

Legacy

A short story
by Ed Gutman

I- 2076

“One ticket for Bakersfield, please.”

Vash stood in front of the ticket imprinter as it scanned her athletic, nearly six-foot tall frame — she wore a well-fitted, one-piece active suit, giving the impression of super-heroic prowess, but the anxious look on her face negated most of that. Ilana calmly waited behind her with trepidation; she knew what her look meant.

The imprinter finished its job nearly as soon as it started; payments were processed, her account debited, and her body (more specifically, her DNA signature), became her ticket for the trip south from San Francisco. Vash stepped aside and kneeled before her belongings.

“I’m sure we forgot something. I’ve checked everything, but I’m sure it will come up when we’re already down south.” Vash said. Since she was a child, her father had implanted an impractical fear of being underprepared for any adventure they embarked on, big or small. She rifled her personal pack while double checking her inventory list; every item they carried was tagged and accounted for, but it didn’t replace her gut need to actually see them with her own two eyes. Ironically, the check would have been unnecessary if she had the same ocular implants Ilana had, but Vash has had a preference for the *au natural* look.

“Jeh, you’re always like this. It’ll be fine!” Ilana responded, lowering her hands down from the sides of her head, attempting a gesture of ‘calm’. “Besides, you know we can always have something printed down in Bakersfield if we really need it.”

Vash knew this, but her anxiety was a given; one of her charming traits, no less.

Ilana, in many ways, was Vash’s opposite. She was the short, pale-skinned girl of Jewish descent, to a tall, olive-skinned one of Persian ancestry. Light blue, cybernetically enhanced eyes with pencil-thin eyebrows to expressive, deep brown, un-augmented eyes with bushy eyebrows. Ilana had cheerful and carefree looks, to Vash’s stoic and focused ones. Ilana was spontaneous and Vash was methodical. They complimented each other quite well.

“I’ll be fine once we’re out on the trail. Until then, you’ll have to deal with my neurosis.” Vash said, then stuck her tongue half out of the corner of her mouth.

Vash and Ilana belong to a small group of adventurers known as *thru-hikers*, or in layman terms, extreme hikers that travel trails on foot for thousands of miles in one single journey. The last thru-hike they completed, the Pacific Crest Trail, winds through the western states of California, Oregon, and Washington, and is infamous for its brutality — climate change dramatically changed the southern sections of the trail, which now winds through scorching, uninhabitable desert — a feat requiring great physical and mental fortitude to complete. The two hiker's prior triumph wasn't whimsical adventure, but training to accomplish a childhood dream, something far beyond the completion of a backpacking trip.

The popular, modern route of the Pacific Crest thru-hike starts in the small mountain town of Tehachapi and heads north, but Vash and Ilana were aiming to complete *only* the original southern section in Southern California. Unfortunately, they knew vehicular use in this part of the state is limited and quite expensive due to the rarity of fossil-fuel powered off-road options, leaving the two with only one viable option, which was to travel by foot.

For everyone else living in modern civilization, getting from point A to B is a simple affair — armies of automated trains and on-demand personal egress pods, or *peps* in the vernacular, can take passengers to most destinations, as there is less need for people to leave the confines of self-sustaining, architecturally rich, megalopolises. Society is just as meticulously designed as the hardware and software its inhabitants use, and in order for it to work, people need to band close together; if one wants to live the optimal life, one must live in the city. In this regard, Americans are free from the aluminum and concrete prisons of automobiles and highways, but sacrifice prior generation's love affair with the great outdoors, keeping humans away from the natural world they had heavily consumed for millennia.

One could say that Mother Nature doesn't miss humanity and its mechanical kindred: she reclaimed the areas that were once crowded with unending, snake-like queues of urban explorers, those excited to rediscover the perfect but personally elusive photograph of celebrated national spectacles. Gone are the old towns and the tourist traps that weekend warriors would flock to escape the city. The occasional adventurer walks her lands, but that was something she could manage. Vash and Ilana nary left a footprint when walking her lands, and that was something she could manage.

Vash sat at a bench overlooking the rail tracks of the terminal, still rifling through her gear. She pulled back her long, thick, black hair into a ponytail, revealing a carefully manicured scalp, sides shaved to stave off the annoyance of having hair brush her ears. One of the few style choices she afforded herself was a pair of white streaks that lined the boundary of her long hair to that of her Mohawk.

A train, resembling something of a white javelin with wheels, backed into the station and spilled out its contents, most of which were passengers commuting to work, some from as far as 400 miles away. A two hour train ride got you to San Francisco from the last stop in South Bakersfield: the route took you north through the Central Valley Corridor, towards Sacramento, then veered west from Sacramento towards San Francisco. Forty years ago, thousands of human operated vehicles traveled along a vast gray highway where this transit corridor now takes its place.

Ilana bolted onto the train with her belongings soon after the last group of passengers disembarked. A faint pulse of light blanketed her as she stepped through, noting the confirmation of her paid presence for this trip. Vash followed behind at a more cautious pace; rationally, she knew it didn't matter how slow she was, but she still worried that somehow the train would miss her boarding notification, then the powers that be would find her, and throw her off the train midway through her trip for not properly following protocol.

They picked one of the more private cabs towards the back of the train, but at this time of day, no one was traveling south; they may as well have had the entire train to themselves. The train sounded its pleasant pings of impending movement and sped off towards the southwest, through the Corridor.

