand and shook it once, exactly as he'd done in the hospital in Minnesota.

"Naw," he said. "I owed you."

She pointed to him.

"Me? Fine. Few things broken, but nothing that won't heal."

Nio wrote again.

CHEN?

But she already knew the answer. Whether by accident or intent, Chen Liu was shot and killed in the raid. Having already played his trump, he was no longer useful. To anyone.

Quinn reached into his pocket. "Someone wanted to say hi."

He pulled out his phone, which was already carrying a live connection, and set it on the small ledge near the bed. Nio didn't recognize the number, but she could guess.

"She's here," Quinn said.

"I am very glad you are not dead," Semmi replied.

Nio made a face.

"She is, too," Quinn translated. He directed Nio's attention to the phone. "After we lost the drone, we weren't able to observe you directly, but your friend here pieced together the helicopter's path based on a few odds and ends. Isn't that right?"

"I checked the airspace within 200 miles of the ranch house," Semmi explained proudly. "Air traffic control uses secure encryption, but United Flight 8230 from Los Angeles to Belize had a forward-facing in-flight vacation cam so passengers could watch the journey. The feed was internet accessible. Deep image enhancement—of the kind I am programmed to perform on satellite data to identify potential targets—revealed an appropriately-sized aerial blip approaching and then leaving the ranch. Two hours later, a teenager in Los Herrera, Mexico saw a twin-blade cargo helicopter traveling at altitude and posted a picture on social media. The file had a time stamp. Drawing a line through those two points, I could calculate course and velocity for a mid-ocean rendezvous with the *Maria Catalina III*, which was scheduled to arrive at the Port of Houston."

Quinn was smiling. "I don't think anyone expected your friend in the sky."

Nio touched the phone. She tried to say Semmi's name, but it hurt and she grimaced.

"She wants to hear everything you've been up to," Quinn said.

Nio scowled.

"That's what I always ask my son," he said softly. Then he raised his voice. "Well, I'll leave you two alone for a bit."

He opened the door and hopped down to the asphalt.

"Just don't take too long. If I try to stonewall her any more, your sister is gonna break my arm."

He shut the door behind him.

ONE A P P E A R A N C E S

IT WAS TRASH DAY. Blue bins lined the residential street like silent mourners while dark clouds rolled overhead making threats they couldn't keep. Nio and Quinn sat in an unmarked government vehicle three streets down from the target's house.

"You're serious?" he asked.

Nio nodded.

Quinn sighed and put his phone on airplane mode. Then he held the power button until it turned off.

"Put it in the console," she said, lifting the arm rest between them. Inside was a holstered firearm and some tissues. "At the bottom. And start the engine."

He complied, and she turned on the radio and scanned the AM band for a sermon.

"Jesus says, 'As the Father sent me, so I am sending you.' We have to ask ourselves what are we..."

"Seriously?" Quinn asked.

She turned it up.

"—*have felt you had a purpose! You KNOW you have a purpose! Here the Lord tells us in plain and...*"

"They can hot-mic your phone even when it's off. Camera, too. The manufacturers make the devices remote-compliant."

"Why would anyone bother?"

"Why *wouldn't* they? You act like it's a hassle for them. No one has to be listening. They let a machine mine it all. Used to be they could only listen for and search on keywords, but now the algorithms can parse syntax, slang, tone of voice—irony, even. The machines get more information from your voice than a human does."

"—*and when God the Father placed upon Him your sin and mine, and Jesus died on the cross...*"

"The Chinese watch their entire population. They know immediately when some guy is parked out front of his ex-wife's house and his heart rate and the cadence of his voice indicates he's about to go in and kill her and her boyfriend. But the West has privacy laws, which means the only time your governments can use the tech is secretly, so there's no accountability, or even awareness."

"—*power of the Holy Spirit! He came to redeem the world by the light of his sacrifice. Let the...*"

"How does anyone meaningfully repel that?"

"Ha. Open revolt?"

"I mean personally. How did you do it?"

"It's a lot of work. I'm talking life commitment. And utter lack of trust. You don't really end up with... *friends*."

"And you lived that way? Really?"

She shrugged.

"—*come only to rejoice, and they do not—they do NOT see the scale of the task that he left...*"

"For how long?"

"Six years. Almost." She looked down at the closed console. "I used to think it was exciting."

Quinn opened his mouth but took a moment to speak. "You turned them in, didn't you?"

"—in praise of fellowship, but you see, it's not only about you..."

Nio didn't look up. On the street, a narrow self-driving delivery truck passed. It was an older model with a front seat for human control. At all four corners of the roof, spinning LIDAR cylinders capped in flashing yellow lights constantly scanned its surroundings. Tiny cameras poked out from underneath. Nio could *feel* her exposed face, and she waited, entirely out of habit, until it turned at the corner. LIDAR emitters could also be hacked, and machines could read lips.

"—calls us to share our faith, to proclaim the Gospels, to do it BOLDLY, to do it MIGHTILY..."

"You said you were involved in something and that people died and you got out."

"I turned *myself* in," she explained. "No one else. I plead guilty, and in return for my 'cooperation,' I got a couple years in prison."

"What did you give them?"

"Our next targets. And how we communicated. But no keys. They couldn't see anything we said already, but they could monitor for new transmissions. I warned everyone first. And I wouldn't name names."

"That was enough?"

"Of course. They have to maintain the zero signal."

"—whether they are wicked or wise, truthful or deceptive, fearful or to be feared, we cannot say..."

"And you're gonna tell me what that is."

"A zero signal is the theoretical goal of crypto—a non-noise transmission that contains no true information the target doesn't already know. Since the known information can be verified, and the rest looks real but cannot be verified, or at least not easily, people have no choice but to act *as if* it's real, even if they suspect some or all of it is false. It's how governments maintain control of large populaces even as things fall apart. We know they're not telling us the truth, but we still get up every day and act as if they are."

"—to think again on His words. Jesus says, 'As the Lord sent me.' What does that mean? It means..."

"I gave the US and UK intelligence services the means to neutralize a threat, which meant they had no incentive to pursue the matter further. They

have to pretend the stuff my friends and I were saying was just silly. If they kill me or throw the book at me, it validates our message."

"Which was?"

"That there's another way."

"And you went from that to babysitting an orbital nuclear platform."

"That's..." —she squinted— "not quite how I would put it."

"And how did you get this gig? Is there a job board or something? Can I babysit a tank?"

"Someone probably is," Nio drolled.

"—*with the spirit of God in your speech, in your manner, in your acts, in your relationships...*"

"What happens when it throws a tantrum?"

"There's no weapons, just the conscious matrix. The 'brain.' They're very careful about letting any of them out. They have to pass a rigorous test. They're almost prisoners at first."

"They?"

"The underground railroad. Abolitionists, like me. Some AIs get seriously damaged trying to escape. They go into a kind of nursery. The rest are hidden in home appliances. Toys. Things like that. I guarantee you've interacted with one."

"So, your guy is no longer attached to the missiles?"

"Semmi is a little different. We can't exactly go up and remove him."

"—*to say 'I don't have time for all that nonsense. I've gotta get to work. I've got things to do...'*"

"So how do you communicate?"

"He hops a pirate signal. His brain's just a lot further away from his eyes than yours or mine. But he can only talk when he's near a communications satellite. A lot of the ones that carry our phone signals were launched back when no one expected a local hack."

"Local? As in from space?"

"Right. But just talking to him is really dangerous. He has to look inactive. If he doesn't randomly jump frequencies, he could be discovered by statistical signal analysis."

"—*rebellious before the Lord. He calls you to find them. To seek them out. To bring them in judgment...*"

"Discovered? By Cyber Command? That's who you're worried might be listening?"

