

The First Pizza Place on Mars

“Mars will need everything from iron foundries to pizza joints to night clubs” – Elon Musk, 2018

At my most debauched, back on Earth in the 2020s, even then I secretly yearned to come back in the next life as a flat stone at the bottom of a deep river. Irretrievably placed, with the water of life’s unending activity washing over me. This, truly, is how I ended up running *Best Pizza on Mars*, or simply “Best Pizza”: the prospect of a distant serenity. But, despite my rarified position as the first and only such full-time establishment operating on Red, there were problems from the get-go, the biggest being an insane supply chain requiring constant finesse, and, sometimes, outright criminality, all to ensure my very modest 5 pizzas-a-day sales limit. It turns out small tweaks to complex systems and fisticuffs is what it takes to run a successful business on Mars, not a Zen-like calm.

Locals who had been on Red for a while used the term *infrastacks*, or just “stacks,” when talking about things like oil paint, or videogame controllers, or vegetable seeds, or any of the 1000 everyday products that you can snag at a bodega back on Earth but that, up here, require endless

labor and interminable grey market dickering. Just to grow the tomatoes and basil that constituted a full half of my “Margherita” pizza ingredient list (the others being dough and cheese), I had been maintaining a custom-designed, multi-species rhizosphere, complete with high-efficiency grow lights, closed-system HVAC, and sophisticated hydroponics; all comprising modular sub-systems, and all subject to endless adjustments with the precision hand tools that I kept mounted on one wall in the kitchen space. The whole setup was about the size of a walk-in closet back on Earth. On the opposite wall, across from the “UFO”-type LEDs incessantly blasting a 24-hour magenta glow, there was a small display screen so I could watch a live stream of the Martian landscape in real time while I learned and then practiced the quiet arts of kneading and baking.

That part of the operation – dough making and my view through a screen out onto barren nothingness – was what set my business apart and kept me motivated during that first decade on Red. It was also, coincidentally, the aspect of Mars that reminded me most of my work back home, as a sculptor, always on the verge of bankruptcy, but with a beefy enough Rolodex and the requisite art-school charisma (and RISD pedigree) to make it through a first cut of a Mars settler recruitment program, and then, finally, onto the 22nd full-sized, ~100 person colonization ship to head off Earth in the year of our lord, 2038. So, SR (settler run) 22 is when I came to Red.

Earthers who eat frozen pizza know: After kneading and tossing dough, one couldn’t really fail to produce an edible product (“there’s no such thing as bad pizza,” etc.), and – unlike when one works with quarried stone – inconsistent geometry could be overlooked. But, like on Earth, inconsistent flavor could not. So, I came to Mars to try my hand at *commerce*, in pizza form, after failing so long (and so slowly) at making a basic living at “fine art” back home, and such concerns were now priorities. Of course, I would never have cause to chisel out 50 identical *Rodins* back on Blue. No demand. And, if I did, there’s a good chance I would have failed; simply by knowing that each was supposed to be the same and then subconsciously sabotaging them as I had succeeded in

sabotaging every other part of my Earth-bound life. Here there was very little stability, for anyone, but there was constant demand for my edible masterpieces. Hence, “Best Pizza.”

What was the same for every pie - what had to be the same – were the stacks that generated those four basic ingredients. The first level of concern was *biological*. Basil was the easiest ingredient to produce, if you trimmed constantly and made a point to keep it from bolting, which is no trick when you are stuck in a 10x8 box with the plants in question. Basil is like a little brother to me; sharing a room, oxygen, and constantly pissing me off. Tomatoes on Mars are a bit trickier – more like a house guest. Delicacy is required and there are occasional disasters. For example, I had the bright idea to import 1.5 cubic meters of *Foxfarm “Ocean Forest” Potting Soil* on SR 29. Given the weight my shipping expenses were great, which made that appearance of aphid eggs – which had survived bombardment by radiation, zero gravity, and the extreme cold - all the more troubling. After that, I switched to a fully hydroponic growth medium. Sifted Martian scree and recirculated H2O trickled down from a fire extinguisher. There was more maintenance but no fear of infestation.