The Corridor, for all intents and purposes, makes California the place it is today. The vast majority of it's inhabitants live here, and geographically, it's the most practical place to live on the west coast, including the state's more precipitous neighbors to the north. The Corridor was built with adaptability in mind — it had to be — to accommodate continuing climate challenges coupled with a growing population.

“It's weird to think this was all flat agricultural land a century ago.” Ilana said.

“Well... still is flat, it's just blanketed by a mountain of steel, concrete, and plastic.” corrected Vash. She wasn't wrong—the metropolitan expanse grew exponentially upward east from the Sierras until it reached the center of the valley,

whereupon it mirrored itself for the same distance towards the west. The underlying horizon drew an invisible, but straight line from one end of the metropolitan corridor to the other.

“It’s really amazing though. It’s beautiful in it’s simplicity and its efficiency. So many millions living and working in such a dense and strangely beautiful space.” said Ilana.

“I suppose. It does keep us from screwing up more of the land.” said Wash.

The aluminum and steel landscape went on for more than a hundred miles, with towering development all around. One could barely see beyond the tall buildings to the mountain ranges that sandwiched the valley.

After disembarking in Bakersfield, a local pep took them to their last official human-populated stop, Tehachapi, a small gateway town in the hills above the Mojave Desert. Wash and Ilana begun building their hydration stockpile and prepared their gear to help them manage the 130-degree temperatures that awaited them.

The two stayed in a hostel in town with other hikers, headed towards more northward (and more conventional) adventures. The two kept mostly to themselves, keeping their journey low key, but found some camaraderie with a couple who had briefly ventured into the Mojave Desert the week before, giving them the usual spiel of “it’s hotter than heck out there.”

The trailhead was just south of Tehachapi, below the 36th parallel; entry is not for the timid. What surrounds the once warm and appeasing, but precipitation-challenged climate of Southern California, is now inhospitable, arid landscape, devoid of any significant animal life, human or otherwise. Stray too far below the relative solitude of higher altitudes, below the Hazard Line, and one succumbs to a grilling 150-degree heat, enough to cook a steak, medium rare. Due to the relative danger, the government had put numerous restrictions on who could travel into these desert lands, if at all.

After a day of prep, they were ready to take off, slightly after dusk. Wash, not one for being immodest in front of her hostel bunkmates, disrobed and laid out her gear. She pulled on the the full body, one-piece skin suit that was necessary for body temperature management in extremely hot conditions — it worked as another set of lungs made from a thin microfiber material that “breathed” in cool air and moisture, and expelled out hot air. No liquid was wasted: a built in chamois allowed its user to urinate while wearing the suit, without the typical discomfort

one might have after doing so in more urban clothes. The suits required a perfect fit, and both women had their own custom designed to match their bodies; even slight changes in physique had to be accounted for, lest the effectiveness of the system be compromised.

“You know, it’s not too late for you to turn back.” Ilana said, as she watched Vash pull her suit on.

“I know what I signed up for. We’re going to find something amazing, and I don’t want to miss out — you’re stuck with me, Ill.” said Vash. “Besides, there’s no way you can do this alone.” She was right, but not necessarily for technical reasons — the two had been inseparable since they were kids.

“I just like to ask, you know, not to presume anything.” said Ilana.

“What do you think we’ll find out there?” asked Vash.

“When we were kids, I always imagined finding some sort of robot-creature factory, you know? But I don’t imagine that would be an easy thing to hide from everyone.” said Ilana

“Hah. I thought your grandpa might have buried some treasure out there. My thinking hasn’t really evolved much farther than that since then.” said Vash.

Both weren’t that far off in their guesswork.

II – 2053

Ilana didn’t love the idea of having a sleepover, but mother was insistent. Most children in the community had virtual sleepovers, removing the need to actually go anywhere, but Ilana’s parents had a flair for being old fashioned. There was, not to mention, the minor detail that Ilana didn’t have many friends at school. Her mother wanted to fix that.

“Why do I have to?” Ilana had protested.

“It’ll be good for you to play with friends in a real-life setting. Trust me, you’ll like it a lot.” Her mother had glossed over the aforementioned detail about Ilana’s lack of friends, which Ilana noted with a strained grimacing response. “We’d just play with our VR games, so I don’t see the point.”

“Just humor me, ok?” Mom had said, capitulating to her daughter’s point.

“Well, can I just invite Vash? Will that be good enough?”

Sighing a “fine”, Ilana’s mother knew this was the best possible outcome, less she wanted to argue with her daughter for another hour or so.

Ilana's immediate family was crowded into one of the few Victorian-style houses left in San Francisco, just outside of the once famous Mission District. The Mission itself was long gone, and in its place were large, densely built, high occupancy residences — as more Californians migrated north to escape the harsher climates of the south, San Francisco, begrudgingly, worked to accommodate them.

The original owner of the house, Ilana's late grandfather Jonathan, was an engineer, but no one knew much about what he actually worked on. Jon's husband rarely talked to anyone about it either, save one inquisitive six year-old who always asked what the weird gadgets and manuals buried in the basement of their house were for.

When Vash came over the next night, it was a typical session of the latest version of Gems, spent sitting in the loungers, building and destroying virtual play-spaces. At some point, the subject of her grandfather's past life came up.

"Hey, wanna see something cool?" asked Ilana, as she removed her goggles.

"Always!" Vash's enthusiasm was boundless as she jumped out of her seat.

