

Notes in the Storm

The airlock handle twisted shut with a satisfying thunk. Veronica Ndoma allowed her gloved hand to linger on it for a moment, savoring the safety it represented. She could still feel the vibrations of the intense storm through the thick door. She removed her hand and checked the time again. 15:44 hours. Her mind reeled – she had planned to stay outside three minutes past curfew, not twenty. She had no explanation for the delay, nor any clear memories from the extra 17 minutes. The airlock's inner door cycled open, interrupting her reverie. She stepped through for decontamination.

The Verdanne System had entered Veronica's awareness five years earlier at university, and remained in her imagination ever since. The system contains over a dozen planets, two of which harbor life – Verdanne IV and V, both rocky planets with oceans. 'Four' is the closer of the two, orbiting at the inner edge of the habitable zone, and remaining hidden beneath a dense, steamy cloak of gases. Roiling clouds perpetually billow from impenetrable jungles, rising unchallenged to the very limits of the atmosphere. Two vast continents straddle its equator, both forested and sharing a biosphere unlike any other.

The composition of the atmosphere resembles Earth's, yet is not breathable. Every lungful contains enough predatory biomass to kill within the hour, necessitating the use of space suits even on the surface. Life teems on Four with a ferocity that defies description, making it one of the most hazardous environments for both humans and machines. The ambient conditions dictate everything from daily research to planetary flight schedules. On approach to Four travelers wait in an orbital station for the right conditions to make the drop to the surface. Periodically columns of calm air that resemble the eyes of hurricanes penetrate the oppressive clouds, offering brief windows suitable for flight. Descending through such a shaft offers the chance to witness cross-sections of towering landscapes written in water vapor, laced with organisms that gleam in vivid colors. Innumerable gradients of gold traverse the upper reaches of the atmosphere, giving way to rich coral pinks, finally yielding to turquoise hues infused

with teal at sea level. Its singular beauty borders on the fantastic, matched in intensity only by its lethality.

Veronica could not believe her luck when she finally received the confirmation letter for her posting. Four is one of the most hotly contested research sites in the known universe. Thousands of applicants compete for one of the fifty slots offered semi-annually. Winning one grants the recipient a six-month window to conduct experiments, after which most return home. A select few will be chosen to remain and continue their work. Entire careers can be made by securing an extension. The handful of scientists whose projects survived multiple years became luminaries in their fields.

Her research had gotten off to a good start. Her swarms of hardened ‘midges’ proved to be capable fliers in nearly all conditions. A single midge could fit in the palm of your hand, yet its composite shell could withstand intense radiation, heat and corrosion. But they could not yet survive a feeding storm for more than a few minutes. That goal was the main focus of her posting, to enable real-time observation and measurement within a storm. She had made great strides towards increasing their survival times, more than doubling the flight duration since her arrival, but they were nowhere near the elusive target of ‘impervious.’ To be fair, it has been a persistent challenge for more than a decade. No one expected a first-term researcher to show up and break that Gordian knot, however Veronica’s work showed more promise than any of her predecessors.

Thus far the only structure exposed to the elements that met the impervious criteria was the station itself. The main body was a titanium hemisphere one hundred meters across, mounted atop a stone foundation. Immovable windows punctuated the exterior at regular intervals, precision-fit with ceramic adhesives. Flexible gaskets broke down within days, thus any moving part on the exterior required metal-on-metal contact when closed. Achieving seals of this type required sub-millimeter precision, necessitating strict temperature controls to prevent expansion or contraction. Even a one-degree variance could cause a door to jam or not seal.

Mercifully, the storms cycled through observable stages that permitted daily curfews to be set. These patterns allowed for more outside activity than would

otherwise be possible in an environment so hostile, mostly during the morning hours. Each day during the early afternoon the clouds begin to move, driven by accumulated heat from the sun. Bands on either side of the equator rotate and organize into opposing vortices, then coalesce into massive continent-sized cyclones, one in each hemisphere. The northern system centers just off the coast from the station, [its site having been chosen for this purpose]. Once vortex formation had begun the count-down begins – fifteen minutes allotted for normal ingress, thirty minutes until hard closure. Anyone still outside after that would need to access one of the emergency airlocks, followed by a stringent decontamination protocol. Yet as harsh as the protocol was, it paled in comparison to the grilling one could expect from command for staying out past curfew.

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The extreme strictness is justified. The storms on Verdanne IV are more than just weather systems. They are alive. Once a critical temperature is reached, living creatures take over from the sun, and drive the entire swirling mass into a fury that is unmatched in the natural world. For every action there is an equal and opposite reaction. The reaction to trillions of tiny organisms devouring each other in deadly flight is a feeding storm spanning tens of thousands of kilometers, multiple times larger than any cyclonic disturbance on Earth.