Despite these challenges, there was unexpected good to come out of that early experiment in growing Earth plants on Mars. Like when I first got to meet Hilda Etue, the only other person who came to know of certain illegal modifications I would make to my kitchen. Not that I had any choice in the matter of her knowing. Hilda had a very specific duty on Colony 1; one which allowed her access to any room in any habitat: She had to continually test the structural integrity of the inflatable structure that we called home, and that included “Best Pizza.” Hilda was impressed when she saw the kitchen, or at least she was polite enough not to remind me more than once how tiny it was. I’m guessing she had seen worse uses of space on Red. I had too. I had in mind the possibility of asking for a date before she left and tried to impress her.

“Ya, but I have a window. See,” I gestured dramatically toward the tiny video monitor above the dough station, which showed a surface view of Red. It was a hacked telemetry

sub-station feed; broadcasting in black and white only. You wouldn't even know it was live if the blinking lights of the landing pad didn't strobe at Martian dusk. Crammed into a glorified closet behind the counter at Best Pizza, our elbows brushing, Hilda and I marveled for a lingering moment at a landscape that no one on Blue would see for 12.2 more minutes, if they cared to look.

What was the action through the window? Dust devils would whip up, vertically punctuating flattened rocky tundra. Anything smaller than a boulder would shift and change location during the Martian night, and all the stones ended up dotting an incline up to the caldera-top launchpad, where guidance drones would circle, signaling where colonist ships would soon be arriving. In dreams, the scene through my virtual porthole would take on the colors of memory. Reds in every direction and in shades people had never dreamed of back on Earth. Deep reds stretched out across long parts of the Martian day. The mornings were indescribable with Earth words, but here goes: Ferrari red, or the red of arterial blood, and pumping the same way, as dust moved in waves across the horizon. Never been? Imagine Utah bathed in perpetual sunset, but colder than Antarctica, so you can't go outside. And the internet sucks. That's Red. That's Mars. That's our home.

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We chatted for a while after that back-of-house viewing session, during Hilda's structural inspection, and it felt like I had made a friend and maybe something more. Of course, everyone knew everyone on Red, but real friends and faithful lovers were hard to find. At least for me. You knew when you had one though: Intimacy was important, yes, but mostly it was *trust* that bound us. We had to trust each other on Red. Like with the stacks, relationships were shoestring affairs with little decoration. There was no escaping betrayal or jealousy. As she was leaving, Hilda mentioned that my monitor was attached to an exterior wall.

"Right on the other side is actually an amazing view," she said, staring at the radiation-blocker grey matte painted atop five inches of polyethylene fibers that separated us from the horrors

of low atmosphere. Generally, settlers weren't provided with such information. Hab breach protocols made no mention of emergency exits. There was no way out, so what was the point? Also, your life – your individual life – wasn't worth much to *The Company* or our respective home governments, neither of which were close enough to know or care what happened to us.

“It's not pointed at the launch pad, but you wouldn't need a monitor,” said Hilda.

She held her gaze at nothingness and my attention for a couple seconds but left the conversation at that. Then I got to thinking. I didn't know her well. Not well enough to trust her. But it was something to go on. And, when I finally saw the surface outside the “Best Pizza” kitchen for myself, I couldn't disagree. Grim. Bleak. Barren. An altogether inspiring view. Somehow different from the monitor feed. More alive and mine alone to conquer.

So, I installed a kitchen window above the dough station, with a latch that opened outward onto the surface of Red, which is definitely illegal. This relatively minor construction project required enlisting the help of certain unsavory Martian characters. I'm talking borderline psychotics who had been on Mars for far too long, but who didn't have the wherewithal to make their way back to Earth prison where they belonged. Some local tradespeople, like Rob L., were OK if you didn't spend too much time with them. Also, Rob knew Hilda, which made organizing the project less stressful. I'm guessing that she would have been notified instantly when I sliced through the hab ; alerted, via her comms sensors when the structure was breached by the high-output, three-axis, polymer printing arm that Rob had repurposed from the medical bay.