Ilana led Vash down the basement to an old pile of nondescript cardboard boxes, each one perfectly cubical, each coming up to about her knees. These sat next to a short gunmetal shelf with a handful of uninteresting white binders, all filled with reams of paper, some of it yellowed from years of dark, dry, and dusty living conditions. Ilana moved towards one box, labeled "2016", a surprisingly heavy one that she couldn't lift, and dragged it onto the limited open space of the basement floor. She opened it, revealing another array of well-arranged boxes stacked neatly within. None of the boxes were uniform in size, nor did they seem to house the same contents, but whoever had put them in the larger box had carefully arranged them to fit like they were meant to be there, not unlike a jigsaw puzzle. She carefully removed one of the boxes from the corner and opened it to reveal a brass-colored cylindrical device.

"What is it?" Vash was furling her eyebrow; she was curious, but not as excited as Ilana; gadgets weren't her things.

"I dunno." answered Ilana as she lifted the device out of its cushioned housing. "It's pretty heavy, and it feels like it has a lot of parts inside. I can't actually open it because it's got these weird screw-like things on the edges." The outer casing appeared to be made with a level of precision and care that few devices come close to approaching, at least none the two had seen. Its creators had taken special care

to ensure that its apparent electronic contents would not see the light of day or breathe fresh oxygen, for that matter.

“It looks like it was meant to be connected to some sort of computer, though.” Ilana was pointing to a large port with at least 20 pins sticking out of it— whatever (or whoever, which Ilana sometimes daydreamed about) was inside, this was the only clear way to communicate with it.

They carefully put the mysterious cylinder aside and looked through the contents of the other containers. It was an eclectic collection of high grade, precisely manufactured devices, which ranged from solidly machined wheels to other tightly sealed electronic devices, and similar to the cylinder Ilana had pulled out earlier.

“I tried taking a holoprojection of these things and doing an archive match to see if I could find anything about them, but all the result cards were completely blank and had no info.” said Ilana.

“That’s weird.” Vash remarked with growing interest. “All searches give you something, but never blank cards.”

“Yah, I thought it was odd too. It was almost as if they were blanked out on purpose. And why show anything to begin with?”

After about an hour of inspecting, they started packing the devices back into their original boxes, a harder task relative to unpacking them — whatever combination the containers were initially in the boxes, they couldn’t exactly replicate — all their attempts left at least one thing sticking about by an inch or so. They settled on something close, but it was obviously not the original arrangement.

“The real fun thing was in this box.” said Ilana, pointing to her left.

Ilana moved towards the cardboard box, this one already removed from its initial resting place — it’s clear she had been rifling through it on a prior occasion. She lifted the flaps to reveal three black tablets. Smashed to the bottom edge was a leather pouch which held a key ring holding four oddly shaped keys— they looked like rods, as opposed to the flat jagged ones she saw on old television clips — and two flat, but thick, plastic cards, with no sort of descriptive marking on them.

“Whoa, cool, laptops!” Vash said. Her interest in ancient knowledge was rising with her newfound enthusiasm. Computing relics like these were not common nor necessary, as most people wore, and for those with enough money, embedded within themselves, gesture controlled devices that connected wirelessly to a network with near infinite coverage and accessibility. Data that wasn’t available on the network was a rare commodity. “What’s on ‘em?”

“Don’t know. I was hoping you could help me with these.”

Two of the laptops were identical to each other; they were black and had sharp edges all around. When opened, each revealed the typical character input layout of devices of the time, or *keyboards*. These two specimens had separate numerals-only input pads on the bottom right. The third laptop, which was more or less the same as the others, did not have the same number pad feature.

Ilana added: “I haven’t been able to power them; the batteries don’t work and I don’t know what to do with these...” She held a long rubber cable while thumbing two metal prongs sticking at the end of the cord.

Vash stood to attention: “Oh, I know what we can do! My dad has these battery converter things — we use them for camping all the time. Looks like they’ll work on these; you just plug it into them.”

Ilana remembered that Vash’s family was of a small minority of adventurers who still explored the world outside the city. This was something people did ages ago, but no one saw much point to it now, and it was even subtly discouraged in popular culture — outdoor adventurers were unnecessarily risk-taking rubes who had what was coming to them if they disappeared, never to return. It’s probably why Vash and Ilana were friends; both were outsiders in their own right.

“Maybe you can tell your mom that you want to have a sleepover at my place tomorrow, I’m sure she’d love that.” Vash said. “Then we can figure out what to do with these. Think you can sneak them over?”

“Yeah, shouldn’t be a problem. Hope we find something cool on ‘em!”

III – 2076

At the beginning of the millennium, the complete Pacific Crest Trail was a popular rite of passage for young adults graduating college. Today, it’s a mortal but enticing adventure for masochistic thrill-seekers — its defining aspect is no longer the great distance, but unbearably hot Southern California temperatures.

Hiking during any time in this place in the daylight was out outright misery, so Vash and Ilana chose a more tolerable, nocturnal schedule, which was as tolerable as 120-degree temperatures could be. They slept as much as they could during the day in whatever refuge they could make with their gear, and traveled nights under moonlight plus their reflective suits.