Perceiving the true scale of something requires a frame of reference. Without one an observer's mind can fool itself that it comprehends stellar masses or planetary bodies, neatly storing them in memory as circles with bands of color, and tagging them with the label 'large.' This failure of understanding goes uncontested because there is no connection between the two parties, and thus no attempt is made by the observer to compare their own size to that of the distant object.

Conversely, witnessing structures built on a human scale can make a much deeper impact. Standing alone in the center of a professional sports arena can overwhelm the senses, as one can just make out each of the tens of thousands of seats that would hold a person. The connection to a known artifact such as a seat establishes the connection. When the observer then moves their gaze around the stadium, they can momentarily process the size of something that could hold seventy thousand people at

once, imprinting a memory that is much more impactful than a large circle with bands of colors.

On rare occasions the natural world bridges this gap. A cloudless blue sky will elude the senses, and get remembered as a featureless blue volume. But add a thunderhead towering from the horizon to the stratosphere, and a window will open. The barns and cities fading into the distance serve as seats in the arena, offering a connection, gossamer-thin, to the distant storm. The link provides a frame of reference, snapping into sudden relief the volume of space occupied by the menacing anvil cloud. Then, but for the briefest of moments, the true size of the same sky can be glimpsed, effortlessly eclipsing the massive storm with its own vastness. In that moment the sky transforms from the simple blue box into its real self, snapping the elastic of the connection. The mind recoils from the dissonance caused by trying to contain something so large. Memories can only retain the tiniest shard of the experience, yet the observer is forever changed.

Feeding storms are bigger than that. And harder to disconnect from. The presence of organic life within lends them a texture that appears tangible, nuanced and familiar. Everyone who has seen one is convinced they are seeing a single living organism, one that towers higher than any thunderhead and reaches from horizon to horizon. Observers remain transfixed, desperately trying to digest its raw scale. Nothing in our evolution prepared us for this juxtaposition of fine-grained detail and magnitude. At this point most shut their eyes or look away, forcibly breaking the connection. The experience is so powerful that many describe the storms with language bordering on mythology, endowing the storms with supernatural abilities. While it is easy to dismiss this from afar as mere fancy, it is a comparatively small leap when trying to make sense of something one knows is alive, a phenomenon that only intensifies when something goes wrong.

The first person to vanish was Sanchez, a tough, stubborn engineer in charge of building the station's foundation. Construction in the early days was grueling and dangerous, requiring ingenuity on a daily basis to survive. Deep-sea submersibles

served as living quarters, held fast to pylons driven far into the soil. The cramped habitats fostered tightly-knit crews, each fiercely loyal to their respective teams.

Sanchez led by example, never asking anyone to do something he would not do himself, earning him deep respect from the workers. The day of the incident was an example of this ethos. One of the welding tanks had become loose in its harness during the early winds of the storm. If it broke free during the onslaught of the storm's main phase it could take out an entire habitat. Sanchez went out amidst growing winds to lash down the swaying tank. The other crews watched through portholes as he wrestled it down by hand and tied it off. Cheers arose when he gave the thumbs-up signal and moved to return. Then everyone went silent as he stopped and turned to face the wind, arms wide. Disbelief gave way to terror as they watched the growing storm dismantle him.

Two weeks later a welder, Jeremy Hsu went the same way. Nothing biological remained. Only the metal skeleton of his helmet and a few other pieces of his suit could be located, found strewn around the site. Signals sent from the suit immediately prior to his demise indicated neither substance abuse nor foul play. No medical explanation could describe either man's behavior, a void quickly filled by the rumor mill. Nervous workers suggested everything from possession by spirits to tranquilizing nano-particles that bypass suit filters. Work nearly stopped due to rising panic levels.

Work shifted to teams of two, harnessed and roped together, with the hope that both would not be affected simultaneously. Construction of the main facility was completed without further loss of life. Sanchez and Hsu were remembered by a plaque engraved into the foundation stones of the station.

Scientists, as a rule are not a superstitious lot, and after a few years without further incident were content to write off the peculiar occurrences as coincidence or random events. They pushed for, and eventually succeeded in lifting the two-person requirement for field work, believing the risks to be overstated. The maintenance technicians and other support personnel, however, drew very different conclusions. Many had come from old seafaring families back on Earth, and brought with them centuries of beliefs and traditions. One half of the cantina staff believed the planet was

haunted, and the other half thought it cursed. Those working in the physical plant thought the planet was working to expel them. Their workshop, located in the stone foundation beneath the motion dampeners of the station, experienced eerie sounds and tremors emanating from the resonant vibrations of the daily storms. They attributed these to the actions of a malevolent being, angered by their presence. Commander Lakshmi Singh had grown accustomed to these different customs from trades people, and did not give them much thought.

