

WAKE OF THE WANDERER

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DISCOVERY

The expert cannot see as the novice sees. The expert sees possibilities unfolding toward the horizon; her mind grasps only the threads that might be realized. The novice has not yet glimpsed these; they are behind the sea of mistakes that clouds his vision.

But the expert can no longer see those mistakes; she has learned to look past them. If the rules of the game change, and the mistakes come back into play, she will not notice.

This is why one cultivates beginner's mind: We all become experts at our own patterns of living, miss possibilities, lose flexibility. But this practice is—in most respects—about seeing past the filters we have learned over the course of our own lifetimes. Evolution made us experts at living on Earth and under its Sun; that expertise is wired into our genes. How will we see past the possibilities of our distant home? How will we see as beginners under other stars?

—Viktor Goto, *The Notes of Viktor Goto, Renouncer of Oneiri Station: Juvenilia*, compiled by Elitsa Han.

CARLOS STOOD under the sun and focused on its warmth. He could feel the heat map on the surface of his skin adjusting. A simulative layer reacted to his attention, its procedural mechanisms working to keep up with his perception. The act of noticing was all it took to conjure in this place.

He walked the shore of the obsidian beach, clumps of black sand crunching beneath his feet. This was the site of the great battle: the place where Viktor, the first Renouncer, had been confronted by the *Other*. Carlos had been cast into this part of the Dream World by chance. He had come here to meet with Asumi, but, given this opportunity, he would delay linking up with her a bit longer.

Other Renouncers had walked in Viktor's steps before, finding traces of his resolve, or the memories of Owen or the other untethered he had stitched together. None had yet surfaced any sign of the creature Viktor had reported encountering, but when any Renouncer found themselves here, the strands of memory cast throughout the shore demanded attention. Carlos now felt that call.

That time was so long ago; the memories had been tossed by the sea, broken into smaller fragments, worn smooth—like the grains of sand that made up the beach. Carlos examined those pebbles of memory, opening himself. Sensory recall came first: the smell of rust, the feel of air blowing through him and chilling him, hairs standing up into gooseflesh. After he had a foundation in those scattered sensory experiences, he ventured out—constructing a map from raw perception to language and self-reflection—and began piecing those atoms together into conscious awareness. The awareness was anchored in its own long-gone present; it was like standing inside a ghost.

The sensory overlay warped; he was looking through the lens distortion of another's memory. The area had changed

little—only the waves were off. He could switch his view back and forth from his present to the other's past, though with a little difficulty. Like shifting between two interpretations of a visual illusion; he couldn't hold both in mind at once.

Wait—something in the sync was off. The tint of the sky above the waves... its color was wrong, the blue too deep. The clouds he expected were ridged and contoured; they looked like chunks of ice. The source of that image was neither in his present nor the overlaid past—he only glimpsed the misalignment when he switched perspective. A sense of warmth seeped through him in those moments, like the tingle of electric current, heating him with its *wrongness*.

That warmth—he had never felt anything like it before. If Asumi were... He was pulled suddenly at the thought of her. At first he mistook it for the usual signals wired into his body, back in the hospital where they were dreaming. But it grabbed his conscious awareness and jammed itself into his inner monologue: *Yes, go get her; return here.*

He jumped, breaking from his walking meditation both mentally and physically, then tried to snap back to the thread that had just hijacked his thought. *No, don't lose it...*

He could feel the compulsion to find Asumi still pulsing through his mind, now rooted in his own thoughts—he had delayed and was overdue to meet with her. He scanned through his thinking, trying to unify the past and present he had grasped earlier, to find where the thread had pulled at him.

It had been like having another Renouncer present.

“Viktor?”

His voice rang out through the beach. No answer.

Asumi would be waiting for him. He turned his atten-

tion to the task of locating her, feeling the small tingles of sensation that passed from the waking world into his awareness here: turning, turning—northward.

He took a moment to see if he could find that pull again. Nothing. *North, then.* He ran, his legs lengthening with each stride.

ASUMI MADE her way south along the stone cliffs that lined the coast. There was a clear break between the ridge line and the tufts of land that seemed to bob under the sea waves to her right. She sat a moment, dangling her legs in the air from the top of the cliff, and looked over the patterns of filmy moss that dotted the stone anywhere it was exposed to the sun.

She turned back to her task. She was here to meet Carlos. She sank into monitoring the sensations in her own body, searching for cues that might point her in his direction...

A sound echoed like war drums across the landscape, jarring her out of her meditation. She stood up, saw a figure sprinting toward her in the distance. She had no time to prepare or process; it was Carlos, and he was already here.

Something—someone—was active on the south shore. I think it was Viktor. He turned—not waiting for a reply—already running back. She followed him, running automatically, increasing the length and muscle contraction capacity of her legs, hanging just back and to his left. She ventured into Carlos's awareness, found a strand of it regarding her, ensuring she was keeping up; otherwise, he had poured all his effort into leading her back to the black sand shore to the south and the recall behind *why*.

Asumi had never felt Carlos so shaken. They were on a routine excursion—a series of sleep cycles spent on Vaskania Prime’s surface instead of Oneiri Station, where the Renouncers made their home. Each subjective night, they would don the wires and electrodes, link the IV and their ports, and fall asleep. They would wake up in the Dream World—here—and find one another. They had journeyed together this way many times before, and thus far—at least in her assessment—nothing out of the ordinary had occurred.

Carlos was starting to slow down. The cliffs before them became more uneven, then turned into a series of boulders, eventually giving way to stretches of black sand. The coast was lined with ripple marks, the glassy sand reflecting back the blues and reds of the sky. Carlos stopped a short way into the sand bank and Asumi paused just behind him, carefully monitoring how he was directing his attention.

She could place him precisely via proprioception, as easily as locating her own hand. She could feel the sensation of his foot on the rock, thinking through his sensorium at will. He regarded her with that same prudent curiosity in their connectedness, honoring certain boundaries, ignoring others. This was the mindset all Renouncers cultivated in their practice. In the Dream World, to find and work with others of the order was to encroach on the personal space of one another’s minds. This was but one more thing to be renounced: the privacy that comes from being a mind to oneself, and any illusion about what goes on in other minds.

They were melded now. Carlos was cultivating a relentless focus. Asumi responded by stretching her awareness outward, monitoring all around them: a shimmering, periodic curiosity that illuminated their nearby surroundings. In this work they were like the satellite arrays the machines

had set in various orbits through the Vaskania system: a network of lower resolution sensors locating anomalous or interesting phenomena, and a focused lens shifting its aim and uncovering their detail.

Carlos was backtracking his own steps: a difficult task in the Dream World. The landscapes of this place were imprecise, their impact on perception was rough and fluid—realized only through the act of traversal and observation, projected from some lossy, unknown medium. There were monuments and features of the landscapes that the simulation deemed important in its way, and once these were seen, you could then make progress in their direction. But their objective now was a shoreline; the specifics of the coastline and its infinite fractal dimension would vary on each encounter by a human observer. Their best hope would simply be to walk as much of its length as they could manage.

They were looking for the fragment that had spoken to Carlos earlier. Asumi could feel his recall play out again. He rummaged through it, cautiously appraising its veracity, then turned back to the thoughts he could scan from the beach, like sand through a sieve.

This was *that* beach then—the place where Viktor had confronted the *Other*. She knew Carlos would not be the first to have felt a fragment of the first Renouncer's memory here. The work Viktor had done in reconstructing the minds of the untethered had only been matched by the effort of Elitsa Han and his successors. They had finished what they could of what he started, saving most of those who remained untethered after his disappearance. Walking the Dream World, you could still feel the echoes of that time pulsing through you.

But in his work, Viktor had encountered something else,

something of which Elitsa and the others had found no trace. A creature—an alien, many believed. At least, most of the Renouncers were convinced that a genuine alien encounter was the source of Viktor's account. One observer, no witnesses, no remaining evidence—but they knew the efficacy of Viktor's techniques, the clarity they produced, even in this murky world which captured their dreaming selves.

Still, no one was infallible, and no others since had found a trace of anything alien. Maybe the alien—assuming it did in fact exist—left no residue in the Dream World. Or perhaps it had just been much better at cleaning up after its own thoughts.