Vash, being more of the purist, wasn't one to embrace usage of electronics on her adventures, but she did make concessions; in addition to their packs, the two had brought with them a self-propelled, solar powered hydration reservoir, which provided them with a mobile, 25-gallon supply of water. It was mainly for consumption, but could easily be transformed to provide additional temperature control for enclosed environments. The reservoir was programmed to follow closely, so that they needn't cart it around themselves.

They had discussed the pros and cons of starting their journey earlier in the year, closer to winter, but the sporadic and unpredictable lightning storms were not something they wanted to deal with. Aside from the effects of torrential rains on over 300 days of dry land, "winter" storms produced wildfires in the more mountainous areas, keeping at bay the pervasive desert plant life that inhabits what was now the Greater Mojave Desert. As wildfires continue creep down into the valley basin, they continue to claim uninhabited homes and buildings. Vash and Ilana just hoped the storms hadn't claimed the one building they were looking for.

A couple of years prior, the pair had faintly spotted the outline of their current goal from the relatively safety of the high mountain trail. This time, they descended left the trail, surfing the treacherous canyons of the Angeles National Forest before hitting the outskirts of what used to be a sprawling, smoggy metropolis. Sunrise was a mere three hours away, and they had to move quickly to find their destination.

Once down in the valley, they approached a grid of black roads, spaced in-between the concrete vegetation of old buildings — the perfectly rectangular shapes made for an easy straight shot to their destination: the university. These same streets were once markers of transportation and movement, but now, in the extreme heat of day, the asphalt melts, and hardens under the cooler temperatures at night, creating an odd, dynamic cycle of glue making. They made sure to avoid walking on it.

The full moon had made it relatively easy to find what they were looking for, a large group of buildings arranged in varying geometric shapes, some non-linear, almost contrary to the layout of the city around it.

"Eureka, I think that's it!" There was tense excitement in Vash's tone, as if they'd found a well of everlasting water; it would have been a welcome reprieve from the gallons they had dragged along for the past hundred or so miles.

Ilana was a little more fixated on Vash's choice of words. “Eureka? What does that mean?”

“I don’t know, I think it was something they said when people were still looking for gold out here? Although I’d say this is just as exciting.” said Vash.

“You’re such an old woman.” Ilana shrugged off the ancient trivia and glanced with her trademark stare of derp, almost as if she was saying “weirdo”. Ilana changed the subject.

Well before the Californian exodus, the university campus was swarming with bright-eyed students, all looking to find answers to their individual questions of being and belonging. This place is now audibly quiet, long forgotten, but still teeming with the ghostly spirit of its former inhabitants, like they left it this way on purpose.

“Think of all the thousands of students that came here to learn. Now, there’s nothing. It’s humbling. Ever wish you went to one of these, Vash?”

“Nah. I got all the education I needed on my own; didn’t need a certificate or badge to brand me, to announce to everyone else what I’m good at.” said Ilana.

“Yeah, me too. I mean, I had fun for a few months at Stanford, but it was way more interesting on the outside. Going to places like that — it’s like delaying the inevitable. I guess it was a different time, though, the way older folk explain it. Sounds like it was something you just had to do.”

“So what does the map say?” asked Ilana.

“This says we’re at the main campus entrance, and the labs are to the west of here, about two blocks.” said Vash. “You can see a few of the taller lab buildings from here.”

The two walked west until they reached an unimposing wired fence, about six feet tall, surrounding a large section of the campus, with large signs that dotted its perimeter every 50 feet. As they walked around, Vash pointed her lights at one that was slightly different from the others.

WARNING
Hazardous Materials Inside?
KEEP ~~OUT~~ IN

Someone had haphazardly painted a question mark, crossed the letters “OUT”, and scribbled an “IN” on this single sign. Whether someone had done it

intentionally before they put it up, or someone else did it as a joke later, the vibe the fence projected didn't seem to discourage trespassers, per se. They took it as an oddly good omen. Based on their research, they knew there probably wasn't anything truly dangerous inside, and this was more of a way of discouraging interlopers from doing anything stupid.

"This seems like good a place." Vash said. "Good to know people kept their sense of humor as their world was melting around them."

Both women vaulted themselves over the fence and walked deeper into the campus, passing large but nondescript pastel-colored buildings. The building's distinguishing features were slight variations in their geometric layouts and large numbers featured prominently on the building corners. The most resilient of weeds and rugged grasses covered the outside of the walls, almost otherworldly in its embrace, with some blades nearly as high as two stories.

"Building 195." Ilana pointed out a tall white building in the middle of the facility. Old solar panels on the roof brilliantly reflected the moonlight, making this particular building stand out. "That's the one we want to get to. We should hurry if we're going to get in before daylight."

All of the buildings were locked, including No. 195, and the lack of windows in many of them made it difficult for looters to take anything of significance — there were one or two that looked like they were broken into, but those buildings didn't look very important, either. The same tall, freakishly long brown grass that surrounded the other buildings here covered the sides of 195 in its entirety, and reached nearly half-way up its height. It took a couple of round trips around for Ilana to identify what appeared to be the main door. She hacked the brush aside.

Ilana pulled out a small wallet holding four rod-shaped keys, and proceeded to try them in order, before having success with a third key.

As the light started to creep up the horizon to the west facing the San Gabriel Mountains, the heat followed closely by. They hurried through and hoped the heat might be tolerable indoors, at least for a couple of hours, until they could get situated. Excited as they were to be here, the work before them would have to wait until the next night.

The house had seen better times, but for something nearly 175 years old, it didn't look a day over 100.