The tone changed when a member of the scientific community went missing. Evgeniy Sergeyev was a botanist working in his third extension, having made major finds in the local flora. He was well-respected by his peers, and had an easygoing, approachable demeanor. He was also an accomplished concert pianist, and enjoyed playing in the cantina during the afternoon storms. To this day it remains a mystery how he managed to get clearance to bring an actual piano to the facility, and no one felt inclined to investigate. His afternoon performances became the highlight of the day for many, earning him followers from every corner. He had a singular ability to play a selection that soothed the nerves, that people would say in hindsight was exactly what they needed to hear. He claimed that each day's storm resonated with a different harmonic, and he would choose music to match.

Everyone who was there that day can tell you what they were doing when they heard the news that Evgeniy failed to report for curfew, such was his popularity. The next day rescuers found the remains of his helmet. The final minutes of suit telemetry were incomplete, but enough data remained to paint a scene that was uncomfortably close to that of Hsu and Sanchez.

The rumor mill shifted into high gear. Small groups could be seen in the hallways, speaking in hushed tones about the matter, lest they provoke further misfortune by uttering the wrong phrase aloud. To some extent this behavior had always been present, so it did not overly concern Commander Singh to see an uptick in the days after his disappearance. However, she was surprised to see members of her staff and esteemed scientists actively participating, and decided to take action. She avoided commissioning high-profile medical investigations, since she expected them to

find nothing, which would further fuel the issue. Instead, she sought to ground people back in reality. She set up mandatory sessions for people to work through their grief, with each support group comprised of people from every line of work. After a few weeks the place settled back into its regular rhythms, less the afternoon concertos. Despite the outward signs of business as usual, undercurrents persisted.

Veronica stared up through her visor as the first round of antiseptic sprays began assaulting her space suit. She watched toxic biomass sluice off her sleeve and swirl down the drain, still full of organisms busily devouring each other. Participants in the storm. *Just like me*, she thought to herself as some of the memories from the lost seventeen minutes came back. *That was so worth it*. She dared not utter anything aloud, as all suit communications were recorded. She knew she was risking her chance of an extension, and possibly even the remainder of her first term. *Even if they ship me home, I got to feel it*.

The spray nozzles shut off, followed by a green light in the corner. The inner doors slid open, revealing the next chamber. Veronica stepped through, then staggered under the force of a set of air jets blasting down from the ceiling. A red fluid joined the fray, eating away a few microns of the outermost hardened layer of her suit. By the time she reached the fourth chamber her suit would be a total loss.

She rehearsed her story as she shifted her weight from foot to foot, but was interrupted by a new set of klaxons. A mechanical voice filled the room.

“Initiating breach protocol. Room saturation in 5, 4, 3, 2, 1.”

Veronica took several deep breaths then held it as the count ended. The room filled with dense fluid, then pressurized to a depth of ten meters. Her helmet bumped the roof of the chamber as she floated upwards. She blinked. Her face was not wet. She chanced a breath, then two. Cold fluid shot into the back of her suit at the waist line, confirming the location of the breach. A circular hole two meters across opened in the floor, draining the room of its contents, including Veronica.

Panic set in as she slid into the tube. *What happens next? Do I need to hold my breath again?* She felt truly afraid for the first time since deciding to break curfew. A suit breach can prove fatal if the storm invades your system. She sniffed the air in her helmet – nothing but the stale smell of hoses, a good sign that her airways were not compromised. She knew that the slurry carrying her into quarantine reeked strongly of antiseptic and chlorine, and if you could smell it then you were in deep trouble.

She floated to a stop under harsh light, mildly aware of a burning sensation in her low back. The remaining fluid drained and she found herself lying on a low stainless-steel bench. Two medical servitors deftly cut away the external layers of her suit, starting at her sternum and tracing the circumference of her torso, turning her over as they went. They blew forced air while cutting and injected a sealant. When they were done, she was left wearing a tight gasket around her mid-section, above which she still wore her space suit, and below nothing but a tight thermal layer. Lying face-down, the remainder of her suit and helmet propped her head and shoulders above her hips, reminding her of an awkward yoga pose. Her stomach and thighs quickly began to chill where they contacted the cold metal surface.

