

ONE



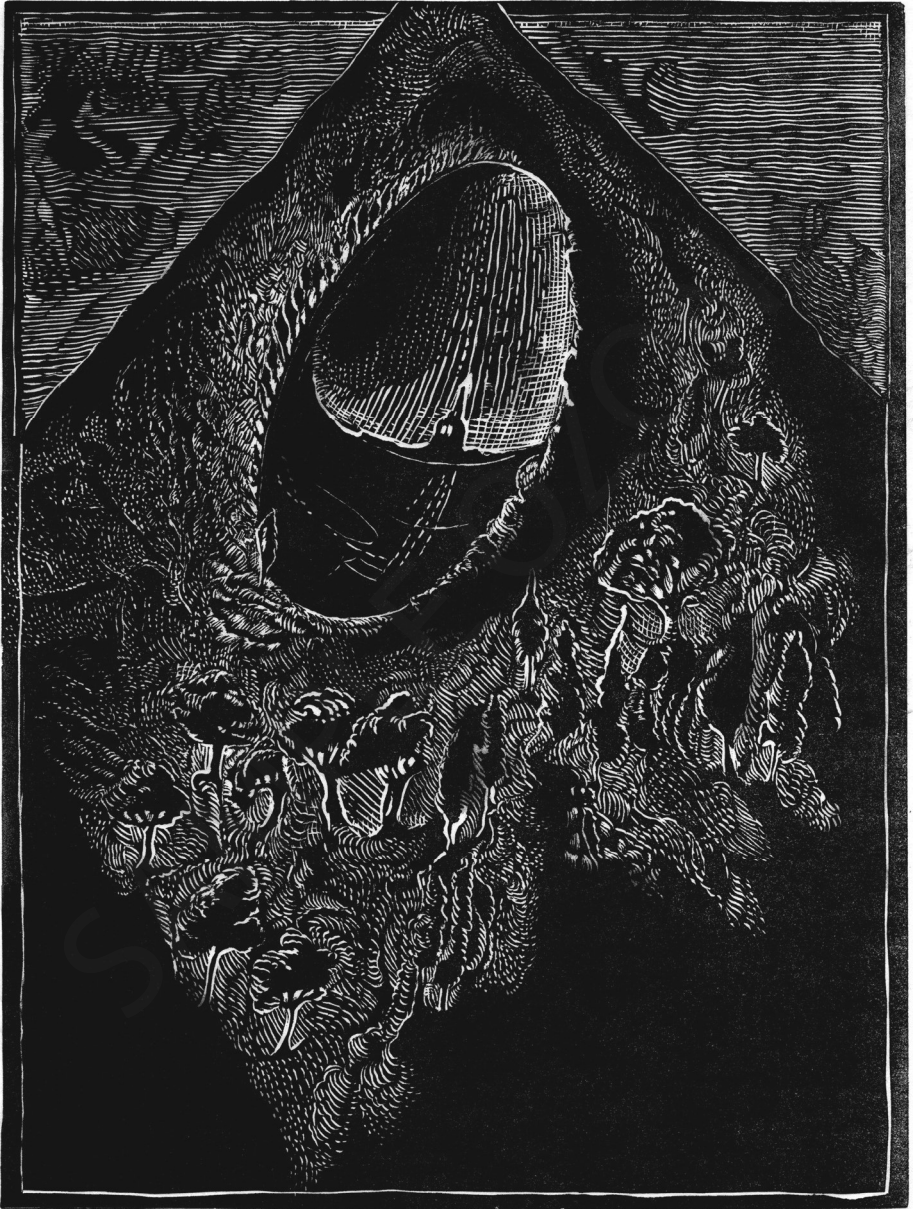
The mountains come alive during an eclipse. Dry branches cracked beneath Ayla's tyres as she cycled up the amber-lit path. Sometimes it's important to let go. *Work can wait, nothing will explode – well, nothing should explode – if I take a few hours to myself.*

As the forest cleared, her path opened into a meadow. The light was beginning to fade. Tall grasses peppered with flowers mirrored Ayla's slender form and sharp blue eyes.

Only a few minutes left to reach the peak. She stood, pushing hard on the pedals, feeling the ground shudder through the handlebars and into her arms.

Back in the forest, branches curved and played on the shifting summer wind. The amber light faded, transitioning fleetingly through a pale emerald green. Nearly there.

Right on time. Almost. *If I pick up the pace, I'll catch it.* Sapphire shafts tore through the final few trees before the opening at the peak. Her path comprised no more than a few blue blots of light. Mount Rhoda was different to many other Hela mirrors scattered around the world.



MOUNT RHODA

As far as anyone could tell it served a purely aesthetic function. Yes, it announced an eclipse to the city of Flavia below, but the same could be achieved by simply looking up at the sky.