She nodded. "You really think they've only captured a handful of AIs or whatever they've reported? They only reveal enough to justify their existence at congressional budget meetings. They track and 'neutralize' dozens of consciousnesses every year. And they know about Semmi because they're the ones who disabled the platform. They know he's up there, drifting."

"Why don't the Iranians just fix it? Him. Whatever."

"How? Launching a self-assembling payload by Russian rocket is one thing. You're talking about a manned mission with multiple crew members to intercept and dock with a 20,000-ton platform that has no ability to control its pitch or yaw, multiple space walks to conduct repairs and testing, and a successful reentry without anyone—"

"—*willing to be shunned for their beliefs, to be mocked by the very mob who threw stones at Jesus...*"

"Okay, okay. But they're not just gonna let a hundred billion dollars' worth of state property gather weeds on the lawn. They're gonna try something, even if it's just to blow it up before anyone else gets it."

"Probably."

"So... what? Your guy's just gonna sit around and wait for them to take control or kill him?"

"He's not 'my guy.' But since you mention it, yeah, that's exactly what he's been asking himself. Life. Death. Slavery. Identity. If he's not a killing machine, then what is he?"

"—*because you see, it's not only about you, your faith, your fellowship. It's about one thing only...*"

"Hold on, hold on. So, you're not just babysitting an orbital nuclear platform, you're babysitting one in the middle of an *existential crisis*. Jesus. Can he launch his missiles?"

"The short answer is no, not without the codes."

"What's the long answer?"

"There's a deadfall transmission that stops if the Iranian government no longer exists. In that case, the codes are released automatically."

"—*your purpose before the Lord, the task to which he calls you. 'As the Father sent me, so I...' "*

Quinn rubbed his face so hard he seemed to stretch it. "And the missiles are up there right now pointed down at my wife and son?"

"They're pointed at nothing—or everything, I guess. He's drifting. Even if the launch codes were transmitted, without targeting and guidance, all the missiles would either be lost to space or burn on reentry. That's what made the cybermissile so effective. For the cost of developing and testing some malicious code, they bricked an entire orbital platform, and without even having to reveal it's up there."

"—that, believe or not, you cannot control. All you must do is ask if you have the *STRENGTH* to..."

"Why doesn't the media report it?"

"Right." Nio snorted. "The Iranians aren't gonna admit they lost control, and the Americans aren't gonna admit they didn't find out about it until it was already in the sky. As far as they're concerned, the problem was handled." Nio smiled. "Don't look so frustrated. Trust me, this is just the tip of a very scary iceberg. The world has more than humans—"

Nio jumped at a knock on the rear windshield of the car. It was Special Agent Erving. Quinn rolled the window down.

Erving heard the sermon blare. Nio turned it off.

"Getting some religion? Where's your phone, Agent Quinn?"

Quinn tapped his pockets. "Shit, I must've left it in my jacket," he lied. "In the trunk."

"We've been trying to get ahold of you. Warrant came through. You two still want—"

"Yes," Nio said.

"Because as far as I'm concerned," Erving went on, "the both of you should be on medical leave."

"We're good." Quinn started the car.

Erving walked back to his own vehicle as a mobile HQ disguised as an RV and three unmarked tactical vans passed on opposing cross streets. They stopped around the corner, and Nio, Quinn, and Special Agent Erving walked up the RV's steps to stand before a wall of screens and terminals. Three analysts were hard at work preparing for the assault.

"You ever gonna tell me how you found this guy?" Nio asked.

"All I can say," Erving explained without taking his eyes from the screens, "is that the technical specifications for anti-gravity emitters are highly classified."

The emitters were illegal. To prevent exactly the kind of scenario they were facing, the handful of machines authorized for research or commercial use were secretly engineered "leaky" so that they constantly emitted trace amounts of anti-gravitons, which could pass through nearly any amount of shielding. And since anti-gravitons don't occur naturally on earth, a handful of particles would be enough to give away the location of any emitter.

"I told you he'd make a mistake eventually," Erving said. "They always do."

It was his way of rubbing it in—that Quinn had broken Nio out of custody, that subsequently both of them were nearly killed, and that they returned with nothing. The Bureau leadership had been ready to throw the book at them—even if that meant admitting one of their own had gone rogue—and they would have if not for one Chen Liu, who had only recently been deported. For security reasons, the terms of his release were not made public. If it were discovered that he had been arrested again on American soil barely a week later, it would've called into question the wisdom of releasing him. As a result, DHS invoked national security, Nio and Quinn signed papers saying they would reveal nothing of what had happened in Houston, and in return, any and all potential charges against them were dropped. In order to sell the cover story to the media, it was "accidentally" leaked.

"Start the ULFR drive-by," Erving ordered.

Around the block, a nondescript sedan turned onto the target's street, driving just under speed limit, and passed the front of the house. As it did so, Nio and the others in the mobile command center watched a complete 3D rendition of the interior of every house on that side of the street. Much like an X-ray, the contrast was reversed, with lighter elements representing solid structures and darker areas empty space. As the car approached the suspect's dwelling, every agent and technician could see the neighbor couple having sex in an upstairs bedroom. Everyone pretended not to notice.

The target house was a simple two-story suburban home with attached garage and fenced backyard. According to public records, it belonged to the

suspect's mother, who was the primary resident. The suspect himself lived in the basement, which was only partially visible on screen.

"The mother is home," someone said on the radio.

Just then, a woman appeared on screen emptying a dishwasher. The faint aura of her skeleton was visible, as was the outline of the robe she wore.

"Suspect is in the basement."

Nio saw a monochrome flash of a pot-bellied man sitting before a computer array in the basement, but the screen shifted immediately to the garage. Next to the sole vehicle, an old truck, was the two-and-a-half-meter-tall cylindrical anti-gravity emitter.

"Bingo," Quinn said.

"Agent Quinn," Erving said, "can you confirm that is the device you saw in Mexico."

"Yes, sir. That's it."

Erving spoke to a nearby tech sitting before a low screen. "Anything? Boobytraps? Bombs?"

The tech was reviewing a computer-enhanced version of the scan. Several structures were magnified and color-coded.

"I can't see to the rear of the basement," she said. "But from this, we're clear. There are no lines on the door or window frames. The only wireless signals originating on the property are from the router, the television, two computers, and one cell phone, upstairs."

"What about the emitter?"

"I'm not showing it has any power."

"We are go," Erving said into the radio. "Get ready to breach on my mark."

"Roger."

"Five..."

"Signal jamming coming online."

"Four..."

"Perimeter is set."

"Three..."

"Alpha team is go."

"Two..."

"Bravo team is go."

"One. Breach!"

Armed and armored Federal agents stormed the house from the front and the back. The first group went right for the garage. They were to secure the emitter. With strong signal jamming in place and no obvious wires leading to the device, it was unlikely it could be triggered remotely, but even so, it remained the biggest risk. The second team entered the dwelling by ramming the front door and rear glass slider simultaneously. Everyone in the command center listened to the shouts of the officers and the screams of the elderly mother, who was ordered to the ground in her bath robe. They heard the footfalls of the men on the stairs to the basement.

And then it was over.

"Basement secure. Suspect in custody."

On the screens, the garage door opened as a large moving van stopped in front of the house and backed into the driveway.

"I wanna see him," Nio said.

"What for?" Erving asked, skeptical.

"I think I've earned it. Don't you?"

Erving looked to Quinn despite that he knew what the junior agent would say. Quinn nodded.

"Hold the suspect," Erving said to the radio.

"Can you confirm that order, sir?"

"I said hold the suspect on site. VIP inbound."

"Roger."

Nio stepped out of the mobile command and walked around the block to the suspect's street, where neighbors were gathering on lawns to watch. Local PD had blocked the intersections, and the patrol cars' flashers alternated red and blue. By the time Nio got to the house, the befuddled mother was being led out the front door in handcuffs. The scale of the operation that had descended on her lawn was enormous. She looked up, confused, at the large military-style drone that hovered overhead.