Asumi was now fully linked with Carlos, opening herself to his memory and perception, immersing herself both in his earlier and present experience of the place. He could feel the sense of *otherness*, the trace, separating it from himself. And now she could too. There were familiar sensations: grains of sand between the toes, the roaring of waves diminishing to a background hum after repetition, a sudden breeze blasting salty air in time with the waves breaking on the shore. These were human sensations. Inside that, though, something else. The red sun warmed them, but digging deep into the residue, they felt a different kind of warmth spreading through them, heating them.

They were standing at the shore, had felt some basic human comfort there between the warmth of the sun and the rhythm of the waves. But now they felt dissatisfied, dried out. A longing for other comforts emerged; it took offense at the directness of the red sun, objected to the effort the musculoskeletal system exerted as it stood upright against gravity. It wanted to retreat from these hardships to which the human body was habituated. That

longing again, as if being pulled under the water, being immersed in the current and jetting away at high speeds was the most natural, comforting thing in the world. Like wrapping up in a warm blanket. A pure, care-free release of active-doing.

Here. That was it. The word formed in their minds—the first Renouncer. A *Viktor*-ness was there, its resemblance to the memories from his era was unmistakable. Carlos had felt this character to that thought earlier, had matched it to sensations of Viktor he had encountered before. He had not hallucinated that pull—it beckoned; it had a purpose, small fragment that it was.

Follow this. Carlos and Asumi probed each other to confirm that the other was willing, but that brief hesitation was a formality. This was what they were here for. They followed.

VIKTOR'S FRAGMENT had urged them south along the edge of the shore. They had followed its nudges as though they were hunches they both shared. As they turned or moved around, a subtle satisfaction or dissatisfaction would rise within them; this thread of Viktor had been woven into them as if it were an additional neural input wired to the stomach's sense of fullness. If they focused their attention on the sensations, more concrete words or images would come to them, but it took time, as if that thread were manually tapping out a binary signal over a wire.

They were at the shore's outer edge, on an outcrop of rock, looking down over the sea. Tall waves crashed against the stone below.

Go. Viktor again. Asumi explored it, felt its earnestness.

They were both skeptical; she could feel Carlos raising his guard.

Into the sea? They would be swept away. Asumi opened her perception more, feeling her way behind the urging. New images began to appear in their minds: a pocket of stone, a sandy shore, a tunnel and—beyond that—darkness. Sounds echoed, coming from an ingress. It was below the rock they were standing on.

Go. Asumi and Carlos pooled their thoughts. It could be a trap of some sort. That alien, mysteriously absent since Viktor's encounter—could it have captured and reshaped him? Using him, or some thought or intention it had learned to mimic, as a lure? What if they became untethered—their bodies left mindless, as those in Viktor and Elitsa's era had been?

It seemed the only real risk to consider. There were dangers in the Dream World; these would lead to discomfort, pain, terror—many forms of hardship were possible. In the end, though, the dreamer would wake up. They would recover in the waking world and eventually return here when they dreamt again.

But maybe it was a fallacy, Carlos considered, to frame this in terms of their existing expectations. This active, disembodied thread of Viktor was something new. The risks to which they would be exposed could also be new. The situation was entirely out of their ordinary context. If it were the *Other*, the threat might be much more insidious. It could infect their minds, reshaping them into its unwitting agents, sleeping inside them, waiting for just the right cue.

Asumi was feeling out the details they had to work with—exploring the disposition (such that she could discern) in that fragmented urge from Viktor—considering what possibilities were open. She could feel no hostility.

I think we can merge more. Her unconscious was at work already; she and Carlos were wrapping around one another, manifesting fins and tendrils that extended from their now-shared body. They were becoming an inhuman composite, a melding of two that might hope to navigate in the water. *If we can find a spot where the current is just right...*

Yes, yes. I can lead. It was—had to be—Viktor. What could be contained in that fragment? It had been obvious earlier it was more than a memory; there was some process of his that was still active, but how much of *him* could be encoded there? It had direction and purpose but little else. Like finding someone's appetites and plugging them into your brain's signal processing with the rest of your body's inputs. How much could you trust the appetites of someone good-natured—was any of that good nature in the appetites, or only in the now-absent parts that restrained them?

We know the way. There was something else hidden inside Viktor and that urging. The earlier sensation replayed (a memory?)—falling into the ocean as though it were a warm blanket. *Trust.*

As in all understanding, Carlos began and Asumi finished, *nothing ventured, nothing gained.*

ASUMI-CARLOS HAD TRUSTED that additional instinct at the beckoning of what they hoped really was Viktor. Their reshaped body contained smaller holes through which the flow of water could be directed into and around them with precision. Tentacles and spikes could navigate, anchor to the rock and use it to make a slow but sturdy progress along the underside of the stone outcropping of the shoreline. They were not sure if their configuration was something they had

envisioned on their own, or if they had been fed the ideas by Viktor, or by the other set of sensations he had brought into them.

Now in the water, they let that trust continue to guide them. They were going faster than they could have managed on their own—the way getting pulled out to sea by one of Earth's riptides must have felt. But the movement was purposeful; they probed the side of the rock above that made up the shore line, found their way down into a crevice. They were navigating the currents instinctively—it had to be the other memories smuggled in through Viktor's fragment—hopping between currents and the directions in which they flowed before Carlos or Asumi could notice any difference in the water.

As their movement was being guided by another, they shifted their attention to monitoring their joint perception. Asumi could feel sensations in their body reacting to minute differences in pressure and temperature. Carlos followed, focused more on these—tried to resolve some visual correspondence to these sensations, but couldn't. He could reason through it, though. Those differences in pressure must correspond to depth contours, the temperatures a proxy to the underlying dynamics which gave rise to the currents. It was like having a transit map, given the ease of navigating with those urges. It took them out from the shore some distance, changed current and direction, then pulled them back in again, but at a wide angle, eventually moving back underneath the rocks of the shore.

Asumi breathed in. It was as simple as remembering you could breathe at any time, ignoring the cues the world fed you in dreaming. Carlos was looking directly ahead of them, waiting, struggling to hold back the impulse to extend a tendril and anchor to this or that rock and brace for impact

before being pulled away. The contents of his vision moved too fast for any conscious interaction, but there was hope that if any sudden danger emerged, and that other thing guiding them did not stop in time—or did not have their best interests in mind—then something of his or Asumi's unconscious would have time to react before the scenery accompanying the danger resolved in their visual awareness.

The rock was hard basalt throughout and would hurt—rather, it would be a limited simulation of painful—on impact. Any real danger in this situation would be what they were being pulled to, and what was behind the pulling. They caught and redirected their caution almost at the same moment, cueing off the processes of reasoning in each other's minds and reaching similar conclusions at once.

They had submerged completely underneath the rock, navigating an underground channel. The trajectory they were following in the water had arced upward, toward the surface again. Their speed reduced and they came to a stopping point, though still at high enough speed that the tendrils—their tendrils, Asumi reminded them—extended instinctively in front of them, bracing. It formed a spring or coil, absorbing the shock of impact, then redirected, bouncing them out of the water onto a small rock ledge.

The blur of the water and their high speed navigation had settled back into a scene more suitable for human eyes and brains, though there was almost no light. Asumi was dilating their pupils, tweaking the range of frequency response they could tune into—at least what the Dream World made available—as Carlos peered around, beginning after several moments to detect edges in the rock features around them. Dark gray on black, that was all they had, but

he traced out the mouth of a cave, formed the shape in their minds. *Here?*

Here. Through. Careful. That thread of Viktor again. And there was something else it had tried to convey with that warning. Carlos was concentrating on it, but could only resolve a texture. Segments, ridges, a leg, a sharp protuberance. He stopped then, had an inkling; Asumi was following his thoughts. Carving, tunneling, an appendage for that purpose. This cave was a burrow of some type. The thread had only been able to convey a few aspects of the creature's makeup, but it must have been one of the arthropod creatures they and other dreaming humans sometimes encountered and occasionally fought with or were ambushed by, at or around the surface or just underground. They entered.