Three people entered, all wearing hazard suits.

“Veronica, can you hear me? Good. Lie still, we need to evaluate the extent of the breach,” the lead figure spoke.

Gloved fingers probed her low back. She was unable to tell if her skinsuit was intact or not, and fought the urge to reach back and check. Her mind raced. She recalled from training that the tight gasket is used in amputation procedures, causing her to clench her fists.

“Please try to relax.”

She felt a syringe plunge into her left leg. *Oh no.*

Bright lights greeted Veronica as she woke. She squinted, then looked around. She sat propped up in a medical bed. Panic rose in her chest. She reached down and

touched her legs, then exhaled a massive sigh of relief. She wiggled her toes, then smiled and moved to sit upright. A sharp pain in her low back forced her back down. Gingerly she put her hands on her hips, then moved her fingers around towards her back. She stopped when she felt the edges of a large bandage. Only then did she notice the IV line attached to her arm. She rang for assistance. Moments later a male nurse walked in. She recognized him, tall with close-cropped hair and light brown skin. She had hoped to catch him for lunch in the cantina last week. He wore no protection, a sign she was no longer in quarantine.

“Oh, good, you’re awake. I’m Stanford. And you’re lucky, Ms Ndoma.”

“What happened?” She asked in a raspy voice.

“Hang on, I need to notify command.”

She watched him speak into a console, her disorientation giving way to dread.

“They found darts in your skin. Had to shave off the top layers of a section on your low back. It’s going to hurt like hell for a while, until those grafts take.”

“Darts. Damn. Did they keep them? I’d like to study their interaction with human tissue,” she said hopefully.

“You scientists are all the same,” he laughed. “Yes, I think they did keep them.”

“We did,” a stern woman said brusquely as she entered. Veronica recognized her immediately. Everyone knew Commander Singh, head of the entire station. “We tend to preserve things that are very expensive. Do you know how much your little jaunt cost?”

Veronica swallowed, a futile gesture with a dry throat. She shook her head.

“Never mind that for now. Let’s start with why you were outside twenty minutes past hard curfew, on the first day after stand-down was lifted.”

“I, I thought I had more time,” she stammered. “I’ve walked that distance before. It’s never taken that long.”

Singh stared at her impassively, her expression silently conveying enough doubt to convince Veronica that the light version of the story would not suffice. She had to go for broke.

“The truth is, I am not sure. My location recorder must show a lengthy delay at the edge of the tower forest. I remember stopping there to feel the buzz of the approaching storm. It’s so different to feel a sound with your whole body than to just listen through headphones. Anyway, something happened. When I next checked my watch, it was 15:42, eighteen minutes past hard close. Then I ran.” Veronica exhaled, relieved to tell a story that was very nearly the whole truth.

“Tell me more about that moment.”

“The vibrations were frightening at first. My mind could not resolve the magnitude of the swarm necessary to make the ground tremble like that. I could see the feeding storm taking shape, a hurricane on the horizon, but it was too much. A frenzy of small creatures cannot possibly do that, or that is what my mind said. I guess something snapped.

“Storm-struck.” Singh stood up and walked over to the window, hand on her chin. “You will require an escort to go outside after you are healed.” She stood and turned towards the door, indicating the interview was at an end.

Veronica was conflicted. If she said nothing more, the matter would be settled, and her project would not be in jeopardy. Saying anything else could only add risk. Yet she felt an urgency to go on, but the knowledge of what to say was not yet clear.

“Wait.”

Singh turned back to face her.

“Has anyone else reported the singing? Not people, but harmonies. Like a choir in another language. I lingered a moment to listen. I knew I would be cutting it close.”

Veronica thought back to the moment it started. The ground was already rumbling from the swirling pink clouds approaching from the horizon when the first note appeared. It cut through her mind as easily as a sword slices the air, directly

touching the very core of her being. She remembered that she resonated in response, from a level so deep it felt primal. Then another note struck. And another. Soon they came in overwhelming crescendos. She did not want to move. The harmony she experienced was unlike anything else in her life.

It was only during the brief lull following primary vortex formation that she could summon the will to check her watch. Panic got her feet moving, but she had to fight the urge to go back to the forest's edge once the notes returned with the main body of the storm. Intense sadness washed over her as she entered the door. Her last memories were fleeting images of a dance with an ephemeral being, cut short by her hasty departure.

She looked up at Singh, no longer worried about admitting her transgression. The act of telling allowed her to fully remember the experience, and the music.

Singh sat down.

"You are sure of this?"