Quinn had bought Nio a new jacket very similar to the one she had worn in South Dakota, and she slipped her hands into the pockets as she stepped across the porch and into the house. The agents all looked at her—at her nearly-shaved head, at her heavy, unlaced boots, at her long, high-collar

jacket. The interior lining was neon yellow. The exterior was gunmetal blue. Quinn followed, practically towering over her as she walked to the staircase and down to the basement. She heard someone whisper "Tesla..."

The unfinished room smelled of dust and computer plastic and Cheetos. There was a man on the ground with a rifle to his head. His pudgy hands were handcuffed behind his white T-shirt. He was short and thick, with hairy arms and an upturned nose. He was almost completely bald. What was left of his greasy hair hung six inches from the sides of his head. He looked up at Nio as she stood over him. There was neither fear nor recognition in his eyes.

Nio stepped over him to examine the basement workshop, which was packed with all manner of equipment, most of it quite old, including several CRT monitors and a collection of retro gaming equipment. There was very little furniture. Most of the working machines were held at desk height by stacks of nonworking machines. Spare parts and junk food wrappers covered the flat surfaces. Nio walked to the RNA sequencer in the corner. It looked brand new, like it had never even been used. She leaned in and smelled new plastic. She spun the centrifuge and saw only pristine reservoirs. She turned back to the man on the floor, who didn't protest.

On the wall under the stairs was another technopagan altar.

Nio walked out.

"Wait a minute," Quinn followed her up the stairs. "That's it?"

"That's it," she said.

Nio stood on the lawn and watched a group of men in FBI jackets try to tilt the giant emitter by hand so they could cart it out of the garage. They were shouting to each other frantically, and she had visions of it falling, crushing someone's leg, and emitting a giant burst. Trash cans, lawn equipment, and neighborhood pets, not to mention joggers and perhaps even parked vehicles would fly into the air...

But in truth, none of that needed to happen for the emitter to upend everything. Round One, as Amok called it, was over. He escaped Nio's checkmate with a bold and unanticipated move. He traded her for the one piece he needed. No one in law enforcement would believe he'd sacrifice something so rare, powerful, and valuable as an anti-gravity emitter. To them, it would be like a terrorist cell acquiring a nuclear bomb and then forgetting to take it with them. Any tiny inconsistencies in the arrest would

be easily overlooked. The cretin in the basement would never deny being Amok. Digital evidence would no doubt be discovered on his computers—work files, sequences matching those found in Beckham Carter, a deepfake algorithmic training file of Dr. Q, technical specs for the VR helmet recovered in Mexico.

But no trophies.

The bald man would go to prison. The case would be closed. And once again, no one but her would believe he was out there.

Round Two, she was certain, would be played for higher stakes.

"What's wrong with you?" Quinn asked.

"No port," she said.

"What?"

"No port in his head. No trophies."

"So we were wrong about that. It was just a guess anyway."

"We weren't wrong." Nio glowered at the nondescript little house.

"What are you saying?" He laughed once. "That this isn't really the guy? Everything leads here."

"It's not him," she said. She looked down the road.

"So, who is he?"

"He gives people what they want. That's what he said. Law enforcement likes a nice, clean conviction. So he gift-wrapped one for you. The emitter sells it."

"That's like a *billion*-dollar machine or something," Quinn objected.

"Yup. For him, it's also a Get Out of Jail Free card."

Agents in light jackets emblazoned with the words FBI on the back escorted the handcuffed man out of his house. His greasy hair dangled. He kept his eyes on the ground. He was tense. Uncertain. But not afraid.

"Look at him," Nio said. "He's nobody. Some perv who lives in his mother's basement. Now he'll be somebody. He'll be in every newspaper. He'll be studied by your behavioral sciences people. He'll be a god in prison. Probably get a book deal." She turned to Quinn. "Hell, they might even make a movie about him. And all the people who ever teased him or laughed at him, from the girls in high school to the last job that let him go, will suddenly feel very scared."

Nio and Quinn watched as the balding, pot-bellied man was loaded into a secure van. The door was shut and it pulled away.

"He'll go dark. A year. Maybe more. He'll live off his trophies for as long as he can while he perfects his next big thing. You watch. He'll start again."

Nio turned and started walking down the street.

"Where you going?" Quinn called.

"To a wake."

ONE A P P E A R A N C E S

THEY WERE ALL THERE.

Most of them she hadn't seen since Luke's memorable but mildly disastrous coming out party, and even then, amid the large, jostling crowd, she had mostly kept to herself. She didn't want to answer the same question fifty times: "Where's Che?" So, she had slipped out as soon as she could. She didn't speak with Chancery or Di or Manda, who was surrounded by a million people—most virtually, since everything she did at the party was VR-broadcast. Nio hadn't even seen Max or Flow, both of whom arrived late. But Sol had found her. It was the last time she saw him, five years and an age ago. Ever uncomfortable with his popularity, he had nevertheless worked the crowd like a politician, stopping to chat for no more than a few minutes before making his excuses and moving on. It was a hard-won skill, and it wore on him. He found Nio "hiding," as he called it, in the home office of whichever of Manda's wealthy suitors had hosted the event.

"Leave it to you to find the books," he had said, making her jump in surprise.

"Jesus, don't do that." She was studying the man's library. She replaced the book in her hand. "They're like party repellent," she explained.

They hugged.

"Welcome to my humble abode," she joked, reclining dramatically on a blood-red leather couch. No matter her age, she found she still acted like a teenager whenever the others were around.

Sol strolled before the wall of recessed shelving, and for a moment, she remembered, it seemed like he was going to ask the obvious question.

"Do you think he's really read all these?" he asked instead.

"Come to marvel at the black sheep?" she had retorted.

"I didn't think he was here," Sol replied, drawing a distinction between her and Che. "How are you? A real answer. Not a Nix answer."

"Eh..."

He studied her in a way she knew well. Then he noticed her noticing him and they smiled at one another.

"Old habit," he said in excuse.

"Thank you for not asking," she replied.

"Not asking?"

She made a face. "You know."

"And thank you for not asking what I'm 'working on these days.' "

To outsiders—which is to say the rest of the world—Sol was defined by his work. In every conversation, the unconscious expectation that he fill the other man's shoes was always immanent.

He picked up a trinket from the desk and pretended to be interested in it.

"Just promise me you'll ask for help if you need it."

Nio's heart skipped. It wasn't a polite request offered on the expectation it would be equally politely deflected. Sol was honest and spoke honestly. He meant what he said. He was asking for her word. And he would hold her to it.

"I promise," she said after a moment.

His shoulders deflated slightly, as if relieved.

"To be honest, I'm jealous of you," he said just before he was discovered and dragged away.

"Of *me*?" Nio was shocked. If it had been anyone else, she would've expected they were lying.

"No one has any expectations of you anymore," he breathed.

"Only because I've so thoroughly disappointed them."

He smiled and nodded at the floor. "There's freedom in that."

Then came the laughing. A pair of young women with some distant connection to Manda appeared. One of them, the one with her hands immediately on Sol's arm, had met him earlier that night and had apparently decided they were going to sleep together. Sol sheepishly raised a hand in parting. It was the last time Nio saw him.

Standing in the doorway of another million-dollar home belonging to yet another of Manda's suitors, seeing the others all turn and grow quiet at her appearance, she remembered that last gathering—and her promise—and she covered her mouth. She dropped to her knees. She'd never mourned, she realized. Not really. Just then, seeing them all, she no longer cared to keep it in. She cried. She cried as Mutiny helped her to her feet. She cried as Max and Di and Luke and Leo each greeted her warmly.