A FEW STEPS into the tunnel, and all light departed. There was very little sound; after they had flown with the other creature's impulse through the channels and ended up underground, the silence had stunned them. It was easy to forget how windy the surface of the Dream World was, especially near the shorelines. You got accustomed to it; your unconscious tuned it out. But when thrown into genuine silence from there, that silence seemed to suck sounds out from inside you and surface them. Their footsteps let out crunches at the slightest contact with the ground of the tunnel; the breaths of their intertwined form were uneven, another deep resonance to the tone, air working at a low frequency just at the border of audible. There were a few distant echoes from drops of water elsewhere in the tunnel system, but the uneven structure and

narrow chambers made it difficult to determine where it might be coming from.

We can't stay blind here, Carlos thought—Asumi agreed. She searched herself, Carlos, themselves, the configuration of their bodies, looking for some way to emanate light, or otherwise bring in more. She could magnify their sound input as a whole, separate some of the sources, then heighten those drops and—now, subtle shifts in the rock or dirt, maybe—dampening their footsteps, dampening any sound that matched the movement of their body.

The thread of Viktor was urging them again, and the creature—something in that other urging *knew* about other options—was already reshaping parts of their shared body from the inside. Carlos was turning over and dissecting a feeling emanating from it, a pleasurable pulse. In the pulse there was a sensation, nerves: a swell that would rise up from their inner body, almost sexual in both of their immediate human framing. But—putting that aside—there was a different physical character underneath it. The pulse was outward, energetic, electrical, emissive; it could give off light.

I think this sensation corresponds with some sort of bioluminescence, Asumi felt Carlos share her appraisal, giving his agreement; but also, she felt the urge from Viktor and those stowaway sensations he had brought along with him beckoning: push further. She pushed, a small thrill tickling her and Carlos, and tiny granules of light began to speckle the surface of their shared skin. Reaching into that *tickle* sensation was like pushing more current through a light: the glow would increase, but too much and the wiring couldn't take it. It might short, or give off sparks. The sensation was unsettling; she couldn't hold it for long without feeling a compulsion to fidget, a compulsion that if not indulged escalated to a desire to flail, jump around, dance.

She pulled back from it, felt Carlos thrown unsteady from each pulse as well. There was a balance to work out here. He began moving them forward, taking steps; she wielded their pores of light as best she could, emitting dimmer pulses at an irregular pace, careful not to overload their biological circuitry with those overwhelming sensations. Already in the intimacy of shared thinking, there was another undercurrent to those pulses they were both all too aware of, but they had exercised the discipline necessary for sharing thoughts before—they were both conscious of where they were placing their attention, moving forward, emitting light, making their way.

This hint of light gave them a few meters of visibility. The irregular character of the tunnel appeared before them as if through an endoscopy camera, as if they were descending into the throat of an enormous creature with stone and dirt innards. At each junction, they felt that inner urge guiding them, pushing them this way or that.

How is it navigating, I wonder? Carlos thought.

Asumi considered. *Hard to say when we don't know what we're being led to.*

Their partial companions were silent in this. Not as if in hiding—at least neither Asumi or Carlos thought so at the moment—but as if there were no information to impart, nothing to say. These pieces of one human, and one—creature, Asumi was resolved to regard it as such, at least for now. If you just jammed a chunk of neurons from something else into your own mind, you couldn't exactly carry on a conversation with that chunk. Whatever beings had joined with them were limited in the thinking capacity they possessed; they contained just enough to lead them where they were going. With those constraints, she decided, it

must be more like following a beacon than possessing a map.

They followed the tunnel system further. The tunnels were almost uniform in width, though sections here and there grew more bulbous or narrowed. The ground sloped upward or downward constantly; they realized this only from shifts in the angles at which their feet hit the ground. The tunnels were not straight but followed curves that sometimes seemed to double back on themselves, though at different levels, as if they were strings cast on the ground in a tangle. All they could do was hope those urges from Viktor or the other creature were leading them correctly.

Asumi heard something then; Carlos had already stopped, reacting to the same sound.

Get ready—the Viktor fragment.

Ready for what? But there was no other reply. The sound grew louder: a scurry, keratin or chitin on rock. They braced, Carlos reflexively extending a longsword from their shifting form. He readied it, but struck the ceiling of the tunnel in doing so; they didn't have the room in this cramped space to use it effectively. The sound continued, became louder. He and Asumi both shaped an arm each into a sickle that turned back in on itself; the shorter, curved shape would slash more effectively in the narrowness of the tunnel if they were attacked and needed to defend themselves.

Carlos reshaped their vocal cords, blasting out a series of roars with the tone of a massive horn woven in. They had both used sounds like this to scare off creatures on approach, but it was only effective sometimes. There was a pause in the *click-click-clack* that was approaching. No—in *some* of it. That pause had struck off a shuffling of rhythms; clanks that had been masked by striking in unison now unfolded, there were more than...

A sound just behind them—Asumi pivoted both her arm and the tendrils of face-flesh with her eyes toward it, rock and dirt spraying from the wall of the tunnel as two appendages extended from it and toward her, several claws with a filiform sieve webbing the space between them. Its head was almost like a cricket's.

She had no other time to take in its form—it lunged out and struck as she arced her blade up to meet the claws, hacking off a few as the creature's other arm swung in below. The flesh of her fused form hardened in response, a few strands torn out by the slash of the digging claw.

She passed a cycle of her perception through Carlos. The others reached him; the creatures swarmed, but only a few would fit stacked in the tunnel. He was weaving through a continuous dance; he had extended another arm, wielding the two scythe blades like an explorer in the simulations cutting through dense forest with machetes.

He let out another roar. Other creatures filed behind the one attacking her through the new section of tunnel they had formed in their ambush. She and Carlos felt skin regrowing where it had been cut away, the rest vaporizing into the Dream World's imprecise tracking. They continued their frenzied carving, keeping the creatures at bay, but the sheer mass of the creatures stacked into each other pushed at them from both sides.

Then an electrical blast. The other creature inside them, inside the Viktor fragment, wired in there with them—it had pushed into its own pulsing capability, the same one Asumi had incorporated into their form earlier to light their way, and now emitted an enormous surge. For Carlos and Asumi it was like a seizure, sneezing, spasming, orgasming all in the same instant, a blink that overloaded conscious awareness and short-circuited perception. Then they were

laughing, a ridiculous laughter, a redirection of the energy that had built up inside them. The creatures closest to them looked unconscious or dead, a burnt smell lingering in the tunnel; the others were scurrying away in both directions.

I think we're clear, Asumi managed to pull the thought together a few moments later, still short of breath. Whatever mapping to or analog of their nervous systems was here in the Dream World, it was recovering, though with a touch of absurdity. They both knew they should feel a settling of the adrenaline, new pains or injuries surfacing in their awareness once its masking effect was gone. But instead, a giddiness accompanying an energetic residue—a sizzle—and beyond that, an out of place cathartic relief.

Thank you, Carlos pushed gratitude through their shared attention, hoping it would reach the creature deep inside them. *Don't do that again.*

THE LAST SEGMENT of tunnel they walked through opened into a lava tube. The divide in the rock was clean: in one area the jagged rock near them could have been dug out over many years by the creatures they had just fought. Then, a neat line marked the boundary, and the next section of stone extended like a railway tunnel through a mountain, but smoother than any machine or human labor could have produced.

Carlos felt like a raider entering a sealed tomb. His and Asumi's pupils were still dilated, pulling in all the light that they could. The earlier light emissions they had pulsed out were no longer necessary; here and there in the lava tube small puddles gave off a faint glow. Water might have surged up through here with the ebb and flow of the ocean, the

light source being bioluminescent microbes or small creatures? The scene before them was like an upside down corridor, with light fixtures mounted on the floor rather than the ceiling.

They spotted a more intense blue light ahead of them. It was like a distant city shining through a fog. *Here*—the urge from Viktor's fragment and its passenger—the eagerness growing, resounding as an echo would if they were inclined to shout in this place.

They walked closer and the light resolved into fractal, crack-like patterns. The densest portion of light emanated from an alcove where the cracks intersected—a higher concentration of microbes? At its center was a shadow, as if someone had carved a hole through the light.

As they neared, its form became more clear. It was a perfect hexagon, embedded in the wall—smooth, solid, and entirely black. Its glassy surface did not reflect any of the light cast in its direction. Instead, the hexagon was an anomalous sink, sucking in all the surrounding light: an irregularity in the very fabric of the Dream World, some defect in its underlying reality.

Asumi and Carlos were both waiting for the other to finish processing what they were seeing. This was unlike anything they'd ever come across.