Rob wasn't celebrated for his official duties. At best, he was a passable repairman – a shade tree mechanic who wouldn't rat me out in exchange for the occasional free pizza. Nor was Eleanor, our senior engineer, known locally for her breakthrough materials science, which earned her both a CalTech PhD and place on the celebrated SR 5. And Xiao may have been a tremendous pathologist, able to diagnose the novel range of mineral deficiencies we all experience, at a distance and under

fluorescent light, but his capacity for vintage game console emulation was what he was known for, and, if you had something to barter, he could make sure that the entire catalog of Sega and Nintendo 16-bit games ran seamlessly on the big screen in your living quarters. Each of these individuals – and the exactly 1134 other *homo sapien sapiens* that agreed to a one-way trip to Mars since SR1 – all of these people were known by their Red trade; by what trappings of material culture each could conjure from their official stacks using only flat-packed materials shipped inside the hold of Starships, arriving from a planet called Earth, floating in space 245.1 million miles away.

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To keep up the illusion that I was able to reliably produce pizza every sol, I had to resort to some less than scrupulous tactics. My artistic sensibilities were at first “challenged,” and then shorn away completely by such necessities as watering down *a single tomato* (and a small one at that) to the point where it could be used to sauce an entire pie. Watching it grow and knowing what would happen in that long gap between Earth shipments, I wished and prayed that the glowing red orb might fatten and multiply on the vine I’m sure that’s what those “visionaries” back on Earth had thought about Mars when they were devising a profitable colonization plan. Like Mars or my tomatoes, the end product was about as impressive as a ping-pong ball in the vastness of space.

Cynicism aside, business kept on steady, and I worked tirelessly at refining my craft. I would see Hilda sometimes, around the hab and during regular inspections, then at her place or mine, and I was keeping up on the latest stacks maintenance techniques, but mostly I was keeping my head down. Quite literally, given that the dough was on a tabletop. Unfortunately, there were things about my stacks – vital ingredients – that I couldn’t stretch or push with hard work alone. For example, *grain* was a bulk item, which meant it had to be grown on Earth. We didn’t have enough extra hab space yet to accommodate fields of wheat on Red. It really filled out a pizza though, transmuting a

simple herb and vegetable combination into a satiating bite. By the time Sid was scheduled to return from Blue, I was betting on him to ensure an abundance of dough between launch windows.

Sid was my Earth agent; the person who would follow through on at least one high-stakes demand when he returned to the planet where we all were born. Those that had been on Red for more than 10 SRs knew the necessity of such a person. Agents would speak on your behalf, to fellow Earthlings, in a way that a 4-to-20-minute response delay – the time it takes messages to reach Earth from Mars, depending on planetary alignment – could not. His was a simple job: Return to Blue; talk to suppliers; send back a half-ton of *pizza matériel*; all within two calendar years.

Again, it was an issue of trust. You couldn't trust anyone who had only ever lived on Earth to fulfill this type of mission. Some would follow through, sure. Others would delay. On Earth, delays are an inconvenience. On Mars, they are two years long and will drive you insane. So, you invest in an Earth agent and do your homework on their character and their vices, mostly by sharing them. I mean, you need someone who could speak for you and who knew the reality of living on Red. On Red, everyone suffered together. Sid was my Earth agent and the shipment I had arranged for this SR was due the next day, October 31. Halloween on Blue. Time to get moving.

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The first thing I did, before the sun had a chance to set over our ever-hazy landscape, was shimmy out through the kitchen window. I timed my egress to coincide with an over-the-horizon window for planet-to-planet communications, so some astronomy grad student back on Earth wouldn't accidentally see time-lapsed footage of me sneaking out of the hab on their satellite feed between coffee runs. And there were other risks when I left the colony. We all had surface suits, in case of depressurization, but they weren't rated for hikes, so I had Charlie C. add some lead lining to the shoulder pads and to my helmet, to minimize the amount of radiation hitting skin if I got caught out

after sunrise. I also had a class-D rebreather, which was forbidden for colonists not cleared for regular surface duties or exterior maintenance work. That's Felix's stack though, so I had an in.