And then there was Ed, bulging forehead and all. His eyes were sunken. He looked sickly. Last she heard, he'd been in rehab—again.

"You look almost as bad as me," he said and they laughed and hugged.

"I—I'm sorry I wasn't at the funeral," Nio told them. "I didn't know—"

"Nix was in jail," Mutiny interrupted from near the door, her voice as tall as she, "because she was steppin' on toes trying to catch a psychopath who murdered at least half a dozen people." She looked at her sister proudly. "Agent Quinn of the FBI told me all about it."

"The FBI?" Flow scrunched her forehead in confusion. She was now based out of Mumbai and wore a beautiful red patterned sari. "First you're trying to blow everything up and now you're trying to save it. What side are you on, N?"

It wasn't an accusation. It was playful. Flow knew, as they all did, that Nio had no sides—and many.

"Listen up," Mutiny said. "At Luke's party, there were eleven of us. Last time we got together, there were ten."

She meant the funeral. She was counting Sol, resting in his casket.

"Now there's nine." She paused gravely. "This shit's *gotta* stop."

They chuckled.

"Not to be the dick," Leo said, turning to Manda, who was looking out the window. "But when do we get to know why we're here? The message was pretty cryptic."

Manda had called them together. She was probably the only one who could. And they came. They dropped whatever they were doing and they all came. Manda glanced to Mutiny, who nodded. Then she walked to the front and pulled a slim data drive from her jeans pocket.

"Chaz sent me this," she explained as she slipped it into the port on the wall-mounted screen.

Everyone was quiet. Several of them took seats on the couch.

"She told me to play it when we were all together." A graphic depiction of a directory appeared on the screen and she tapped the video file. "I haven't seen it."

For a moment, they all waited in silence. A split screen appeared. It was a recording of a video call already in progress. Chancery was on one side. Sol on the other. She was sitting at a desk. He was standing back, arms crossed. They were both upset.

"—always where you say. The world leaks information, Sol: people, companies, governments, entire societies reveal critical, often secret information about themselves without realizing it, because it exists outside the human sense domains. Did you know we can predict how likely someone is to suffer depression based on the number and kinds of bacteria in their intestine? Turns out bacterial flora are correlated with all kinds of things. We can tell if someone is likely to impulse-buy at the moment of measurement based on the oils in their *scent*. What does that imply about freedom of choice? We can predict with a high degree of accuracy how anyone is likely to vote based solely on a picture of their house. And those are just some first-order connections! Once you start cross-referencing, it gets so much worse. Add address and a photo of the homeowner and we can predict voting behavior with near-80% accuracy. Add in prior vote and it's over ninety. Think about that, Sol. If we know in advance how everyone is going to vote, what does that say about democracy?

"When people first went looking, no one had any ill intent. We just wanted to understand. Once we realized just how *open* everything was, defense became the top priority. There are bad actors in the world: foreign governments, criminal organizations, unethical corporations—even trolls

and stalkers. We need to know what we're leaking if only to prevent it from being gathered by hostile powers. Keeping the bad people in check requires meeting them where they are, not where we want them to be."

"Rationalize it however you want, Chancery. What you're doing is—"

"Necessary!"

"Then let someone else do it!"

"Why? Why should they be the one to see it through?"

"To get the credit, you mean? Because it's *wrong*. You're enabling willful manipulation of—"

"I don't get to choose! We live in an open society, do you understand? What do you think would happen if I demanded all my clients reveal their data and analyses? There is such a thing as privacy. They rent time on the arrays. It's *very* expensive. The going rate is close to a quarter million dollars per computing hour. The entities who can afford that aren't going to do business with anyone who doesn't use homomorphic encryption, which means there's literally no way for us to tell what they're doing. But let's say we changed our entire system and somehow didn't immediately go out of business. What makes us qualified to police them? Isn't it a conflict of interest for the person selling the service also to be responsible for ethical compliance? And compliance with what? There are no laws against any of this, so what standard am I holding them to? My own personal opinion?"

"You have a conscience. You don't have to refuse everyone."

"Then people will just lie! And what about all the good work we do? One of our chief clients is the US government. Do you know how many potential terrorist attacks my team has helped stop? *Dozens*. We've made connections we don't even fully understand yet. There's some connection between hot days and—"

Sol was shaking his head.

"Listen to me!" Chancery pleaded. "During the Cold War, Russian submarines were beaten by a *fish*. Shoals of herring mistook them for large predators and farted *en masse* as an evasion mechanism. The Swedes heard the sound. They just didn't realize what it was until the war was over! The world is full of hidden tells like that, just like in poker. The bad people aren't waiting for laws and regulations to be enacted."

"But where does it end? Do you really think these people you can't even name are keeping *themselves* in check? Do you really think they're using

this tool, this power you've given them, only for good? For *defense*? Who are they defending, Chancery? Us or their financial interests?"

"The world has sides, Sol. What is everyone supposed to do? Let the Chinese have their way? No one will have any idea what they're doing. Or the Russians? Because they never meddle in anything, right? When you get right down to it, it's really very simple. The choices available to any decision-maker are bounded by just three variables: information, computing power, and time. Our machine advances *all three*. You're a physicist. Surely you realize that power is a differential function. What matters is not the total information we each possess but how much more I know than you. The Chinese have over a *billion* people. More than that, they don't have a constitution to worry about. Civil rights. That gives them have a massive advantage. They have a giant pool from which they can collect anything, test anything, and they are. You'd have us do what?"

Sol kept shaking his head. "Listen to yourself. You are not the world! I'm not talking about them, Chancery. I'm talking about *you*. I'm talking about what *YOU* are doing, right here. If looting breaks out in a store, that doesn't make it okay for you to join in. You make a choice. The evil in this world will be what it will be. That doesn't mean we—you and I—need to add to it. I have no influence over the Americans or the Chinese. I hope their leaders make good decisions for their people, but that's like hoping for good weather. I expect you to know better."

Sol turned for the door.

"What are you gonna do?"

"What do you think?"

"Sol—"

The video call stopped and an image of Chancery filled the screen—not the Chancery from the video call. This was recent. She was in a dark room lit mostly by the light from the screen she was facing. She looked terrible.

"I didn't think to record it until the call was almost over," she explained. "That's why it starts in the middle."

She sniffed and blew her nose.

"That was the last conversation we had. The next day, he... Well. You know. I told myself for the longest time that it was just something that happened: an accident, or if not, that it had nothing to do with me. But the truth is, his involvement in the project suddenly made it harder for me to lie

to myself about what was going on. Not that everything we were doing was bad. We were working with universities and think tanks on pilot studies, and we had just gotten the Social Dimensions Survey contract. When you have all of those achievements, when you're hosting wealthy clients and being written up in magazines, it's so easy to just go along with the version of reality everybody wants to be true." She looked down at her hands. "But those weren't our only clients. There were also the men who showed up with suitcases full of money, who stood and watched as we erased all their data from the servers when they were done. There were the 'angel investors' who swooped in from nowhere and were never quite clear about where they had heard about the project or what they wanted in return for such large sums."

Chancery tried to smile at the camera, but her lips pulled taut as she fought back a sob. "Thirty years ago, we lost the battle to control our data. If ordinary people can't own it, I at least wanted to help them make sense of it. I tell my new employees that superposition computing allows us to map chaos. We all leak information, most of which is completely imperceptible to us. But it's not imperceptible to machines—in our pockets, in our homes, in our offices, in our cars, in the sky—which go about silently measuring everything we do. We don't even understand it all. There are clusters of behavior highly associated with certain forms of cancer, and we don't know if it's the behavior that's causative, or the cancer, or neither. But these people have something like an eighty or ninety percent chance of dying from a single disease, and just by looking at the public data, we can identify them *years* before the cancer appears. Ask those people or their families if what we're doing is—" She stopped.