Touch. The voice again. They had come this far; it would be a strange time to stop trusting. They extended their arms out in unison, still joined and wrapped together. Their hands made contact with the cool surface of the hexagon. Without warning, it gave way and they were sucked through, falling into a sea of memory.

COFFEE

What did Viktor renounce? *The life of the householder is not the same on Prime, where few bear their own children and no one earns their living. But there is a family and work life of sorts, and Viktor kept himself from it, as well as many of the other pleasures and pains of life on the surface. For him, these were all distractions from the pursuit of his goal: mastery over his own form and experience in the Dream World.*

We Renouncers are not an order as of old; we do not demand that all follow an exact path or a set of laws. And we have not replicated the total solitude of Viktor's time on Oneiri station. Most of us, for instance, have friends among others of the order. Still, many are drawn here because they seek to do as Viktor did—to achieve mastery in the Dream World, or over their own forms—whether to benefit themselves or others; some are inspired only by his single-pointed focus, and cultivate such dedication towards ends of their own making, whether in the waking or the dreaming world.

—Elitsa Han, *The Renouncer's Path*

SAFIYYAH SAT DRINKING a cup of fresh coffee, triumphant. After four years of attempts she had finally done it! *Coffea* had been a difficult nut—well, bean—to crack. It could only tolerate a few environments on Earth, and the set of conditions the *arabica* species could survive in was even smaller. That didn't make it an impossible engineering task; the challenges could have been overcome earlier, if anyone else had had the sense to give as much of a shit as she had. But no one else had: the glory was all hers.

A coffee plant had many needs, some that could be filled easily and some only with difficulty. The soil needed a chemical profile high in nitrogen and potassium, among other trace minerals. That just meant slotting it into the current material rotation on Oneiri station, no big deal.

As for the soil's other characteristics... well, given the alleged importance of *terroir* in coffee beans she could glean from the archives, she had no intention of growing it in an artificial substrate. Vaskania Prime had volcanic soils aplenty—more properly regolith, until she provided the necessary organics in her lab—and these were some of the best coffee growing soils on Earth. She could lean on the existing supply chain for that. There were already periodic shipments of regolith to Oneiri station from Vaskania Prime's surface. If human beings and machines on the station could make horticultural breakthroughs that could be applied on the planet, it was worthwhile to add several pounds to the occasional off-world launch.

It had seemed wasteful to put as much of a drain on Oneiri Station's water reserves as she had with her coffee experiments, but she didn't care. The station's water supply was an easy enough thing to sort through. Beyond the snow line in the Vaskania system, there were many small asteroids that contained frozen ice; the machines only had to take on

the energy efficient work of fixing small thrusters to them and perturbing their orbits. From those adjustments, they would transfer to new, stable orbits near Oneiri Station or Prime. Being as far out from Prime as the Renouncers were on the station in Lagrange 5, they weren't technically competing for the same orbit transfer time windows that functioned as their shipping lanes. Once the water was supplied, the water recycling and treatment process on the station was a well-oiled operation, and little was wasted.

She felt the pull of her ancestors in those plants and now the delicious cup before her. No longer would she drink that synthetic soya-mushroom caffeine hybrid that the machines' models had described as "sufficiently palatable." She had known, even with the first half-assed experimental brews she made, that she had indeed had a coffee-shaped hole inside of her; it could now, finally, be filled.

"New entry," she dictated to the computer that recorded the logs for her experiments. "This is a damn good cup of coffee."

She looked up from her mug to another of her monitors, taking in data from the scene. She felt irritated at the image of the planet on the screen, as if Prime's geology was in its present configuration just to piss her off. Then she noticed her hand was shaking. *Oh right, the caffeine.* How many cups had she had? At least four in the last hour? *Yikes, OK, time to adopt a lifestyle of moderation from this point forward.* She stood, tilted the monitor up to her face, letting herself bounce back and forth to work off some of her energy as she read over the report.

Active remote sensing on Prime had found another subsurface anomaly. *Anomaly* sounded a bit too sexy, actually. The machines had found rocks that were different from the rocks the current model had predicted would be there,

revealed by the shifting of sand dunes in a recent impact crater. This was the usual arrangement; the machines put the interesting errors and deviations in front of her and she brainstormed. They could extrapolate and fill in details once she started feeding them her ideas, instantly extending the implications to edge cases it would have taken her weeks to imagine. But the poor machines had a lot of trouble coming up with a good “what if...” guess just to get started. They could do it eventually, but they had to exhaust a pretty large search space in order to produce hypotheses that merited any scientific exploration. Outside of the toy problems found in games and puzzles, the machines could be pretty dull. She and they made a fairly good team, though, working around each other’s algorithmic limitations.

The machines labeled sections of the scene just at the moment she brought it into view. There were model parameters she could adjust, and with each of her manipulations, the machines would let her know which data now fit her models, and which were anomalous. Of course, just fiddling until all of the ground truth data was handled correctly was no guarantee that the prediction would hold when the next exploratory mission was carried out. She and they followed a set of principles with an almost religious devotion, attempting to ensure data hygiene, playing that scientific game of old: preventing her ego from convincing her she’d explained any more than she actually had.

The vanishing of water from Prime’s surface was the great mystery on which she and the machines collaborated. Most other projects—like her work with *Coffea*—were hobbies by comparison. Before the fleet was dispatched—nearly two millennia ago—spectral telescoping had indicated the presence of water on the surface. Well, in the four pixels that had contained the image of the planet, captured near-

simultaneously at many wavelengths of light. The resulting spectrum of those pixels was best explained by a linear combination of matter that included a good deal of water. From that they had estimated Prime had oceans—smaller in area and volume than Earth’s—but oceans nonetheless. The possibility of settling an ocean world orbiting a red dwarf had made Prime a target for the embryo-bearing fleets.

Early in the journey, the fleet’s remote sensing devices had captured an unexpected shift in the world’s spectrum. The new signature was mostly silicates and volcanic rock. It seemed likely that some trace water was in the composite—water vapor in the atmosphere, possibly—but the world to which the fleet had been dispatched was looking less and less like the ideal planet the models had hoped for. By the time the fleet arrived in the outer system, the final rounds of high resolution telescoping killed off the last hopes of finding an already habitable world. Worst of all, there were a few large craters on Prime’s surface that did not appear to be weathered by water. Finding that was like finding a tombstone erected over the planet.

She still had those images to refer to—of the craters that predated the ones the fleet was responsible for, in the comet bombardments they had initiated to restore water to its surface. The present surface had a few centuries of terraforming and then human activity layered on top of that. Minuscule in temporal and geological scope, sure; but the scale of the machine’s effort—especially the reintroduction of water—had altered things dramatically in that small blip of time.

Her working hypothesis—and the model the machines preferred—was that a large impact in the planet’s history was responsible for Prime’s loss of water. Not that that explanation was sufficient in isolation—Prime’s hydrosphere

must have been fragile already. On its own, a large impact would have vaporized much of the ocean, but the water would have gone directly into the atmosphere. This would have perturbed the dynamics of the hydrosphere and wreaked climate havoc—atmospheric water was a potent greenhouse gas—but things would have started shifting toward a new equilibrium that wasn't too far off the first.

Still, the time period in which the water vanished was too abrupt for slow processes to have been the main culprit. Solar wind scavenging could not have disrupted the planet's atmospheric balance enough to rid Prime of its oceans in such a short time. Other processes, such as Jeans escape (and similar mechanisms of hydrodynamic blowoff), were even slower. Prime's oceans had vanished overnight in cosmic terms. These processes might have set the stage, but the suddenness of an impact event was the only thing that seemed to fit the timeline.

Whatever was responsible, it was thorough. Prime's atmosphere was dried out, containing only tiny traces of water vapor. There was no water ice in the poles, none directly underground, as the initial probes had expected from their models of water loss on other planets. The icy bodies the fleet had bombarded the planet with had vaporized quickly into the atmosphere, quenching its imbalance—its thousand year thirst. Only through many later bombardments could liquid water stay stable on the surface.