Right now, Ayla didn't particularly care. Seconds before the eclipse, she threw her bike to the side. She hopped a small fence and ran up to the base of the mirror, nestled in the peak.

Even in the near-darkness, Ayla could see the man-made crater, looming above her. The six-hundred-foot-wide stone dish had been meticulously carved into the mountainside by the most basic tools. Brushing away a thin layer of moss, she jumped up and sat on its ragged lip.

Then it hit. A thin crown of teal light surrounding the moon shone down. It was caught by the polished basalt of the monolithic concave mirror.

Ayla looked on as the reflection slowly came into focus down in the city below. From a feint blur, the ring quickly sharpened, fitting neatly into Flavia's inner-circular boulevard. The few imperfections she could make out were crowds gathered in the street to bathe in the shimmering light. The darkness was punctured by an iridescent circle placed neatly in the middle of the city.

She briefly thought about the engineering genius of the civilisations-old structure before the symmetry of the eclipse broke and the reflection disappeared.



As Ayla collected her forlorn bicycle from the base of Mount Rhoda, she couldn't help but wonder why she was the only person there.

Was everyone so caught up in their daily tasks that they couldn't even take a moment for a simple indulgence? Maybe it's for the best. Perhaps next time the view will be all mine again.

At twenty-seven, she had seen many eclipses from the peak but only a few by herself.

Careening down Mount Rhoda was surely the second best part about cycling up for an eclipse. With the sun exposed once more, its heat was free to soak the air. The calm of the eclipse was now only hinted at by the odd wisp of a cool wind. It blew caramel blonde flocks of hair around from under her helmet. Ayla sped down the steep track, overgrown branches slapping her arms along the way.

Passing through the forest at the mountain's base, the air suddenly became thicker. She rounded the manicured grounds bordering The Residence. No time to stop, she could see her destination in the distance.

Flavia spread out from the foothills of the Rhoda Mountains. The Residence was built on a naturally forming shelf jutting out from the rolling green hills.

The heart of the city, Flavia Park, started at the base of the path leading up to The Residence. No matter how many times Ayla went past, she couldn't help but take a second glance at the beauty of the city.

A mile long and nearly half as wide, Flavia Park was a lesson in green geometric design. At the centre stood the Hela fountain: a silver hemispherical pool reflecting the lawns

and gardens of the park. Tooth-like outlines of tall stone buildings at the park's edge bit into the pool's curve.

Seven gravel paths radiated out from the fountain. At the fringe of the park they formed the start of seven tree-lined boulevards carving rays through the city.

Clinging on to her last remaining inertia from the descent, Ayla charged down the park's Grand Avenue towards the gleaming fountain. Fresh, ionised fountain spray dusted her salty skin. Banking left, she swept along Aria, the second path from the fountain.

Despite the onset of fatigue, Ayla couldn't help but race. It wasn't because she was running late for her coffee date – that wasn't too unusual.

Ayla felt like she was ten again, having just learned to cycle, zooming along Aria with her father at what then seemed close to light speed.

At that time, vehicles had only recently been removed from the streets. Now, the city felt like it had never had a single car, bus or tram running above ground along its avenues. The hum of their motors was a distant memory. What was held up as a paragon of revival now felt more than natural.

Most of Flavia's near-million inhabitants were involved in the sciences. The city was a seat of government for the Balkania Core and its two hundred connected states. It was also a global hub for engineering, experimentation and research.

Slightly late and slightly out of breath Ayla arrived at Merkur Market Square. Standing bolt upright on her pedals she tried to spot Tomias amongst the crowd.

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Merkum Market Square was, shockingly, a former market that had been a popular gathering place for more than three millennia. Its four straight sides were bound by flush limestone walls punctured by five dozen arches. In the past, each arch was the nesting place of a trader from far away, selling his exotic wares.

Today, they were home to a different kind of trade. Every one of the two-hundred and forty stalls was now a café, teahouse or restaurant. The variety of food and drinks on offer would have made their former inhabitants proud. Countless tables spilled out of their cavernous mouths and across the square. One of the few remnants of Old Flavia, the market had successfully taken on a new life.

Thousands of people gathered in Merkurum be it day or night to trade ideas, solve problems or just share gossip. Driven by caffeine and courage, conversations often grew heated.

Tables were often covered in doodles and scribbles, competing solutions or theories to the day's most pressing challenges. Not to mention the tapestry of crude caricatures born out of frustration when solutions were not so forthcoming.

There, she spotted him, nestled right in the middle of the gabble. Tall and neatly dressed in his standard white uniform, Tomias stood out with his prim posture and clean lines.

On the table to his left, a dominating, bearded fellow was shouting at three captive tablemates, grasping the small table with both hands. His flabby belly comfortably supported by the table's edge.

To the right, unaffected by the forceful display, a willowy teen sat with her feet crossed, head tilted back, staring at the sky.