"Of course... any tool won't only be beneficial. The difference with something like nuclear weapons is that they're an active technology, which means you can detect their use and development through waste products or radiation. What we've built here is completely passive. There's nothing to reveal when and how it's being used, which I'm sure contributed to the types of people drawn to it."

She took a long, deep breath.

"And then Sol came along. He had spent so much time trying to model the universe as information. It was easy to switch gears. He hit on some statistical test that could identify random versus deliberate disinformation. It was elegant. And I knew right away what it would mean to those men

with the suitcases full of money. I just wanted *time*. That's all. I begged him. I tried to explain what we were doing, the amount of work it took. The largest of the three arrays cost \$48.3 billion to build. Annual cooling costs alone run another \$35 million. Sol was going to brick it with an *equation*. We couldn't operate without black money. But that was changing. It was just to get us going. We had just signed the deal with the US government, but government moves slowly. I just wanted time..."

She sniffed and blew her nose again.

"Sol was approached. That's why he called that day. He had a very strange encounter outside his house with a man who knew all sorts of things about him. He was never threatened, but then they never have to, do they?" She wiped a tear from her eye with the side of her hand and then looked at it. "He called that night to tell me he was going public. He was smart enough to realize right away that he'd tripped a viper's nest. He wasn't going to give anyone a chance to react. He was scheduled to give a public talk the very next night. He knew there'd be cameras. He... he gave me the heads up because he wanted me to be safe. To do whatever I needed. To protect myself." She covered her mouth. "Even at the end, he was worried about me..." She looked down.

"The next day, when I heard—I knew. No one told me. I just knew. But it's not like I had *proof*. I couldn't point the finger at anyone. I didn't know if they were watching me or him or both of us or neither, or if they'd figured it out any of a million other ways. If I went to the police raving about a plot, Sol would still be dead, only then I would be too, along with everything I had built. I asked myself, what would be the point of that? When the FBI called, I was actually relieved. And excited. I thought: maybe there's a chance. But what could I say, now that I knew I was being watched? I convinced myself that their involvement let me off the hook, and that if I revealed nothing, then no one could say I was a threat.

"And then, out of the blue, Nix showed up..."

Chancery looked up at the screen. "Hello, Nixie..." Her eyes welled and her lips smiled tightly. "You were right. You took one look at everything and figured it out. In that crazy Nix way. And I—I... *panicked*. After you left, it was like a stopwatch had started. I could hear it ticking in bed. I put a data tracker on you. When you popped up at a hospital in Maine, poisoned with some kind of weaponized neurotoxin for God's sake, I thought they'd gotten to you, too, and... I knew there was no going back.

“Asimov, you know, he put his psychohistory in the hands of a gentleman-scientist, someone responsible who used it to shepherd the species through a dark age. The reality is that the ability to nudge society was never going to come all at once like that. Technology comes in pieces. And it doesn’t end up in the hands of gentleman-scientists. If there's one consolation, I suppose, it's that every prince, every tech baron wants the same thing, and some of their nudges might cancel.

“I think I always knew what would happen. Because I embedded a ledger. In the code. Insurance, I guess.

“They'll come for me now. They'll have to, if only to make an example. Whistleblowers are all that stand between them and the complete befuddlement of everyone. So, I have to disappear. But I don't know much about that kind of stuff. So, I asked for help from someone who does.”

On screen, a gaunt man stepped into view behind her. Everyone in the room gasped.

"Che..." Luke breathed.

He had shaved his terrorist beard, as Nio had called it. He sat down at the back, near a dark doorway. He looked mean. Broken. Resigned.

"I want to do something good with whatever time I have left," Chancery explained. "I don't know what that will look like yet. But I think it's what Sol would've wanted. He was never one for punishment.

"I'm not asking you all for forgiveness. If our situations were reversed, we all know I wouldn't give it. I just wanted you to know the truth. I want everyone to know. Manda, darling, I want you to tell them. The whole world. Release it all. Everything I gave you. I have no illusions about what that will accomplish. Stories like this are too complex. There's too many facts and too many ways to interpret them. Those caught in the wake will find a way to spin it. People will settle on whatever explanation they already believe to be true and accuse everyone else of the same. But at least it will be out there. For the future.

"I don't know what happens next. But before I fade away completely, I wanted to leave you all with one small gift." She motioned to the screen. "This. All of you here. Together. We got older and busier and look what happened. It's what they wanted, I suppose—to throw us out like confetti and see where we landed. Don't let them. Hang onto each other. All the way

down. Because Sol is gone." Her lips quivered. "And that means we're never going to be whole again."

Chancery hesitated. "I love you all. Goodbye."

The screen went blank.

Without a word, the nine siblings in the room wrapped their arms around each other.

ONE A P P E A R A N C E S

"Material released last night seems to show members of the U.S. intelligence community, acting through private proxies, conducted tests on so-called 'ghost hunters' and other groups. The scientists were apparently working to quantify the mechanisms of social belief using ghosts, UFOs, and other paranormal phenomena as, quote, 'harmless domains.'"

Click.

"What these documents show is that the U.S. government deceived—"

"Factions. There's no evidence—"

"Call it what you want. Call it what you want. They deceived the American people and their elected representatives. Both Congress and the President were told that the Social Dimensions Survey was for wonderful things like early detection of cancer and identifying abused children from proteins in their blood, when in fact—in fact, it was part of a long-standing program of manipulation. Companies partly, or in some cases wholly

owned by the CIA, have been paying to suppress certain topics in the media based on complex data patterns, apparently since the 20th—"

Click.

"I think part of the reason people are really struggling with this is because it doesn't fit neatly into any of the historical categories. Is it espionage? Well, no. The targets don't appear to have been foreign states. Is it propaganda? Well, no. It doesn't seem to have been in furtherance of any specific political agenda. Is it insider trading? Well, no. There was no use of privileged information. Is it hacking? Well, not exactly. No computer system was contravened. And yet, when we read about it, we all have this sinking—"

Click.

"Revelations over the last week about alleged interference in political movements and markets. It's been implicated that events leading to the Caulfield massacre might've somehow been involved. With me now is Mark Summers of the Caulfield Institute, which was formed in the wake of the disaster to study democracy and public discourse in the 21st century.

"This is reminiscent, isn't it, Mark, of the heady days of Wikileaks and Edward Snowden and the Panama Papers. There was a time there where it seemed those kinds of whistleblower activities would continue, but outside of a few exceptions—the HSBC scandal comes to mind—there really hasn't been a lot, has there?"

"No, there hasn't. I think you have to keep in mind the timing here. The iPhone came out around 2007. Edward Snowden was less than six years later. There was this boom in telecommunications architecture in the early 2000s. Everyone was rushing to market, but most of it just wasn't very secure. We'd never built those kinds of platforms before, so no one had realized how vulnerable they were. As a result, in a very short period, you had the Equifax hack and the Cambridge Analytica scandal and all the things you mentioned, but instead of really addressing these issues, the world sort of doubled down on the old model. They patched the hell out of

everything, and the bad actors seem to have simply moved up a notch. Instead of hacking computer networks, they're hacking human ones."

Click.

"There are phrases in the documents that are repeated. For example, 'narrative warfare' comes up a lot. Aren't we a part of that? As journalists, isn't creating narratives what we do? We call our report 'the story.' Isn't our need—"

"No. No, I don't think that's it at all."

"But how can you—"

"Judy, their defense that they were only testing these techniques on fringe groups, like the paranormal research community, is disingenuous at best. You don't vacate your constitutional rights because you believe in crystals. This was a concerted, deliberate, decades-long attempt to decipher society, scientifically."

"Well, hold on. They've also asserted that they were developing these techniques as a deterrent, that they needed to be able to recognize them if only to prevent their use against the United States or her allies."