And yet. Prime was not a dead world like Mars of the Sol system, for example. Instead, it sat somewhere between Mars and Earth. Plate boundaries on Prime had shifted by a few hairs since the fleet had been in the system, suggesting there was water—or something fluid—deeper in the planet's crust. Saffiyah looked at an orange in the fruit basket on her desk. She could pick the orange up and peel it, and the

thickness of its peel would be larger in proportion to the fruit than the extent of Vaskania Prime's crust was to the planet as a whole. Its mantle sat 70-90 kilometers below that crust's surface (depending on where you stood on the planet), further than the 30-35 kilometers of Earth's crust. The heat and seismic activity on Prime were lower in comparison.

There was evidence that Prime's plate tectonics had been active in the ancient past. The movement was slow, and a few super volcanoes had formed from the piling up of magma for much longer than could have occurred on Earth. The largest of these, Othrys Mons, was still smaller than Olympus Mons on Mars, where, in the absence of moving plates, magma had welled for the near-entirety of the planet's geological lifespan.

And *biological* life had even sputtered to a start a few times on Prime before ultimately failing. Any account of the planet's ancient water and its distribution had to take the paucity of the fossil record of Prime into account. The most likely suspects behind the failures were the combination of Prime's tidal locking and the flares of its star, Vaskania. The flares were less frequent and intense now, at least as well as they could estimate; a lot of the models of Vaskania and its behavior came from observations (made at a distance and split through time) of other red dwarves.

Either those flares or some other mechanism had periodically sterilized Prime. The planet had spun on its axis early after its formation, but that spinning had slowed to a halt. Before reaching full tidal lock, the planet had passed through epochs with a long day, and then something like a year-long spin. There was no evidence of life from those eras, so it had most likely never spread further than the habitable band.

The hot and cold extremes of Prime's light and dark side meant most of the planet was never hospitable to its nascent life. Unlike with Earth, the overall biomass had therefore likely never been significant. In fact, anything Safiyyah could say about the ancient life of prime was in terms of "likely"—in the shale on Prime (of which there was much less than on Earth), complete fossils were simply not extant. Strand-like structures in carbon film and the occasional sterol chemical suggested—or even proved, you could argue—that the eukaryote boundary had been passed at least once. Ambiguous findings of impressions of a few things that seemed thorax or wing-like (you could argue about it) provided scant evidence for something like Earth's *hexapoda* (or some phylum or subphylum of creatures)—if it even made sense to apply these terms to Prime's ancient life. If you accepted that paucity of evidence, these had been the pinnacle of Prime's evolutionary process.

Despite these signs of biological and geological life, when the fleet arrived, Prime was missing the water humanity had found on Mars. On Mars the high albedo polar caps contained a mixture of water ice in the carbon dioxide ice, and both rover missions and gamma ray spectroscopy had confirmed water ice was present below the surface throughout the planet. There wasn't a trace of the volume of water that must have made up Prime's ocean anywhere near its surface.

The anomaly the machines had put before her now was similar to a few others she'd considered in the past. The model had predicted that the rocks just below the surface had been forced up slowly over time by plate dynamics through a process of mountain formation. At the depths from which the layers had been lifted up, the machines had expected gneiss or migmatite, or some other composition

that indicated melting and hardening from interaction with the upper mantle. This time, however, they had detected the presence of pockets of shale and mudrock—an indication of lower temperatures and the presence of water during the rock's formation.

She sighed. She'd have to sleep on this one. Most of the anomalous events she encountered were like this. Her observations of the planet implicated some oddness about its ancient hydrosphere and the subsurface aquifers of its past, even the dynamics of the water in the atmosphere. Any process in which water played a significant role unfolded differently on Prime. There was something missing in their models, something not accounted for. More water subsurface, certainly, more exchange between bodies, more rocks formed in its presence. She could count all these things up and feed them into the models, but it was just mindlessly shifting variables around until the model came out neat for now. She was still working on the *why*? What caused the deviations from the processes in these cases?

Nothing yet, she typed her lack of helpful insight out to the machines quickly, then left her workstation. She needed a walk, something to burn off the excess irritable bursts of energy all that coffee had left crackling inside her.

SAFIYYAH WALKED through the corridor toward the part of her lab that contained the nursery. As she got near, she could make out specks of white, yellow, and blue from flowers, some plants growing from substrates, others directly in soil. Multiple displays lined the wall, monitoring the health and status of the plants and many other experiments. She walked to the corner, where a few *coffea* plants were growing

happily in their soil—soil from her other home, the arid world of Vaskania Prime.

It was a strange thing to live much of one's life on a planet that had been a meager guess to the explorers of old, such as they were. Safiyyah tried to imagine it: *yes, we'll send one fleet to these four dots, and another to these four dots over here. They're very nice dots, the instruments and models say so.* She would have done the same, though. That was all the light you could capture, and you could decipher those dots with all the ingenuity thousands of years of human scientists and philosophers and mathematicians had imparted to the institutions and mediums that outlived each individual.

In all those models, Prime was one hell of a promising world: a red dwarf system with a planet in the habitable range with liquid water on its surface. Therefore—the inferences stacked up—an atmosphere, a magnetic field, ideal temperatures, a stable environment—could there be life already? It would certainly have a good shot at supporting human life.

Most importantly, the red dwarf star that was the world's sun was more stable than the G-type star of the Sol system in terms almost beyond human imagining. Beyond the gut's grasp, at least, even if the brain's capacity for abstraction could account for it in notation. A star was really just a big nuclear reactor, and Vaskania's could run and produce light and energy for 10 trillion years. That was the biggest pull, the capital Promise. If humanity could get its shit together, this could be an extended home.

Safiyyah pictured the machines entering the outer system. They didn't use displays of course—they dealt with raw image data—but it helped her to think of it as if it were an ancient film reel, the screen updating to display the planet in higher resolution in steps. Seeing it in its broken

state, starting a one billion year era of slow dying. The surface had broken out in red patches of oxidation and craters—scars not given the opportunity to heal through water erosion.

Safiyah had been fascinated by Prime's geology since she was little. Something lit up inside her when the virtual teacher had rattled off—in that completely dry machine intonation—*three billion years*. That was her *wait, what?* moment, hearing the age inferred from stripes in a rock. That was the sort of number she was not about to let slide by. The other kids seemed uninterested, ready to move on from the boredom of rocks, and so the class had advanced. But when she jumped back into her edu-sim, it was the first thing she immersed herself in. The scale, the vast age of everything around them—she had trouble imagining it. She had the edu-sim produce all sorts of length analogies, trying to compare the length of her body to the distance between stars, measuring out all that time in a form she understood, to see where exactly in those billions of years there was room for her.

A few months before, she had just started coming to terms with the scope of the project that had brought her DNA here—now nearing two thousand years of machine enterprise—the multi-generation human project of the AI fleets. She could multiply her own potential lifespan twenty times, or how long she had been alive so far two hundred times, and it didn't sit quite right in her stomach. To be tiny at that scale, and then to have the machines start throwing the word *billions* around with completely flat affect in her classroom... it still overwhelmed her, sometimes.

But that was the scale your brain had to be able to compute, plan, anticipate, feel *desire* at, in order to want anything to do with those trillions of years of Vaskania's

Promise. You had to want some part of your enterprise, your mission, your *family*—your *species*—to outlive even those rocks by further orders of magnitude. It was easy to think of one trillion as just one notch beyond one billion, but it was one *thousand* jumps. And if humanity could adopt a life of temperance and stay within its means here, this could be such a home for them. There were other risks to be mitigated, too: cosmic accidents, galactic collisions, gamma rays, and so on. That meant taking safeguards like diversifying in habitats (such as Oneiri Station) scattered throughout the inner and outer systems, Prime, and possibly the surface of Vaskania's other worlds—these were all in the machines' few thousand years of "immediate" plans. It was hard to believe humanity could make it through much of that time even planning for those contingencies, but it was a damn fine thing to strive toward.

Mathematically, abstractly, she knew even those trillions could be minuscule. A single deck of cards contained *52!* possible configurations, which was a number with 67 zeros; the size implied by each of the fifty-five zeros beyond the twelve zeros in a trillion formed a vast gulf. But she had to hand it to humanity and the spark of intelligence they had managed to ignite in the machines. There was no number so large that they could not capture it in some representation, or say to it, *yes, but one more than that, or that to the n th power, or to its own power, or that number factorial*. The human mind was a mirror that magnified the scale of the universe in its reflection.