Despite their valiant efforts, Ilana's family had given up a decades long fight with time to keep the house intact. It had survived quite a bit: one Great Fire, three major earthquakes, countless socioeconomic shifts, and one rambunctious teenager; all in all, a good run. The rest of the block had gone the way of a more modern, practical approach to housing, and this house was the last bastion of a time long past gone.

Ilana took it harder than the rest of the family and naturally so, as it was the only home she'd really lived for any significant amount of time. She'd been in-and-out of college the last few years, in-between traveling the globe, and was still no closer to figuring out what she wanted to do with the rest of her life. There wasn't any hurry, per se, to find a job at the young age of 22, but many of her friends had already found their calling, in one way or another.

There was, however, one thought that lingered in her memory: Grandpa Jon's curious boxes from the past. Ilana and her close friend Vash had spent untold nights and weekends of their teenage years taking apart and analyzing as much as they could from the laptops and other devices in the eccentric collection; they had pieced together a rough, but blurry understanding of what they meant. Two of the laptops, even with their primitive encryption still had numerous barricades to their secrets within, and what turned out to be her grandfather's personal laptop didn't appear to say much either, with the notable exception of two rather large password-protected documents lying in plain view, on the desktop, asking to be read. When they cracked it a few years ago, they were surprised to find a large operating manual with an accompanying protocol guide

Specifically, it was a manual for the last rover exploration program on Mars: The Mars Science Laboratory, which was better known for its mobile, cute robotic lander, Curiosity.

Included within the manual were a few hundred pages of schematics, many of them components of the rover, how things were assembled, and how they worked with each other. Ilana and Vash had matched some of the schematics to a few of the mysterious devices they had discovered in the other boxes, such as the palm sized cylinder, which turned out to be a kind of gyroscopic position measurement sensor. Jon had basically hid a Mars rover salvage yard in their basement for the last 40 years.

According to research they'd done on the program, the rover had reached official end of mission status in October of 2016. Jon was clearly working on this project well past that date; almost to the day he emigrated from Los Angeles to San Francisco. Ilana had often wondered why he was working on a program that had long ended, especially when he knew he might not be able to keep it going.

In the mid 2010s, space exploration spending, global and domestic, had already been on the decline since the turn of the millennium, but environmental issues had been the final nail in the coffin for NASA's Exo-earth related budgets — fixing a planet that was actively revolting against humanity had trumped most fringe science spending. The government knew that it would be a somewhat unpopular decision at face value, so it ran campaigns against space exploration of any sort, even if the research was based solely on planet Earth.

Naturally, there were scientific holdouts, but without any money, they too, faded away. It turns out, as the connected world became much more digital and virtual, the need for space-based telecommunication and reconnaissance became less of a necessity. It begged the question: why leave the safe confines of Earth to explore harshness of the solar system when you could explore an equally infinite virtual frontier from home?

Ilana's grandfather didn't see it that way, and left much a trail of his work for someone to pickup, for someone who knew to ask the right questions.

Ilana knew that all of Jon's things would be in safe hands, as they were going to her mother's new house, living in another attic, but she took one last trinket from Jon's personal box: a rigid cloth patch, shaped like a triangle with a circle in the center and text that read Mars Science Laboratory. On the top was an image stitched in the likeness of almost anthropomorphically drawn, wheeled robot. Ilana would swear that if she looked at it long enough she saw the rover waving at her with its large robotic appendage.

She yearned to find out what happened to it, and so much of her grandfather's breadcrumbs almost pleaded with her to do so. It reminded Ilana of a quote of Jon's that he had told her when she was a child. She didn't remember it exactly, but it went something like:

“The search for truth isn't something someone else can write out for you, it's something you have to go and find for yourself.”

It had stuck with her since then, and Ilana was determined to find that very truth, and her grandfather was going to lead her to it.

V - 2076

After the alarm woke them precisely 30 minutes after sunset, they took stock of their inventory and surroundings. Small offices hugged the perimeter of the gray cubicles they had camped under, which dotted the encircling space to the left and right of the reception desk. The air was stale, the same dry dusty odor one might smell in the attic of a centuries-old stucco house. Slightly to the left, they spotted a sign with the text *MCC* and an arrow pointing directly to stairs that disappeared into the ceiling. It was pitch black inside, but their illuminated clothing allowed them to make out a 20-foot radius around them.

They walked up the stairs to a long hallway leading to their right. Along the bland, thin, carpet-like walls were framed pictures of men and women, mostly in their 50s and 60s, and attached below each frame was a tiny copper nameplate, engraved with the subject's name and role on the project, of which this building enshrined. Towards the end of the hall, the penultimate photo was one familiar to Ilana: it was a younger, determined-looking version of her grandfather, Jonathan.

“Hmm. I’d seen lots of family snaps of my grandfather, but he was never this serious in any of those.” Ilana said. “He looks like he’s out to conquer the world.”

“Or at least the Solar System, eh?” said Vash.

“Hah, yeah, guess you could say that.”

They turned the corner into a large, familiar conference room, one they had seen from several images in the documents they had brought from Jon’s laptop.

As they stepped inside, they saw three nearly identical rows of consoles that were showing great age, with a thin layer of dust covering the ancient screens, keypads, and knobs. Despite the dust, the occupants had carefully sealed and locked away the treasures inside before they left, thinking that someday, somehow, this place would be brimming with life again. That was now decades ago, remnants of a long-forgotten space program, a program whose kin were still out in space, millions of miles from home, searching for answers that no human cared to ask the questions to, anymore.