"It's hardly the sort of story I'd concoct to convince you of my soundness of mind," she said with a newfound lightness. "I'm sure. I resonated with the storm, or something in it."

The building shook. Alarms sounded in the hall, accompanied by flashing red lights. Station-wide emergency, all hands on-deck. Another tremor rumbled the foundations.

"I must go." Singh stood and moved to the door, then paused and looked back to Veronica. "We are not done. We will talk more soon." She jogged away down the hall.

Veronica gazed out her window at the brewing storm. 15:15 hours, still the early phases. Stanford leaned in and knocked on the open door, interrupting her train of thought.

"Not much for me to do," he offered. "Not yet, anyway. I haven't been through a full system emergency yet. How are you holding up?"

"I'm good, I think. I didn't get sent home, so that is something."

Veronica smiled at him, then her eyes darted to the window. She clutched at her chest. She lifted her other hand towards the window, but could not reach.

“Can you move my bed closer to the window?”

Stanford eyed her warily, curious about her sudden change in demeanor. He unlocked the bed wheels and rolled her over to the wall. She placed her hand on the window, now pulsing with vibrations from the storm. A distant note found her through the thick glass. Several more arrived in rapid succession. Unbeknownst to Veronica, her eyes lost focus and became half-closed, her face entirely still. Stanford witnessed the transformation, and contacted the commander. He gently attached sensors to her head and began recording.

When Commander Singh arrived a few minutes later Veronica was completely in a trance, with her left hand still pressed firmly to the window. She was vocalizing notes, and conducting an unseen orchestra with her right hand. The vibrations increased, bowing the window dangerously inward. Subtle changes in frequency attuned the notes to the harmonic of the window itself, alternating its flex between inward and outward. If this continued unabated the glass would soon shatter. Singh grabbed Veronica’s hand and wrenched it from the window, then pointed furiously towards the door. Stanford wheeled her into the hall. The movements of the window subsided. Veronica lay sobbing.

“Why did you break the connection? It came back for me.”

Singh was about to speak when the entire facility began pulsing in the same manner as the window. Her eyes went wide.

“Mozart. Sonata in C Major,” Veronica stated matter-of-factly. “Tell the foundation team to tune the mass dampeners to its reciprocal.”

Singh narrowed her eyes and studied Veronica, then nodded once and departed.

Three minutes later the building stopped pulsing.

Word of Veronica's actions and their effectiveness spread as wildfire through tinder. The idea that a part of Evgeniy remained comforted some and terrified others. One crew of electrical technicians who trace their roots back to old Portugal claim it is an incarnation of a fabled storm that has stolen the souls of mariners from those shores for millennia. In turn each crew saw it as confirmation of their particular theory.

Commander Singh was not sure what to think. Her scientific background had thus far been reliable in calming such emotional frothiness, but it held no answers for why Veronica's suggestion worked. Within seconds of playing the mirror image of that Mozart piece into the station's dampeners the motion subsided. Occam's razor posits that the simplest explanation is the one closest to the truth, which in this case would imply that not only did Evgeniy persist, but that he can also influence the storms and the life forms within. She shook her head at the thought.

In her report she would say that a curious correlation exists between storm dynamics and terrestrial classical music, and that the latter has proven effective as a means for motion dampening. She omitted any mention of the fact that Evgeniy's favorite pieces worked best on the strongest storms. She considered limiting communications briefly, but saw no justification. People need to talk in order to process their feelings, so let them talk.

Reactions were predictable, running the gamut from fascinating theories to doomsday prophecies. Within days occult groups back on Earth petitioned for access to the planet, with members harboring terminal illnesses seeking a means to join the storms and become immortal. Thankfully such requests were easily dismissed. Verdanne IV was not open to tourism. She did, however, quietly approve the inbound transfers for three maintenance personnel, with surnames Sanchez, Hsu and Sergeyev. She had deep empathy for their losses, and hoped they would find the closure they sought.

Veronica went on to win an extension. Her midges could fly for upwards of an hour now, inside the very heart of the storm. She had uploaded thousands of hours of

classical music to their memory banks, and gave them algorithms for selecting the best fit in real time.

She held up her palm and watched on take flight into the early afternoon winds. She smiled as it adapted to the particular rhythm of this storm, janking this way and that in a seemingly random pattern as it joined the others.

Veronica paused to listen. She stood on the bare soil beyond the foundation, out by the edge of the towering forest. The outermost bands of the storm swirled around her, its winds carrying a few early notes. She remained until more emerged. She held her arms wide.

“Bach. Today it’s Bach.”

She smiled, then turned and walked back.