Given all that, it didn't make sense to Safiyyah to live one's life in terms of who was fucking who, and whether or not you agreed those people should be fucking. It wasn't that Safiyyah was disinterested, just that she had a clear view of her priorities. There were things she wanted to

know, and they took a certain amount of time to learn—if you were lucky and all the details you wanted would fit inside your brain. Sometimes the knowledge you wanted was only obtainable through some kind of hash puzzle process, a huge search space you could only randomly sample. Play for your whole life, and your expected upside would be exactly nil, though sometimes you might get lucky and win the scientific lottery.

Fun, stress relief, exercise even, friendships and mutual interest—these were things you could fit into your life as needed. Committed relationships, though... relationships were something you had to tend to, for which you had to occasionally drop everything else. She was already juggling enough inside her head; she was pretty sure dropping the ball on her research now and then was not the way to get better at it.

Which, that said—back to the task at hand. What to make of the latest anomaly? The more she thought through it, the more she was concerned about the term *anomaly*. She wasn't aware of any mafic rock or stratum which wasn't in some way anomalous on Prime. Not that she felt she had any stunning insight here; she was nursing a deep suspicion for the natural processes the machines expected and modeled. The problem with deterministic mathematical models was that if anything were missing, the results were unreliable; no amount of rigor—such as the perfect reasoning exercised by the machines—would be able to save it.

She found a chair to sit in on the far side of the plant nursery, then pulled out a tablet from her bag. She spoke to it in a quiet tone, as if she might disturb the young plants around her. “Let's see an empirical model of subsurface rock prediction only, as derived from present observations on

Prime. No first principles, physical or geological processes, no analogies with other planetary development.” The machines updated the image of the planet’s surface on the tablet’s screen, and she began navigating the new surface predictions with her hands, zooming in to features of interest and areas of anomalous finds she remembered.

Many of the anomalies were now accounted for in the model; other predictions that had been considered expected before now seemed unexpected. She frowned. “Make a series of random perturbations to the model.” The machines noised a several models of Prime’s surface and displayed each in succession. As far as she could tell, each of these was as reasonable as the more constrained models she had started from.

“Identify any regions which resulted in high error values in each of the previous models.” Her display obliged again, a transparent red speckled over the planet. One region caught her eye; there seemed to be a higher concentration of errors there. “Are any of these clusters significant?” Anticipating, the machines filtered out the smaller error values—those that could be attributed to process noise. On the dark side of Prime, however, a few hotspots remained. *That* was interesting.

“Do any of these correspond to a particular stratum, surface rock, or other interesting feature?” One more snap-adjustment and she had her next target. An impact crater in the mafic, ancient ocean crust that had (at least in the previous models) been predicted to be the result of ocean spreading.

Right to the heart of things. If she needed some better baseline data for rock formation in the upper mantle, that was certainly a place to look. She stood up from where she was sitting, sliding the tablet back into her bag, then threw

her bag over her shoulder, walking out of her lab and heading to the comms room.

PASANG BAATAR WAS on the screen. “I got your latest set of locations of interest. I agree it makes sense to figure out a better survey technique for the near side of the Anahita plate. There are definitely a few candidate craters for laser altimeter flyover and active spectroscopy. As for ground survey... a few might be reachable in two or three days, assuming I take the necessary precautions.” Unsaid, all the messiness involved: the lack of decent passive remote sensing on the dark side of Prime (lacking the necessary sunlight), the bitter cold of the conditions in exposed air, and the need therefore to be fully enclosed in vehicles and vac suits at all times.

The Anahita plate was dried out oceanic crust—a thin sheet flow of lava—with high concentrations of olivine that indicated its recent exit from the mantle. Recent, at least, in geological time. It was also one of the areas she and the machines had identified as not well accounted for in any variations of the models she had cycled through earlier. What separated it from the rest of the oceanic crust on the dark side, after some further poking, was the recency of the impact craters on its surface. Those craters were her target, now.

“With any luck we’ll find a few good candidates that aren’t too far from the dusk band. I’d like to personally investigate, if at all possible,” he grinned, one tooth missing. A badge he wore proudly, a general refusal to have the machines adjust anything of his he deemed cosmetic. A cosmetic statement in and of itself, Safiyah mused.

“Great, I knew you’d be up for it.” Safiyyah liked Pasang. Someone with a need to escape the daily flux of human society that paralleled her own. As soon as he had figured out the machines would let him live a life of his own choosing, he bolted out of the nascent cities. He was a nomad through and through, living in a series of habitats, some of which had been small research stations before he arrived, some of which the machines had built for his own use. Now and then he might wander back into one of the other human settlements, a curiosity about what had changed or want of a hard drink and brief company driving him. As near as she could tell, otherwise, his main motivation was to get his hands and feet onto every part of the planet he could manage.

Her motivation was to *know*, rather than to feel all the explorer feels he was after. But the machines were limited in what they could accomplish, and sometimes a bright, tenacious human being on the surface was exactly what you needed. She didn’t quite feel the same urge to step everywhere herself, not that she minded an outing now and then.

“Oh, right—Pasang!”

“Yeah.” His response came in after the palpable delay from the relay latency.

“This latest batch of coffee was incredible. I’ll send some your way. You know, eventually.”

That grin with the single missing tooth again, “Looking forward to it Safiyyah. Take care of yourself.” He cut the connection, leaving her to review the latest model updates from his fieldwork.

Analyzing the craters could help things... or confuse them more. It was hard to say when you didn’t know what your survey would find. The anomalous features in the impact crater could be due to something interesting just

below the oceanic crust, or due to the materials left by whatever bodies had impacted there. The passive sensing techniques of the machines were limited in what they could reveal on the dark surface, but the laser altimetry they had collected was at least enough to confirm those small impact craters.

A combination of active imaging and—with the good fortune of Pasang's proximity and interest—actual boots on the ground would help unravel any of the subtleties in the distribution and stratigraphy of the rock. He and the machines could go further, collecting stratified samples and bringing them back to his mobile lab, or larger ones in the cities, where destructive analysis would produce more precise age and composition data. She'd been disappointed in the results this sort of thing put before her before, sure, but she couldn't help herself, she felt giddy with excitement, thinking of all the new data that would be coming in over the next couple of weeks.

TUTORS

A reminder: emotion is not the enemy. The amygdala is an imprecise instrument, certainly. But it is effective for its purposes. Fast reactions to danger, regular shifts in both short- and long-term motivation—in those respects it functions like a bias term in a controller. The rational and the irrational each have their places; either can lead you true, or false.

This must be why the ancient masters stressed a mindset of gratitude coupled with suspicion. Each emotional impulse has its (imprecise) purpose. I feel as my practice has evolved, it is as though I am drawing implements from a tool chest in my mind, turning each over in my hand, feeling it, inspecting its weight, balancing it from different points. Considering when I would reach for this one or that one, for which situations I would want to have it with me, and for which I would leave it behind.

More and more I reach for implements I once put aside; that I had derided—in my youth—as the mere trappings of emotion. Now I understand the value of breaks in rationality; the value of emotion is the omission of thought.

—Viktor Goto, *The Notes of Viktor Goto, Renouncer of Oneiri Station: Middle Works*, compiled by Elitsa Han.

HECTOR WAS CONCENTRATING AS HARD as he could. That alone seemed wrong—it was supposed to be like trying to control a new limb. He couldn't remember being an infant and calibrating the contraction of muscle fibers in his arms and legs from uncontrolled flailing to deliberate, coordinated movements, though. A shame—that might have been helpful right now. Instead, it felt like he was trying to will his heart into a new, off-beat contraction. Utterly pointless.

“First, try to feel the normal physical sensations of the tiniest emotion. Mimic the body language you would take on blindly.”

Hector tried to focus on a sense of raw anticipation. It sort of matched how he felt and what he was doing already—trying to feel some urge kick off a new chemical reaction somewhere deep inside him. He scanned through his own body's position, the fluttering in his gut.

Would that even be something new? Am I already in that position? He had been suppressing his urge to fidget to some extent, or at least redirecting it into maintaining his posture as he sat still. Was he masking the authentic feeling he was looking for a trace of? He imagined anything that counted as ‘the tiniest emotion’ would turn out similarly unworkable in his current state.

“What if I try a bigger or more fundamental feeling first?”