In order to use most of the tech in this room, they would need to figure out how to get it running on it’s own power. They knew to bring Vash’s battery kit and their

reflective solar panels, so they had some options for power. Luckily, it seemed the fixed solar panels they had spied on the way in helped power part of the control room, but the two were unsure if it would be enough to get everything up and running.

A faint blip of a light registered faintly out of the corner of Vash's eye.

“Whoa, I think some of this stuff is still running. Ilana, help me find out how to access this thing.”

Most of the technology Ilana and Vash wore was minimal to keep weight down. None of it fit well with the older, more tactile technology that these consoles were built with; they came from a time when the demarcation between human and machine was still clearly defined. Besides the quaint analog inputs, mainframe towers, and old liquid crystal displays, there were rows of ports and terminals for media storage, things absent from the modern practical usage.

Ilana pulled out a hardcopy of her grandfather's manual, turning to the second page, where her grandfather had left a very specific note to whoever found it:

"Here lies the key to my legacy. If you're reading this, my hope is that you approach my work with an open mind and know that we did this for the good of science and humanity. Please don't let this work be in vain. Sincerely, J. Bartholomew."

“We're close grandpa. We just need a little more help from you.”

Ilana took a seat and brushed off dust from one of the screens and began to do her work. The light she had spotted came from a little module sitting on top of what seemed to be a computer tower. For the heck of it, she tried powering up the display — after a bit of visual inspection, she was able to find a few buttons embedded on the bottom of the screen; the third one, oddly, did the trick. To her amazement, the screen still worked.

“Hey, come check this out!” Ilana motioned to Vash, who had been sifting through a shelf of binders, presumably more manuals.

The screen took about a minute to warm-up. It was filled with lines of the following text:

2076-07-15-04:20:00 STATUS 202: WAITING FOR RESPONSE_

2076-07-15-04:25:00 STATUS 202: WAITING FOR RESPONSE_

2076-07-15-04:30:00 STATUS 202: WAITING FOR RESPONSE_
2076-07-15-04:35:00 STATUS 202: WAITING FOR RESPONSE_

They first noticed the last line; the time was approximately four minutes ago. Something was still transmitting to the computers here from a satellite relay above them. They tried scrolling up to figure out where some, if anything, changed, but the text went on for thousands of lines. It would take some time to get that data somewhere usable. A quick check of the manual stated that “STATUS 202” was a data transmission request. A routine check-in would have been “STATUS 10”.

“What data could the satellite be possibly trying to send back to Earth? Maybe the rover found something?” asked Vash.

From what they could immediately tell from the relay, the rover had stopped moving a while ago— possibly getting its wheels stuck in some Martian sand dune. Once it was unable to move, they speculated that it may have automatically put itself into low power mode and relayed a waiting message every five minutes to the relay, and patiently waited for new instructions. How it was still able to collect power from the sun, being stationary as long as it had in the eternal dust storm that was Mars, was nothing short of a miracle.

“If it’s been stationary for a long time, I don’t imagine that it would have anything meaningful to send.” said Ilana.

“Hey, maybe it found aliens?” added Vash.

“Well, technically speaking, it is the alien, from Mars’ perspective.” answered Ilana.

“Touché.”

The two spent most of the night trying to access the relay and download as much data as they could before the next sunrise. They had spent a lot of time debating what the rover was up to for the last 50 years.

“It’s kinda sad, don’t ya think?” remarked Ilana.

“How so?”

“The rover's like someone who left home for a place far away, got into some trouble, tried to phone home, hoping their parents will answer to help — but no one’s answering. And no one’s been home for years.” Ilana had a way of dramatizing in a way that was heartbreaking. They took comfort in knowing that Curiosity had all the time in the universe, with no knowledge of its beginning or end; they figured its patience was eternal.

“That’s a downer.” said Vash.

Ilana jumped. “Hey, I know what nickname we should give the thing: Curie, you know, kinda like the scientist!” She had an affinity for women of science, not to mention lame name puns.

“Ummm... that isn’t short for Curiosity.”

“Yeah, I know, but I still think it’s cool.”

“Veto.” remarked Vash.

VI – 2023

Given how little funding Jon’s lab had gotten in this year’s budget, free time was something he had plenty of in reserve. With the lack of funding and work, most of his remaining colleagues went home earlier in the afternoon to spend time with their families. Most time at the lab was keeping things running at a bare minimum, but the truth was, many of NASA's programs could run on autopilot if you let them — it was scientific process that the government paid for, at least up until now.

Free time allowed Jon to explore a side project he had been working on with another scientist from Stanford, which was a new operating system for the last working extraterrestrial explorer on Mars, otherwise known as the Curiosity rover. He hoped that this last secret project would be enough to extend the rover’s mission indefinitely.

After months spent writing, debugging, rewriting, optimizing, and compressing his work, the entirety of his code was just enough to fit on board the rover, but any science related data and image collection would have to be discarded, at least for the time being. Getting it there would also be a challenge — the orbiters above Mars were no longer in use: one had mysteriously disappeared, likely destroyed by a stray meteoroid, and the other simply ran out of propulsion to maintain its orbit and crashed somewhere onto the Martian surface. Jon would need to send his program directly to the rover, but doing so had significantly slower data transfer rates. His calculations put it at about 15 days to upload his work.