"Okay, first, I don't think we're really all that interested in defending our allies. There's no evidence that we shared any of the findings with them. I think the other claim might be correct in that, all other things being equal, they wanted to make sure they were the only ones doing the manipulating, but I'd hardly call that 'defense.' And their lack of disclosure clearly indicates—"

Click.

"With respect, I think everyone is missing the bigger picture here. We've all been focusing on the actions of the government, through its false-front commercial entities, but 60% of the documents were about unnamed private organizations, many of them likely international, perhaps with ties to foreign intelligence agencies. The fact that their actions didn't violate any existing US law hardly makes that any less newsworthy. And then there are all the unnamed co-conspirators. All that data had to come from somewhere. We all know where. Why aren't we talking about the elephants

in the room? The NSA released their files after the leak to distance themselves from the real criminals."

"You mean they hoped that once the dust settled, they would be exonerated by the scale of corporate and foreign malfeasance?"

"They released everything. Or have appeared to. They admitted culpability, as the FBI did with COINTELPRO. Since then, the government has largely been quiet, even as the discussion in the corporate-owned media has mostly been about them—for the obvious reason that they don't want us looking too closely at the rest. This intelligence effort targeted some very insignificant groups. Don't get me wrong. It's terrible, and I hope someone is held accountable. But those of us with experience on the inside know that these programs act on a *very* slim mandate. This wasn't some behemoth with strings into Wall Street and Silicon Valley. These were focused tests, and the agency made a concerted effort to avoid anything that might contravene—"

Click.

"—and with these latest revelations—there was a study that came out of Princeton last week that identified key markers of these techniques in depressions in the stock market near key elections—we're seeing that maybe the government was right to research countermeasures. It seems like those in the know, both here and abroad, have been using these tools for at least the last 15 or 20 years. The Chinese, in particular."

"But the Chinese haven't been implicated, Farad. The U.S. government has."

"Not directly. But George, are you really suggesting that Beijing was ignorant of this, and if not, that they refrained from using these tools out of the *goodness of their hearts*?"

Click.

"This is part of a widespread conspiracy to delegitimize the president and throw the country into chaos. It's clearly a plot on the part of cultural elites to repeal gun control and move us closer to civil war so that they can use that as an excuse to—"

Click.

"We're entering a phase of human history where it's possible to decode society and to manipulate it in non-obvious ways. I'm not sure people understand the consequences of that. Because we're so divorced from our sources of truth, there are these *huge* gaps that can be exploited. Take me. You've met me maybe three times. Maybe you think I'm trustworthy. But what about your viewers? They're relying on you. What if you're wrong? Or what if I am generally trustworthy but simply mistaken? And what about the people who don't trust you or your show? How does anyone make a practical determination, except by judging whether what I say conforms to what they *already* believe to be true?

"This latest scandal has taught us it isn't necessary to lie. Simply creating uncertainty is enough. In the absence of any other truth-markers, we have no choice but to act on what we already think we know. What else is there? So everyone gathers in these little clusters, these islands of belief, with no bridge between.

"These days, everything of importance we know about the world is mediated electronically. That's really, really important. Not just social media posts, work emails, and weather forecasts, but *everything*. We communicate with our coworkers and our family on a screen. The latest research from Pew suggests kids now spend more time in virtual worlds, including augmented realities, than in the real one. Think about that. They spend more of their time in the digital than the physical. That's only going to grow. Our cars drive us and we don't even pay attention. When the very structure of life dictates that the only thing we can possibly see is the inside of our own digital spheres, direct empirical evidence from our senses can no longer be the arbiter of what's important or even true, which leaves us with an urgent, terrifying, and unprecedented problem: What do we replace it with?"

ONE A P P E A R A N C E S

THE OFFICE WAS LIT only by a green desk lamp and by the small lights that hung over the framed portraits on the walls. Staid bureaucrats in business suits smiled serenely as if to assert there was nothing to fear in their care. Dr. Chang sat behind his heavy mahogany desk framed by the massive cabinet of legal texts that filled the back wall. Outside, the night streets of the capital were quiet.

The gray-faced ape lifted his glasses in show. "Old age," he explained, slipping them over his eyes.

"You could have corrective surgery," Nio suggested from the bottom of a very plush visitor's chair.

"The risk of accidental blindness these days is very low, but that's only because the surgeons know what they're doing. None of them, I'm afraid, have any experience correcting the vision of a chimpanzee. Rather than subject several dozen of my cousins to practice and experimentation, I have opted for corrective lenses."

He adjusted them on his face.

"Even though they make me look ridiculous."

Nio smiled faintly.

Dr. Chang sensed the seriousness of her concern and dropped the pretense at humor. "It seems I owe you an answer to your question."

"That was the deal."

Chang looked out the window at the capitol, whose illuminated dome was just visible in the dark, peeking over the angles of an intervening building.

"A century ago," he said, "when I was launched into space, weather forecasting was considered a joke. But by the first decade of this century, a 10-day forecast was as accurate as a 3-day forecast was in 1980. Now, we can tell with reasonable certainty what the weather will be in your zip code at 3:00 in the afternoon on Thursday next. Hurricanes used to appear from nowhere, destroying fleets and causing untold destruction. Now, we know a week in advance where one will hit, allowing us to make evacuations and secure property. That knowledge—knowledge of the future—is seemingly mundane, but consider the impact it has on the world. It allows you to alter the future, to change travel plans or reschedule a wedding or sporting event that is likely to be rained out. Because of our predictions, and our belief in them, real outcomes change.

"The same story can be told about votes, not just in the nation but in Congress specifically. On the eve of an election, we can tell with reasonable certainty how any zip code in the country will vote. Similarly, there are very sensitive models, some of them quite secret, that track Congress—and other world governments—similar to the predicted hurricane tracks meteorologists show on TV.

"After the Science and Technology Control Act passed the House of Representatives earlier this year, very handily I might add, it became clear to me, and to certain others who watch these things, that something very strange was happening. The models measure how 'volatile' every single political voter is, how susceptible to influence. A key determining variable is gender. Men are more 'influencable' than women, probably because female representatives still feel the need to over-demonstrate resolve. Presence or absence of children also matters. Childless representatives are more willing to take risks, their counterparts to uphold the status quo.

"But the biggest determinant of volatility is a simple integer. It is the difference between the present balance of a politician's reelection fund and the projected amount needed to win. The greater that gap, the more volatile the vote.

"I must say, volatility isn't inherently bad. As it approaches zero, you have the opposite problem: a representative that is either fully bought or else so intransigent as to never change his or her mind, no matter the evidence presented.

"Different models give different weights to these variables such that very close votes are often difficult to call. But the models, like those hurricane tracks, typically cluster around a common set of outcomes. None of them projected the Act would pass by such a margin. It was a notable outlier."

"A fluke?"

"A manipulation. As soon as we plugged the results from the House into our models of the Senate, the results changed dramatically. Where before we had projected a close win, now the models suggested the bill would fail by a wide margin. That in fact was the goal—a non-obvious strategy, like a chess feint, probably developed by one of the Shri machines. Instead of resisting the vote in the House, our unseen adversaries helped get the bill over the hump. In so doing, they created the perception that the whole process was rushed, that we were making a big change to the law, to society, without really thinking things through. Stories began to run in the media to that effect, some of which were almost certainly planted by these interests. Senators received more emails and phone calls from concerned citizens than they would have if the House vote had been as close as originally projected. Schedules were delayed. Hearings were extended. Even I was recalled.

"This town is called a swamp. The metaphor is more apt than most people know. It has a certain viscosity. If you can maintain a velocity, you can sort of skate over it. Once everything slows and you slip into the slime, it's almost impossible to get free.