“That's fine, Hector”

Ok, he thought, try and be happy. Just be happy, Hector. He forced a smile. Did Tandra just suppress a flinch? He could never be sure—that stone face—she was a hell of a person from whom to take advice on the subject of somatic affect.

Maybe it *was* a ghastly, unnatural smile—so what? There would be an emotional state that went along with that, too. That *should* go along with it, at least.

“Good. Now, keep the smile. Feel throughout your body; notice how your self-assessment alters. There are nodes communicating in your nervous system, linking up, extracting information, trying to make sense of that smile. It’s out of place. Soon you will actually start to feel happier, some part of your brain will decide the smile would otherwise be anomalous, that it must have missed the fact that you were happy.

“In both that sense of having missed something and the following adjustment, you can follow these and find your body’s own underlying mechanism of happiness: serotonin, dopamine, oxytocin, endorphins. This is the system that the machines augmented in you from birth, the controls that you’ve now been connected to, that you’re trying to reach into. Adjusting the activity of your synthetic glands is like forcing the intention behind that smile, without actually needing to produce the physical smile itself. It’s just a more subtle prompt, another process of adjustment and recalibration.”

Hector wasn’t sure he could feel any of that machinery at work. In fact, at that moment, he was most likely sabotaging the entire experience, contemplating what it said about happiness that his brain was guessing whether or not he was happy from his own body language. The whole thing was making him feel less happy, not more. His ridiculous smile—still held—felt more out of place and painful now.

“The master’s drink poisons the apprentice,” Kazimir’s voice was just audible from the back of the room. Tandra put aside the stone face for a moment and allowed herself

an eye roll in reaction. Kaz missed it; as far as Hector could tell, Kaz made a point of never looking to see Tandra's reaction to anything he might say—Hector had seen enough of their dynamic before. Kaz was already walking out of the room, giving Tandra the space to take or her leave his commentary as suited her.

Kaz may have been leaving, but Hector was still thinking through what he'd said, unable to fix on the words. It was more like each of the sounds strung together to form a song, each phoneme a different instrument and note it played, held out, an unnatural vibrato falling out of it as if the musician was straining to keep the note going. Kaz seemed burned into his brain's accounting of the room's contents. Hector could still make out the unkempt beard—if there were more than just a few small animals on Oneiri Station, Hector imagined they would have taken up nesting in those tangles—then the pointed intensity of those eyes. They would never quite meet yours or follow you; human beings were just another sensory input; Kaz had dispensed with the social niceties of matching the gaze, or tracking someone else as they moved. Hector had no idea if Kaz had been born this way or reshaped all of his instinctive, human behavior into something else.

"Kazamir might actually have a point this time, Hector," Tandra interrupted Hector's line of thought—a line of thought he was just starting to realize *was* being altered in some way. "Let's start somewhere simpler."

Hector nodded, noticed a pins and needles sensation radiating from his leg; from the left one—from where the right had been crossed over it. He rocked briefly from side to side, unfolding his legs and standing up. After a moment or two of adjusting to the standing position, his legs felt much better.

“I’m gonna take a short walk.”

HECTOR HAD WALKED JUST over a kilometer from the room where he’d been meditating—mostly fruitlessly—earlier. He had intended to go on a short walk, but the more steps he took, the more he realized his legs needed the movement after so much time sitting and adjusting. He was trying to be patient with himself, to let his body override his desire for more practice, to get exercise and sleep. As devoid of relief as that sleep could sometimes be, it was still something his body needed—and something with which he needed to provide it a regular supply.

His legs craved as much stimulation as he could give them, so Hector had headed straight for the higher hills toward the south—or at least what they called the ‘south’ by convention—of the station’s small land mass. The extra burn from hiking through the ascent felt great. Hector looked out from one of those hills now.

Oneiri Station. When he was living on Prime’s surface, the name always made it sound like a big metal box in space. Of course he’d seen images and vids; he knew about the gardens, and those several square kilometers of artificial (yet oddly natural) landscape surrounding them. But he’d always thought of the outside—the cylinder (properly a pair of cylinders) rotating, out in orbit around the single asteroid the machines had left intact at the planet’s Lagrange 5.

Now that he’d been there for several months, his time in the station was less like a trip to space and more like a nature retreat. His memories of Prime—memories now more distant than those months merited—contained more of the metal and airlocks, vac suits, and planned excursions

—more of the minutia of space exploration—than the greenery of the station. The gardens made up just a small section of the station's layout. The inside of the cylinder had its own small topography and landscape: rolling hills covered in grasses and wildflowers, a few groves of trees, some thick enough to provide seclusion and shade, dirt trails and stone paths. Throughout this landscape were several large domes and rectangular structures where small ecosystems could be isolated, each containing experiments in agriculture or genetics or the reliable production of growable goods. The habitat was the size of a small town; you could run its perimeter and come in just shy of two marathons. If you trained appropriately (a few Renouncers in the past century had).

There was a small pond just off-center. Hector was watching the shimmer of light spread across it now. On the surface of Prime, the sun was fixed, and the clouds that formed after a few centuries into the machine and human terraforming effort were wispy and few. The station was something like its polar opposite, the speed of its day and night cycle exaggerated. The light and dark would take turns every few hours with the station's rotation, a detail Hector had found suddenly and unexpectedly disorienting on his arrival.

A few other aspects of station life were disorienting as well. When you turned your head, for instance, the station's spin became suddenly perceptible, then vanished quickly when your head and gaze were fixed again. This made you much more aware of small head movements—like turning to look at noises or track objects in motion—than you might have normally been. If you tossed a rock or a ball and watched carefully, you could see it move off course by a few

centimeters. Otherwise, the illusion of stillness was mostly preserved. He was thankful this didn't produce motion sickness, unlike the maneuvering of the thrusters of the shuttle craft that had brought him here almost a year before.

The plants of the gardens had been carefully adapted to tolerate the slow flicker of light. Of the base species Viktor had cultivated originally, it had made sense to start with those least sensitive to specific day-night shifts. Plants did better if they were more dependent on the total volume of light they received than its timing. Shade plants needed the fewest modifications, so long as they were placed in shelters or under trees which limited their light exposure. Other species required patient genetic engineering before they were ready for life on the station (or even Prime, for that matter), and had only made it into the gardens after Viktor's time.

It was a strange thing: to leave the desert of a planet for the lushness of space. The Renouncer had made gardening and cultivation his waking mission, and the small area of the cylinder comprising the station was an easier environment to control than an entire planetary atmospheric cycle and hydrosphere. His gardening project—in collaboration with the machines—had made many plants available in the Vaskania system for the first time, and many of these were able to be tweaked further, adapted to growth on the planet.

Once grasses and trees were readied, the surface of the station had grown up into something like the natural parks from the VR sims of Earth. The combination of gardening, hiking, sitting and looking out over the pool—Viktor had relied on these activities, cultivating a waking rest and recovery, since these proved elusive in his dreams.

It *was* soothing. Well, *soothing* wasn't really the right

word, but it was healing. The mind and body needed an occupation when awake, one that demanded present-mindedness. It was wrong, Hector reminded himself, to think of meditation as just sitting in a room on a cushion. The same attentiveness that one brought to the breath or the body could—and should—be cultivated in daily tasks. In the end, the attention towards keeping the grounds and gardening produced a livelihood something much more like Epicurus and his followers might have envisioned, moreso than the monastery-like reputation the station had gained among the city dwellers on Prime.

The ornamental gardens Viktor had cared for were still maintained, and his remains had been cremated and cast in the soil throughout them. A small stone slab bearing his name had been placed at their center by Elitsa and the first Renouncers in his memory, and caring for those gardens had been an important duty for all the Renouncers at the station since. Hector had tended to many of the plants himself since he had arrived. The garden was on the opposite side of the pond from where he spent most of his time, but he and a few others would take a small boat across to visit, pay their respects, and see to the necessary weeding and pruning.

When Viktor had lived alone here, he had only needed one boat, and a single open room with a small, sheltered roof over its top. Once others arrived, they and the machines had expanded the habitable quarters. The Renouncers currently all lived in something of a cloister—or barracks, depending on how you thought of their role—with a set of small rooms and a communal plaza in the center. And surrounding that were many domed and rectangular structures, meant for getting plants through each particular

phase of their own development cycle (or the comparable cycles of research and genetic engineering) as the machines and Renouncers worked together to adapt more plants from the seed vault to life on either the station or Prime's surface.