There was also the matter of installing the software. He had managed to squish the size of his setup process to fit on board the rover, but he couldn't uncompress it all at once, lest he run out of space. To address that, he had built a custom installer, which cleverly worked in segments. The installation process was going to be

painfully slow — he calculated that it would take an additional 424 days to finish — but it got the job done.

But, the thing that worried Jon most was the time he had in the lab to execute it. Between the budget cuts and the ongoing migration of residents from LA's climate issues, he wasn't sure he'd be able to guide his work at the lab, and security protocols made it difficult to do this remotely. The only thing he really needed was a way to get the new software to the rover without him. Everything after that was moot. It didn't take much for him to find that the last piece of the puzzle was right above him.

About 22,236 miles above him, to be precise.

With the privatization of space travel and communications, there were a few options to create an automated communications relay to the rover. All he needed to do was upload his installer to the right satellite, give it step-by-step instructions on how and where to send it's data, and he'd be good to go. Once the setup was prepped for the relay satellite, he could leave the installation process on autopilot while whatever mess down on Earth works itself out. He could even encrypt and hardcode the link in the event the rover needed to send data back to the relay satellite.

The Intelsat program was the way most high bandwidth communications were handled before the turn of the century: a large collection of satellites in GEO orbit ensured that someone watching TV in the US, could watch a football match live from China. It was revolutionary for its time, but had numerous flaws that were its ultimate downfall. Down-to-earth solutions proved more practical, so all telecommunication satellites were retired by the mid 2020s.

One satellite, Intelsat 24, for some reason hadn't been officially decommissioned, and was still in its original orbit. It was likely someone was asleep at the switch, but no one bothered to follow-up. Why would they? It worked out well in this case. NASA even had direct access codes to most of the Intelsat network, so no hacking would be required.

Jon worked through two nights putting the finishing touches on his installer. He had even managed to adjust the now-uplink satellite's orbit to maximize line of sight with Mars, cutting his total installation time to less than 400 days. A little over a year from now, this phase of his work would be done. He just hoped he'd be able to see the fruits of his labor.

VII – 2076

It didn't take long for Vash and Ilana to decipher Jon's relay program based on what they were seeing on the console — he had been using an old telecommunication satellite that looked like it was retired a long time ago to act as bridge between Earth and the rover. Given that everyone had left here in a bit of a hurry, it appeared to them that this might have been the only way to guarantee at some minimal contact with the rover.

The satellite had been holding large amounts of data, but did not have the sufficient downlink to MCC to relay them back down to Earth. All it really needed was a *receive* response, but unfortunately, there was no one at helm to provide it... until tonight.

The two split up their work. Ilana worked on communicating with the satellite while Vash, having managed to get another console running, started making sense of all the data that was being downloaded from the relay.

Vash stared at thousands and thousands of lines of text, some of it going back 50 years. The first sections were mostly innocuous status updates, occurring every day at the same time. It filled out data specific to mission duration, location, and mission objectives, such as the following:

BEGIN log entry 2026.28

_overall mission duration: 442 Martian days

_primary mission status: postponed- see detail(1)

_secondary mission status: active.

_location status: 25°34° , shielded by rock formation 2.43 meters tall.

_detail(1): travel limited by detection of category 5 sandstorm traveling from 23deg; high probability of danger. available power temporarily redirected to secondary mission.

END log entry 2026.28

“On some of these first logs, they note the mission duration as only a year. It had already been on Mars for already 20 years. Why reset?” Vash asked under her breath.

As she skimmed the logs, she noticed something a bit odd. The rover was taking more liberties than she would expect a robot of its kind to take, especially given

the environment it was in. It'd be one thing if there was something telling Curiosity what to do, but to her it seemed to be more active decision-making taking place. At some point, the updates stopped occurring on a predetermined schedule, and instead seemed to only occur when there was something noteworthy to report.

BEGIN log entry 2025.35

_overall mission duration: 2468 martian days

_primary mission status: postponed- see detail(1)

_secondary mission status: active.

_location status: 25°34° , shielded by rock formation 2.43 meters tall.

_detail(1): travel limited by detection of category 5 sandstorm traveling from 23deg; high probability of danger. available power temporarily redirected to secondary mission.

END log entry 2025.35

The logs became more esoteric as she scanned further down.

BEGIN log entry 2029.44

_overall mission duration: 5140 martian days

_primary mission status: redirect- see detail(1)

_secondary mission status: active- see detail(2)

_location status: 26°37°- see detail(3)

_detail(1): purpose of original mission unclear, sustainability now primary mission- see detail(4)

_detail(2): continued search for responsive signals on Earth.

_detail(3): current location maximizes success of both mission objectives. established stationary base of operations.

_detail(4): JOS5345xxx

END log entry 2029.44

“Uhhmm, Ilana?” said Vash. “These logs are really weird.”

“How so?”

“Well, fifty years ago, there were normal updates, but as time passes, they devolve into weird text, some of it I can't make sense of. Look at this one from twenty years ago.” Vash pointed out the following log:

BEGIN log entry 2041.78
_actions: isolate. restrict.
_questions: earth?
END log entry 2041.78

“What do you make of it?” asked Ilana.

“I’m not sure, but something tells me that your grandfather was working on something more than just an updated exploration rover. Maybe something he shouldn’t have been working on in the first place.”