But the hardest thing I would have to do alone, and that was getting through the window itself and braving the cold. The suit and re-breather wouldn't fit through the porthole with their modifications if I was wearing them. So, I would bite-down on my oxygen mouthpiece, open the kitchen window (with the room sealed from front-of-house), and shove the suit and rebreather out, then slip out after them. That minute or so, while I struggled to put on my suit, that's when the Martian climate would have its way with me.

Cold doesn't describe it. After dark, we would routinely hit negative triple digits at our latitude. But after dark was the only time I could travel without being noticed. There were other windows, and hatches with windows, and satellite coverage, and local security feeds, the combination of which would reveal to other colonists, or Earth-based researchers, that I had illegally exited the hab, alone, with a hacked surface suit and a wicker basket. Why the basket? It was for collecting and transporting my secret ingredient, the one not listed on the menu or on the Best Pizza website or on the menu above the counter that hadn't changed in years.

The kitchen was airtight, all 100 square feet of it, but I still had to brace myself, gripping the countertop while I worked up the nerve to depressurize. Instantaneously, I was shaking with cold, heartrate jacked, an experience that was not unlike jumping into an icy stream or lake. This wouldn't do, as an older man, I imagined – my heart would undoubtedly stop - but I tried to think of it like my own form of "Polar Bear Swimming," which is apparently what they call it back on Earth. Here they call it hypothermia and frostbite and death.

I got the suit and rebreather outside and then my skinny ass. The window was about 18 inches diameter, and it always made me nervous to close it from the outside. There was a chance someone would come. Sage, who made up my entire front-of-house staff at Best Pizza, hinted that

she knew about the window but that she didn't care, although there was always a risk of her alerting some busybody bureaucrat. Hilda wouldn't lock me out. But Cal might. That was her daytime counterpart on inspection duty, and his presence always made me uneasy. Cal was a hulking fellow, but cleverer than you might first suspect. His eyes – grey and beady – were a giveaway. Somehow people still trusted him. I did too, as far as I could throw him, and I'm surprised they let him keep his job (or his head), as cruel as he was. He had kept people out on the surface of Mars before. For fun. Cal I never trusted.

I had it down to 45 seconds, the entire egress process, re-breather included. Then, I killed the interior lights, remotely, as I had left them on, dimmed, to help me see my own equipment on the surface. In the helmet, I could clearly hear the wind across *Valles Athabasca*. Through tiny cracks in my field-of-view - remnants of innumerable dust particles tossed towards me by the prevailing winds - I could just make out the launch platform, which was always lit at night. "We're here," it seemed to be saying, to a home planet that couldn't possibly notice or care.

It was 3 kilometers almost exactly from the receiving dock to where I would collect my Earth-based ingredients pallet from Sid the next morning, but that night I used the pulsing red beacon atop the control tower to guide me Northeast, away from the pad and towards a rocky outcrop that looks like something you might see in hewn-out riverbeds all across the southwestern US. There was no visible Moon, of course, and Phobos was a fraction of the size of Luna (Deimos hardly rated), but I could clearly see the layer-cake stratigraphy of the ancient streambed using my HUD's infrared setting. The rebreather was doing its job and I had 25 minutes before I would be forced to learn how to breath the thin Martian air. Plenty of time.

In a sort of box canyon, up the streambed, was an overhang forming something like a cavern, beneath which Martian fungus would regularly sprout. Nobody knew about that spot but me, although scientists had identified other fungi species, and some mosses, at research stations

along the Martian equator. It was assumed that there was no natural, indigenous plant life within 100km of the settler colony. I knew better. The fungi were tiny, but as distinguishable as their mycolic cousins on Earth. I wouldn't put them on a pizza whole, as there would be questions about where I had gotten them. Instead, I would grind them up, in an old fashioned *molcajete* that I had shipped in on SR-25. The resulting "seasoning," which I kneaded into the dough in small amounts, was salty – briny even - like a dried seaweed powder. I sometimes imagined a deep-sea churning once on the surface of Red, right in the spot where the colony now sat.