Hector wanted to stay on this hill longer, to feel the spikes of warmth from the sun which were a match for the sunshine on the surface of Prime. The ground around him, the sounds of the water running through the canals that joined up to the pond—there was a deep, human comfort you could find here that was unavailable indoors, or on the bare plains and mountains on Prime. He certainly wouldn't be the first Renouncer to decide the dream training wasn't for him, and that he was here for the gardens and the days spent drifting out over that pond, laying back on the planks of the boat, sunbathing.

But addressing the dreams and how they had affected him... he knew it wasn't something he could let go of. He couldn't indulge in the comfort and simultaneous neglect of wishful thinking, spending his waking time in escape. Other people seemed to have a talent for accepting these sorts of absurdities and getting on with their lives. He didn't have that gift. Showing up in the Dream World each night, cast into whichever part of it he found himself—those several hours each day... what was the point? Where had the Dream World come from? What had happened to its creators, if it had creators? Was some other being there, waiting, like the alien in Viktor's account?

Many Renouncers had started down this same path. Like him, they would recall all the details they could from their partially remembered dreams each morning, looking for meaning or purpose. Wanting to know why things had unfolded in just such a way. Over time, if you did that

enough, your mind reshaped its capacity for remembering your dreams. You might even gain the ability to notice you were dreaming, and to change how your dream-self behaved in that place.

Hector still remembered the first time he had woken up mid-dream, more than four years ago now. He was climbing up the side of a cliff face, almost halfway up a mountain. He looked out over the shimmer of the red light over the sea, knew he was somewhere along a coast. Small green shapes were cast on the ground below him, reflecting sparkles of light back up towards his eyes. He had noticed these and many other things at once as he became aware: he was in the Dream World, he was climbing, and he was filled up with a sense of mindless purpose—to seek safety in higher ground—and it had driven him to climb far up the mountain.

He tried to remember what he was seeking safety from, but couldn't. His conscious awareness short-circuited both his sense of purpose and the casual confidence with which he had scaled the cliff face all at once. He lost the ease with which he knew he had made the first part of the climb and clung on with bent arms tensed, suddenly afraid of the height at which he now found himself. He panicked and called out for help.

Of course no one had come, and even if they had, what would they have done? Climb up after him, pick him up while they were both vertical, and carry him up or down to safety? While he thought through all those possibilities, his arms grew tired from maintaining their bent position, the adrenaline exhausting the muscles. Eventually they were exhausted beyond what he could maintain; his grip slipped and he fell, screaming all the way down toward the rock field below, waking just before hitting the ground.

From all that he learned one hard lesson; it wasn't worth much to become aware of things mid-dream, when you didn't have a plan or any of the necessary conditioning required to shape the various pieces of your dreaming self into a harmonic and functional whole.

That was why he was here, he reminded himself; he looked back toward the living quarters and outbuildings where he knew Tandra would be, ready to resume his guided meditation practice and help him learn the use of his new synthetic glands. He let himself soak in the remainder of the sun before the station's rotation cycled back to a window of dark, starting his walk back in that minute-long sunset.

“YOUR BREATHING CAN SEE TO ITSELF.”

Tandra's correction was abrupt, as gentle as her tone had been. Hector started—then stopped—a sigh; it came out just as another breath in the breathing pattern, maybe less even than the others. A couple months shy of having been here a full year and he was still struggling to just let the breathing happen, instead of slowing it down, calming it and his body as he went. He knew (in principle, at least) that to force direct calm was to move away from the higher-order calm, the calm with not-calm. But he seemed to always forget what he was doing, piloting directly towards the physical sensations of that lower-order calm instead.

“Now, starting from your toes: let the sensations that are there be there. No need to drive any sensation out, no need to will any sensation to be there if it's not.” Hector knew this—what he should be doing and the rationale. But Tandra always anticipated and caught him wandering off the path

he had set for himself. She had the time in the practice that he did not, and the benefit of working with so many others: seeing the broader perspective, the common mistakes. She noticed and deterred him from these errors early on, and gave quick—albeit terse—praise when he was on the right course, speeding up the feedback cycle. She never seemed to run out of patience, nor did she get accustomed to or accept any unnecessary mistake. In this, Hector felt both constant gratitude and frustration.

“It’s OK, Hector. It’ll take time.” Hector accepted the encouragement but didn’t react otherwise. He was shifting his awareness up through his body, considering the sensation in his ankles. *No hurry*, he told himself. He thought about his decision to come join the Renouncers, dwindling as they were. Viktor, then Elitsa and all the rest, two hundred years ago. They had saved most of the untethered. Not all, though... a few, including Viktor himself, ultimately, had never been restored. A few of the others—close to Viktor’s age—had passed around the time his body had, before Elitsa and the others felt ready to attempt as an order what Viktor had devised and carried out on his own. No one had been untethered since.

Many were inspired by the powers Viktor had been able to wield in the Dream World. Some of those he saved felt that they had incurred a debt, to Viktor or to others in his stead, to live and do as he had chosen: to continue his work to save others, to protect human dreamers and understand the nature of the Dream World from the inside. The most prominent of these was Elitsa Han, the last untethered Viktor had saved. Even though she was only in her early teens in those first years, she had been driven by her first memory after that untethered gap—that image of Viktor holding her hand, gone; and she was awake and aware in his

place. She compiled his notes, along with the account he had set down and broadcast to other systems, and added her own commentary. From there she had sought to deliberately recruit and train others, and the Renouncers of Oneiri Station became an order in their own right.

And yet, no others were untethered. The Dream World persisted, but its danger seemed to lessen. No other beings, not even the alien—the *Other* in Viktor's account—had been encountered or reported by anyone. Strange creatures emerged and attacked people as they always had, but it continued to play out as in the nightmares described in human history on Earth. Whatever hardship or physical pain and terror they experienced in the Dream World, each mind continued to wake intact.

The machines had started marshaling their resources—but slowly, at their own pace—over the two centuries. They had their overarching mission: to spread humanity, building the machinery to support more habitats in various orbits, to spread out the tendrils of their signaling and nascent transportation network in the Vaskania system, and so could only spare limited resources for geophysical survey. Looking inward into Prime, toward an objective—the core—which all their models predicted was a nonsensical target, was deemed a waste of time—Viktor's account be damned. Their planetary efforts were concentrated on Prime's present human population, which had grown from the two thousand or so of Viktor's era to half a million.

The Dream World had therefore become populated with strangers for the first time. Hector had only encountered a few there he knew personally prior to seeking out the Renouncers and learning their ways. Darklight City was no longer the only significantly inhabited site on the surface. A few other cities in the dust band along the river

coasts had grown into sizable human settlements. Hector himself was from New Basra, a city in the far North, on the opposite side of that narrow band from Darklight City, just on the inside of the sun line which no humans (and only a few machines) ever crossed.

“It may be best to break for a bit and try again in a few hours—or tomorrow, even. No hurry.” Tandra. Hector suddenly remembered where he was and what he was doing. That was some digression he had just taken. He sighed. Well, the boundary between mind-wandering and soul-searching wasn’t always clear to him. *Ok, he reassured himself, This is Ok; this is a thing that minds do. It’s just not practice.*

“Sorry Tandra, just distracted today.”

“Don’t worry about it, Hector. I didn’t really have anything else to do today—or tomorrow.” She grinned at him; he groaned.

“Right. Just thought I might be feeling *different* from the modifications a little sooner.” Hector allowed his body to relax more, his posture to slump. “It’s hard to feel something when you don’t know what you’re supposed to be feeling.”

Tandra nodded, her eyes looking past him for a moment. “And then one morning you’ll wake up, and you’ll just notice it. Keep practicing with the intention and your brain will sort it out for you in time. We’re just sending a wake-up signal. You can’t just *think* that kind of awareness into being. Just let your body and the unconscious remainder of your mind know it’s something important to you, and it will work on it when it gets around to it.”

A knock at the door interrupted both of their lines of thought.

“Yes?”

“Tandra?” It was Kaz, concern in his voice. Speaking in a

straightforward manner. Hearing that was unusual enough to be jarring.

“Yes,” she responded, getting up and opening the door with haste.

“It’s Carlos and Asumi. They’ve opened a line from the surface. You need to hear this.”