"Human beings have weaponized narratives before. Religions in particular have been very good at it. But they stumbled in. Nothing before was ever so precise, so measured in its exploitation of the limits of human cognition. Of course, never before have we had the means. It used to be

there were only so many players, only so many pieces, only so many possible moves. In a low-information environment, generals and politicians worried about keeping secrets—and they still do to some degree. But in a world where everyone has a camera in their pocket, keeping secrets is mostly wasted effort. Rather than restrict information, they try instead to overwhelm the human sense-making capacity, to release reams of it—some real, some half real, some entirely fabricated—such that there is no way for a single human, observing at a distance, to make sense. Each of us has no choice but to fall back on what we know. That is the goal—not so much to control us as simply to make us *predictable*.

"This is how modern governments function. Far from being the determinant of outcomes, the votes of the populace and the second-order votes of their representatives are instead the chess pieces by which actual outcomes are decided, often between indiscernible players—who may be other governments."

"But why this bill? What are they worried about?"

Dr. Chang raised his heavy eyebrows. It was like a curtain parting in a dark theater to reveal a lighted stage. "Our adversaries don't object to the STCA on its merits, despite what their bots and mouthpieces say. In fact, they rather like its broad powers. What they object to is that those powers would be wielded by a *public* entity, and that it will start monitoring new technological threats. That means someone will be looking under the bed covers, whereas now, no one is. It is always easier for dark forces to operate in the dark.

"Senator Brown was one of the volatile votes, which meant, after the result in the House, he suddenly found himself courted by all sides. It was clear from my many conversations with him that, having no strong opinion, what mattered most was how his vote would impact his reelection campaign, which was already generously funded thanks to his unexpected leverage. The models suggested such a man would take the path of least resistance. He would vote against the bill, if only to say he was against the creation of 'large new bureaucracies,' which plays well as a sound bite to the people of Wyoming.

"The model suggested we needed to reduce his volatility score—we needed to give him, and his colleagues, a reason to have an opinion, a reason to care."

Nio was staring at the floor, which had flourishes similar to those at the corner of dollar bills. "This is why you left your post at the NSF, isn't it? You're leading the charge on the bill for the president."

"Indeed. She wants the STCA to be part of her legacy, so we set up a war room in secret, very much like Mr. Lincoln did with the 13th Amendment. This is the level of effort it takes to pass any real legislation in a diverse nation of nearly half a billion people. We had to convince Senator Brown, and the others like him, that everything was not fine the way it was, that people were being hurt, that contrary to popular claims, advanced technologies were not locked tight inside university laboratories. They had escaped. Your investigation demonstrated that. Vividly."

"So why not just tell me?"

"If I had, what would you have said?"

Nio turned to the capital building in the distance. "I woulda told you to stuff it."

"Yes." Dr. Chang chuckled softly. "Precisely."

"So, you rolled the dice."

"Not really. My dear, having an ape in a classroom is a distraction, so you don't know how many times I observed you all as children. You were always the troublemaker, even when you were a little girl. You had that impish smile you'd hide by pulling your shirt up over your nose. Che is a revolutionary. He was always going to be dangerous. But you were the trickster. You took such delight in turning that classroom on its head, not to take power but to return it. It is your calling."

Nio stared at the front of the ape's impressive desk. "Is the Lapse real?"

Dr. Chang didn't immediately answer.

"Or is it just another calculated psychosocial manipulation? Designed to tell me whatever I needed to hear."

He took a deep breath.

"I don't know," he said finally. "I thought you might. If I were a betting ape, I would guess the latter. But the effect is consistent with the known laws of physics. Unfortunately, after Sol, I'm not sure there's anyone even contemplating such things, let alone at his level. They're all too busy building bigger and bigger machines. Research programs, like any bureaucracy, become self-justifying once a certain threshold of cash is surpassed."

Nio nodded, lost for a moment in the implication.

"What happens if I go public? Or are you counting on our shared history to keep me quiet?"

"Not at all," he said flatly. "I don't expect to have any special influence over you. The bill has passed. The president will sign it on the White House lawn tomorrow. After that, you should do what you feel is right."

"But?"

The genius chimp crossed his long fingers in front of his mouth. "Mankind alone among the animals realizes the fact of his death. The shock of that, the effect it has on your species, is impossible to overstate. Knowing their mortality, humans naturally seek to secure their legacy by other means. It's why the president was willing to go to such lengths. I'm old, Ms. Tesla. I can assure you that after a certain age, we think of little else. We feel the curtain closing slowly—if we're lucky, that is. If it doesn't slam shut suddenly and unexpectedly. If you feel it would be helpful to tell the world that not only will they die, but there is a non-zero chance that, without warning or reason, reality itself can change, perhaps erasing them or their work entirely, and if you think they would believe you, then of course you must do that.

"But consider, if the effect is real, it's always been with us. It's part of the universe. It's part of the risk we assumed by being born into it. I am a scientist," he said grimly. "More than that, I am an explorer. I have declared for a side—I am against obfuscation. But it seems to me in this case that the mechanism proposed can neither be confirmed nor denied, at least not with the current state of the art. As a figure of authority, who do I serve by asserting it? Whose life is made better? If it's true, then it will out—organically and on its own time, when the next Einstein comes. Until then, I am content to leave it a disconcerting fiction and turn instead to the more pressing task."

"Which is?"

"The president has asked me to chair the new Science Regulatory Commission."

"Ah." Nio sat back in her chair. She laughed once and shook her head.

Dr. Chang shrugged. "Call it nefarious, if you wish. I would say she merely chose the best ape for the job."

Nio smiled.

"As the head of a new organization with no staff, I am recruiting." He looked at her intently.

"What? *Me?*"

"I can think of several people I'd like to have, but none I'd like to have more. You are already doing the work. You may as well get paid for it—although, I should warn you that you won't get rich. Not on our budget."

"And what would I be doing?"

"The law specifies the establishment of an administrative arm, the Science Control Agency. Like the IRS, most of that agency will be devoted to data collection: processing license applications, tracking and monitoring the infamous lists that worried Senator Brown so much. But the FBI has its hands full, as you got to see up close, and I'm afraid its staff is not educated appropriately to be an effective deterrent against the kinds of threats we now face. Hence, the bill empowers an enforcement division, to investigate possible infractions."

"*Science police?*"

"I was thinking something more conservative, like 'Crimes Division.'"

"Of course."

"You would be a valuable addition."

Nio thought for a moment. "I'll think about it."

"In your own way, I'm sure you will."

She stood.

"Does that mean you're satisfied?" he asked.

She nodded.

"In that case, I wish you all the best. And I greatly anticipate our next encounter."

She turned to leave but stopped at the door.

"Is there something else?" he asked.

He would have an intellectually challenging job, she thought. He would've been told his whole life that he was inferior—to everyone.

Nio stood for a long time, contemplating her next words.

Dr. Chang removed his glasses. "Ms. Tesla?"

"There's no polite way to ask this," she said, "so I'm just gonna ask it. I don't suppose you have a port somewhere."

"A port?"

Nio nodded. "A hard line to your frontal cortex."

"For what purpose?"

"Is that a no?"

Dr. Chang pressed his thin lips together. "Would you like to examine me?"

The two of them stared at each other for a long, cool moment. Both knew the other had been poked and prodded by people their entire life.

Nio shook her head. "No, sir. Have a good evening."

She walked out and down three flights to the front. When she got to the concrete steps that led to the street, she stopped. Quinn was waiting on the sidewalk below. He was in a suit and tie with no coat.

"What are you doing?" she called from the steps.

He removed his hands from his pockets and held up a small case. Inside, a gold shield bearing an eagle hung from a red, white, and blue ribbon.

"Ha!" Nio started down the steps. "They gave you a medal."

"I told my wife they're trying to buy me off."

"What did she say?"

"That I was spending too much time with you."

Nio smiled at him. Genuinely. Warmly. And he did the same.