The night before the landing I had the big wicker basket and my quota was meant to quadruple. That's what it would take to meet my transaction fee; down payment on shipping costs for the pallet from Earth. Other pizza places back on Earth had begun using Martian Mushroom Powder (MMP) in their crusts instead of kosher salt, and Sid had met with a consortium of such businesses only weeks before. The group negotiated for 100 pounds of fine red powder. I was up to 96 lbs. in storage, plus whatever remained in my own personal stash. But, as I say, consistency is key when it comes to running a business, on Red or on Blue, and I was intent on remaining "The Best." I hadn't sliced a pie that didn't have a mushroom crust in many landings, and there was plenty of repeat business. Hence the last-minute push the night before the landing.

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The act of gathering was anticlimactic. Stoop; grab handfuls of tiny mushrooms; shove them into the basket; test the weight and sieve the dust out simultaneously with a few bicep curls; continue gathering until you have enough. Soon the basket was stuffed full of broken and bruised blue caps whose color contrasted sharply with the Martian soil. Oftentimes, I would wonder if that species was from Earth or if the Earth-based mushroom species I knew from undergrad self-experiments were from Mars. Whether either had managed to travel between the planets. Idle thoughts.

I was in and out of the cave in 20 minutes, and back to the hab just in time to hear the 2-minute chirp from my rebreather. Cutting it close, but no problem. I shined my wrist light at the porthole, to find the latch, and caught a glimpse of something thru the glass. A notice: Official paperwork, complete with The Company emblem, taped to the inside of the glass. The form was facing outwards which told me two things: It was Cal who had caught me and the porthole was locked from the inside. I tried to open it, out of desperation, but my instinct was correct. I had been trapped out on the surface of Mars by a sadistic technician. The paper was a citation that I most likely wouldn't live to answer.

Luckily, by that point I was disturbingly good at being alone. On Earth, solitude was a choice. On Mars, it was a necessity. That means trusting yourself completely. Usually for long stretches. Looping around the hab, I made for the 7-Wing, where I knew where to find Hilda's apartment window. She had benefits, as a hab tech, and I had spent some time there before.

After the suit meter reaches 0%, on a class d-rebreather, model #324449991, you have approximately 2 minutes left to live. For the first minute, "feel free to move about normally." I had read the words in training, but now they were echoing across bone conducting stereo speakers attached with leads just below my ears on my neck. The voice didn't say what came next, but I remember reading that part too. Asphyxia would dull my senses, quickly, as the last bit of recycled air made its way out from the suit and into the thin Martian atmosphere. Then, I would be crawling. But not for long. A minute maybe. The last minute would be spent near consciousness, sprawled on the scree. Hilda opened her window – a violation – after I had been banging for about 30 seconds.

"Trick or Treat," I muttered, before passing out, my feeble attempt at humor referenced an Earth-bound holiday that we barely celebrated on Red. It took me all night and the next morning to recover from the outing, but I was back to open the shop at 11am. Regular hours. Hilda had

grabbed my basket after I passed out, from outside the window, so my livelihood was secure. When I woke up, more fully rested than I had been in many months, I was pissed.

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So, I dosed him – Cal - which is something I would never do back on Earth. Unspoken rules of the party scene in Rhode Island that I had long since internalized. Honor amongst thieves, etc.

Wormwood – it’s bitter, although it seems that even an obscene ½ cup of my patented Martian mushroom powder had barely any taste at all. That was one hypothesis that I wanted to confirm, using Cal as an unwitting guinea pig. Or perhaps his salt intake was disturbingly high, which I could believe. He came in for his weekly gratis pie, like all the bureaucrats did, grinning remorselessly.

“What’s your special today, Major Tom,” he quipped, tone light as a feather.