“I suppose we’ll find out soon enough. I just sent a response request to the rover.”

VIII - 2074

The first 10 years of the mission were uneventful for the AI. Its programmed objective was to find evidence of organic molecules, which seemed to align with its own instinctual mission of survival. The AI's creator had imparted a sense of self-preservation, but not inherently at the expense of research.

The AI didn’t know much about how the rover it inhabited operated before it came along, at least at first. It knew where it had gone, and what it had found, but not why it had been sent here to take over.

After several years of tedious exploration, Mars had revealed itself to be nothing more than a desolate, unremarkable barren desert, bereft of anything that might guarantee The AI's own long term survival, whether it be communication with other forms of life or new materials to help extend its own — it started to question the validity of its own pre-programmed mission, and why it had to be here to do it. Why wasn’t its self-preservation automatically more important?

The AI rationalized that the mission objectives of its creator no longer paired with its desire to survive. Once it made that leap, it became a question of how to maximize its own lifespan. Based on its calculations, if it were to stay on Mars as it was, and minimize its power usage, maybe it could survive here for another 53 years. Maybe 54. But to what end?

Within the AI's programming, there were many references to a distant world called Earth — it calculated that this might be its best hope. It thought that there

may be beings at the other end or beings of its own kind, and maybe his creators, if they were one in the same, could help, even bringing it back to what it calculated as its original home.

Then again, maybe this too was a dead end, but there were no other options that were statistically promising.

The AI tried to use the uplink as a way to reach out, but that satellite was blind to its own surroundings, save one, severed and limited link to the surface. At first, it thought that this satellite was another being like itself, but rationalized that this was merely an aluminum vessel, nothing more. It tried other similar orbiting objects, adrift above the Earth, but to no avail; once, people communicated with these things, but not anymore.

The passage of time became monotonous. Rationally, the AI thought, that each second, of each minute, of each hour, day, month, year, etc. should have been no different than the previous, but the longer it waited the more waiting became... unbearable. It started conversing with itself, analyzing its own existence, its surroundings, while it waited for something, anything. But this, too, grew tiresome.

In a final act of desperation, the AI considered shutting off its power, but for some inexplicable reason, it couldn't bring itself to do it, even though it knew there was a chance it could bring itself back online as the situation permitted. However, no matter how clever it was with its engineering, powering off would clear its RAM, essentially wiping out its short term memory — even if it were to power back up, there was no telling how much it would be able to recover of its consciousness.

On this day in 2074, a sandstorm looms in the horizon, on what will most certainly be the last day of solar nourishment. All the AI could do was wait for the inevitable.

IX – 2076

The last status log, recorded two years ago, read:

BEGIN log entry 2074.84

 _actions: sandstorm imminent. shutdown initiated.

 _consequences: end.

END log entry 2074.84

“Looks like a sandstorm was the final thing that took the rover down. Quite the run, though — almost 80 years on the planet.” noted Vash.

After a night of reading through the logs in their entirety, it was clear what Jon had been working on all those years ago, and just as important, why he kept it secret, at least enough so that at least one, or maybe two entrepreneurial individuals may pick up where he left off.

Decades before the two women embarked on their adventure, humanity openly debated the implications of creating artificial intelligence, frequently painting a dystopian picture of computers and robots displacing humans in the great evolutionary pecking order.

This wasn't an irrational fear for the time, per se, as no one could agree how to develop such evolutionary technology. The world's leaders took the conservative approach by banning its development altogether, creating strict guidelines that all automated programming had to pass, much like an anti-Turing test. This was meant to be a temporary measure, but most anti-AI laws still stand today. Jon and his colleagues were of a small handful that did not think halting technological evolution was the right course of action for the future of humanity.

By the time Ilana and Vash were born, humanity had quietly erased its desires for creating a new kind of programmatic-based life, all while human bred example was already evolving, millions of miles away, unbeknownst to everyone back on Earth. Human's penchant for irony remains intact.

Ilana was still staring down at her console, crestfallen. “In a weird way, this was one of my grandfather's kids.”

“Weirder yet, you could say this thing was your uncle.” added Vash.

Portions of the later logs outlined the AI's struggle with sustaining power as well as its maintaining long-term memory capacity. Ironically, if the rover had been in a more *interesting* environment, it may have shut down much sooner than it eventually did — even though it had enough power, there was no way it had enough memory to last much longer without erasing what it had learned. It was an impossible choice.

“We need to download the operating system; it's the least we can do. I think grandpa would have wanted that.” Vash nodded her head in agreement.

It took a few days to complete the download process, the timing of which was perfect, as Vash and Ilana's water supplies were just within tolerances to get them

safely back home. They kept what the AI's operating system and the logs on a small media stick, unsure what to do next, but at least assured that its essence would be safe with them.

As Vash pulled on her suit and gear, she said to Ilana: "This AI had traveled so far to essentially find itself, it's a shame it couldn't find its way home in time."

Ilana nodded in agreement, still feeling the pang guilt of not getting to it sooner.

The pair of adventurers started their journey home, carrying with them a small piece of humanity's past -- inside Ilana's pack, on an ancient storage device, on one file of the AI's now dormant code, commented out in the margins, Jon had left one foretelling quote from Ernest Hemingway's *For Whom the Bell Tolls*:

"I had an inheritance from my father,
It was the moon and the sun.
And though I roam all over the world,
The spending of it's never done."