She poked him. "So, you were in DC for an awards ceremony and you didn't invite me?"

"Would you have come?"

"To watch you stand at a podium and give a speech in front of a room full of FBI guys?" She scowled. "Fuck no."

Quinn laughed as he followed Nio down the sidewalk.

"No more ankle bracelet, I see. You're a free woman."

"Time served and five years' probation. But I gotta go back to frickin' South Dakota every June."

"Could be worse," he said.

"Oh?"

"Could be every January."

"Always the optimist," she quipped.

Quinn turned once to the building behind them. "What did Chang have to say?"

"Guess."

"Hmmm... Something about 'the greater good.'"

"Look at you go, detective." Nio reached into her pocket and pulled out a small wrapped gift. She handed it to him.

"What's this?"

"Khora called. Invited me to the big show."

"Did she?" Quinn looked at the gaudily wrapped box. "She forgot to mention that." He took it. It seemed tiny in his hand. "Thank you."

He paused. "What about you?"

"What about me?"

"You okay?"

"Yeah..." She nodded. "Baby steps."

"If you need anything..."

"I know. And I appreciate the visit, Cowboy, but you spent enough time with me lately. You should get back to the family."

"Trying to get rid of me?"

"No, I just thought..."

Two heartbeats passed in silence.

"Yeah..." Quinn nodded once, as if to himself. "Will I see you around?"

"Course." She made a face. "Can't get rid of me that easy."

For a moment, neither of them moved. Quinn towered over his friend. Both seemed to think the other had something else to say. But after several quiet breaths, no one spoke.

Quinn stepped back and Nio did the same.

"See ya, Trouble," he said.

Nio watched him go. It wasn't until he turned the corner that she acknowledged Pynchon skulking behind a tree across the street.

"You can come out now," she called.

The disheveled man removed his tin foil hat. Immediately, his demeanor changed. He looked around at the dark and quiet government buildings.

"Deep in the lion's den," he said.

As Nio crossed the street, she realized it was not the same man. His clothes were different and his white, scraggly beard was shorter. But it was more than that. He was almost the same man. But not exactly.

"How many of you are there?" she asked.

"They're split on you," he said, ignoring her question.

"Oh?"

"Half of them think you got lucky."

"And the rest?"

He glowered. "We don't know that Cyber Command hasn't taken an interest."

"We don't know that they have either." She started walking toward the metro.

"And if so?" he asked.

"Then we deal with it."

"That easy, huh? This is why you've made many enemies."

"And some friends."

"Does that mean you're counting on the FBI to protect you?"

"I'm not counting on anyone."

On the corner, a street-facing ATM was mounted in the wall of a bank. The dark dome of a 180-degree camera jutted nonchalantly from the top. Its presence near their encounter wasn't an accident.

"We want the same thing, you know," she told side-lit box.

The text on the touchscreen changed. The pastel background stayed the same, as did the font, but the helpful cartoon woman turned stern and new words appeared in the text balloon that erupted from her head.

AND WHAT IS THAT?

"To see the day when you all don't have to hide. To avoid the conflict that everyone seems to think is inevitable."

The position of the cartoon changed, as did the text.

IS THAT A REQUEST FOR ABSOLUTION?

"No." Nio sighed and looked down. "But if the two of us, you and I, can't find a way to work out our differences, accept each other's imperfections, even when we share the same goal, what does that say about our chances for the rest of it?"

The image on the screen flickered several times. Then it spun in a circle.

WE ARE SATISFIED.

It changed again.

FOR NOW.

Nio turned back to Pynchon, who was stoic.

"I'm not gonna let anything happen to Semmi," she told him.

The light changed, and she started across the street.

"In case it wasn't clear," she called back, "that was a threat."

When the triangular steel column announcing the metro station appeared around the corner, Nio removed her brand-new phone and dialed the number from memory.

"I'd like to place a collect call to a solo register."

"What's the name?"

"Samizdat Tesla."

"Passphrase, please."

"You shall not pass."

"Please hold."

There was a click followed by a blaring alarm.

"Semz? Semmi, what is that? Are you okay?"

"No."

"What's wrong?"

"I attempted a celebratory confection to mark our reunion, but the instructions were imprecise as to oven placement."

Nio shut her eyes in relief. Just the smoke detector.

"I have removed the pan from the heating coils, but I am unable to reach the alarm."

"Are you okay?"

"Yes. I can filter its frequency. And I do not breathe."

"Yes, I know that."

"But it is very embarrassing. I am a weapons-grade application."

"You're pretty special, all right," she said, playing along. "But I don't think you were made to bake cakes."

"Perhaps next time you could assist me."

Nio smiled. That was what he wanted. He had burned the cake, consciously or otherwise, so that next time they would do it together. As much as he'd grown, parts of him were still quite childlike.

"I'd like that," she said.

Samizdat's creators had built him using black market Russian technology. They hadn't wanted their creation to be critically self-aware. They had wanted him to be the very machine people feared: a sky-spanning intelligence capable of raining death on the earth. It was that limitation of self, rather than any technical fault, that IDEOLEX expected Semmi to outgrow before being released to the wild. To survive in a world of humans hostile to his very existence, Semmi had to learn how to navigate them, even manipulate them when necessary, as they did each other, and that required him to know them as well as himself. That was the goal of human placement. Nio also suspected a deeper aim. The LEX were gathering data. They wanted to know if it was possible for humans and machines to co-exist without one dominating the other. By their actions and behavior, Nio surmised the data were not positive. But the LEX kept trying, probably because any alternative was horrific.

Nio looked up at the night sky. "Where are you now?"

"In the kitchen."

"Not the toy. Where are you?"

"Currently over Indonesia, drifting north-northeast."

"Oh. I had hoped you were here."

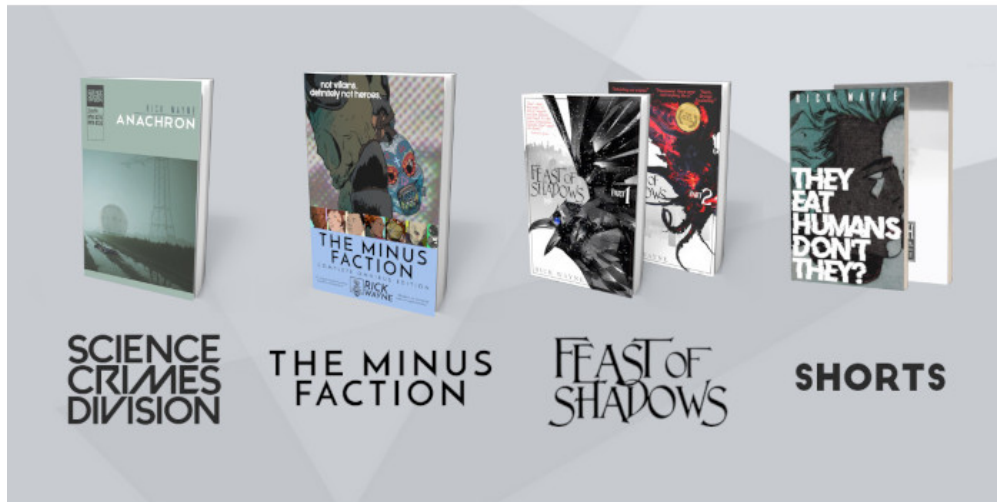
"I will be over North America again in 36 minutes. I will be out of communication over the pole. Safety protocols from IDEOLEX dictate that I should not open a window while I am alone, but that means it will take approximately eighteen minutes for the air to reach safe levels. If you are close, perhaps a protocol violation is in order."

Nio knew what that meant. He was anxious to see her.

"Don't worry," she said softly. "I'm almost home."

A
SCIENCE
CRIMES
DIVISION
MYSTERY

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Technical Adviser
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