I had nearly died the night before thanks to this jerk and he’s got jokes. Fuck it. I slid the Margherita across the counter to Cal, all the while struggling not to speak or to laugh. We would both be out on the surface in less than an hour, as per SR welcoming party protocol. We both had significant shipments coming in. My palette of raw materials from Sid, and, hopefully, a substantial new order for mushroom dust for Earth as well. God knows what Cal was expecting in his shipment from Blue. Nothing good, I’m sure. Only the most disturbing perversions of truth and beauty could be associated with such a sick individual. But perhaps I’m being too hard on him. Either way, it was too late to cut Cal a break; he had eaten half the pizza in less than 2 minutes.

Nothing was obviously wrong until just before we hit the air lock. We were leaving the hab in groups of six at a time, a company man – Sanders – was in the lead, to ensure order and the timely retrieval of goods and personnel from the landing pad. Folks can get a little crazy on SR day. In Cal’s case, he had an excuse. The mushroom powder was starting to kick in.

“Haven’t seen rain like this in years,” his voice was melodic, wavering, and decidedly soft, not characteristics I would ever have associated with the gluttonous brute.

While speaking these words, Cal was looking over Sanders' shoulder, out the airlock porthole and onto the surface. Of course, there was no rain. In billions of years there hadn't been rain on Mars. The closest approximation was a departing sandstorm, which could appear as red tinted Earth-sleet in the right morning light. Right then, the surface was still.

I should have known, having spent so much time kneading my dough with it: Like their Earth-bound cousins, my secret ingredient had hallucinogenic properties. I had been exposed for years, but more slowly. The effect was a pronounced reclusiveness, which was common on Mars and therefore undetectable. My ongoing experiment with a higher dose – a *heroic dose* – had within 40 minutes brought on a Martian death trip, with Cal veering suddenly off the walkway, babbling incoherently. He meandered up to and across the launch pad, a good 25 yards past the landing pad, all before Sanders noticed. Cal was heading towards the sheer drop at the far side of the caldera. He didn't even break stride when he stepped off the edge, but his body seemed to hover, in Martian gravity or by the grace of god, before the inevitable plunge. Sanders was running towards where he had fell, but everyone else – including those several groups that had arrived at the landing site before us – just stood and watched. No one was in a hurry to help out.

Comms broadcast a static crackle for a full minute; I guess radio silence will do for a eulogy on Red. Eventually there were lights and sirens too, as official protocols kicked in and Sanders' counterparts joined what they referred to as a "rescue party." Cal wouldn't want to be rescued, I knew, and, anyways, his air was long gone and his bones were broken. I wonder if the warnings in his helmet caused the same terror they had caused me the night before, or if the mushrooms had dimmed his lizard brain sufficiently to ensure a peaceful suicide. These were mere curiosities. I was over it, although I still had one question lingering question: *Where were the mushrooms leading him?*

Minutes later, Sid's ship descended with an awful roar. From the heavens came a Starship v.4.2, sandblasting the dusty concrete platform and generating terrific amounts of audio feedback

and clipping across all comms. Everyone had their visors down to minimize retinal damage from the engine glow. We rarely saw such bright light on Red. Sid was nonchalant, like always.

“What a welcome party!” he smiled when he saw me, reaching out a hand but looking around at the rescue vehicles – lights strobing.

“Cal just killed himself,” I responded, not gloating.

“That motherfucker had it coming for years,” said Sid, ending conversation on the subject.

“Ready to get your stuff back to hab?” he asked.

“Everything make it?” I was nervous again about the shipment that was owed to me.

“Oh ya, and then some. Also, I got a big order for you. How’s supply? Did you hit the target?” Now it was Sid who was acting nervous. Earth agents were motivated to make deals in the time between launch windows, and I could see that he had made some promises to serious people back on Blue.

“It’s all ready,” I smiled, putting my arm around his shoulder as we wandered back down the path towards the hab. The palette would be transported by ground crew to “Best Pizza” in the morning, and that same ground crew would bring back to the ship a box labeled “Souvenir Martian Sand,” complete with a stamp of our mascot, *Little Jimmy Red*, holding high a toy rocket across the seal. Officially, blast off was scheduled for the next day at 10am – gotta keep things moving during the launch window - but just then I had an idea: Why not blast off tonight as well? Thanks to Cal, I knew just how much dust to add to the new chef’s special.