“You blend in so well,” Ayla smiled as Tomias got up to kiss her.

“I tried, and failed, to fit in,” he replied as they sat.

The square’s unceasing energy offered a strange kind of intimacy to each table.

Tomias nodded his head to the table at his left, “I pitched in with my thoughts, but they were rather unimpressed.”

“What are they talking about?” Ayla searched for a waiter before happily waving her espresso order.

“Scientists gathered on Merikum, what do you think they were talking about? They were arguing about food. The best way to prepare prawn ceviche.” Tomias scooped the coffee-soaked sugar from the bottom of his cup with his finger. “One said poach the prawns first, the other said use them raw. I suggested quickly searing but keeping them raw.”

“Such culinary wisdom from someone who doesn’t know how to use a spoon.” Speaking too soon, she dipped a finger in his cup.

Tomias swatted her hand away but Ayla caught it, pleating her fingers through his. Tomias smiled and nudged his chair over to put his arm around her. They sat there watching Merikum’s hubub - observers in the midst of the show.

“I could sit here for hours,” Ayla pushed into him.

“We could bunk the day off. Skip the lab. Let’s stay here for a while, then get out of the city.”

“That would be rather nice, but I think Sheng would have a meltdown.”

Tomias kissed her cheek, “I’m sure it’ll be fine. In any case, I have a role to play, too. The thruster isn’t going to land itself.”

“Well, that’s actually exactly what it has to do, otherwise you’ll have a rather hard touch-down.” Her coffee arrived: a smooth ceramic eggcup with a neat tab protruding out at its base. The cup sat atop an oval silver tray with a thin lip along with a teardrop stirrer and three cubes of fine sugar. “The Abaryonic output isn’t quite as stable as I would like. It is difficult to control at these higher power levels. If the timing is off by a fraction of a second the result is a surprising amount of fire,” she plopped a cube of sugar into her cup.

“That makes me feel so safe.” His own soggy sugar exhausted, Tomias now made an attempt at snagging Ayla’s. She batted him away in an instant.

“I wouldn’t worry,” she patted him on the arm. “By the time you go up all you’ll have to do is press a big red button labelled ‘moon.’”

“Makes the years of training sound quite pointless, don’t you think?”

“Explorers are there for the photo ops. Your job is to look nice in the suit and bring back a few sacks of topsoil. That’s it. We could make a machine to do it, but it wouldn’t be as photogenic, we need the public on our side.”

“There’s nothing like a coffee together to boost my confidence,” he smiled. “So I’m a PR instrument for you?”

“Exactly... and a fragile one at that. Machines can take a lot more deceleration, you know?” She stood up from their table.

“I love you too, Ayla.”

The two laughed and embraced. They took in the blurred hum of dialogue around them in the mid-morning heat. The fresh mountain wind had morphed into a rolling breeze. It carried the smell of aromatic coffees from around the square.

Ayla touched a small, octagonal bronze token on the side of the table and they got up to leave. Both slim, toned and almost the same height, the couple were sometimes awkwardly confused for brother and sister.

They kissed again and said farewell for the day. Ayla headed on towards the laboratory.



The corners of Merikum held entrances to another world. Ayla could cycle to her office in a few minutes, but the Underground was so much more fun, she couldn’t resist.

Groups of people trickled out from the gloom below. Ayla weaved between them, down a mild gradient, bobbling over patterned tiles on the ground. Most would push their bike to the Underground, but she thought the odd quizzical look was a price worth paying for the ride.

Before her eyes had time to adjust, Ayla felt a cool gust of air rush out of the dark tunnel, accompanied by the faint echo of humming motors.

With vehicles removed from the streets, the Underground was by far the fastest way to move around Flavia. A large portion of the population used it on a daily basis to get from one corner of town to another. Flavia had recently limited buildings to four storeys so the city had started to spread out across the surrounding valley.

To the uninitiated, the underground might seem complex. Each station comprised a long saw-toothed platform. Every tooth contained several bays. Ayla walked up to a monitor next to a vacant bay. An angular city map was dotted with a hundred lit coloured dots showing all possible destinations.

She pressed a green spot several intersections away. The monitor responded with a satisfying click. No small part of the fun was pushing the buttons.

A few seconds later a pill-shaped pod floated into the bay. It stood motionless, hovering a couple of feet above the ground. The pod had a smooth metallic shell with covered with pearlescent white paint. Following its contours, three of its sides were lined with tall windows.

A broad oval door slid open. Ayla stepped in, placed her bike against a parapet beneath a window opposite and grabbed a central handrail above her.

An equally satisfying 'ping-ping' and the capsule reversed out of the bay and quickly gained momentum. It joined a snaking procession of identical pods speeding above a central magnetic rail.

The string of pearls ran beneath Aria at great speed. Ayla always stood, pretending to ride the rail as if it were a tidal bore pushing her along.

Finding the way to its destination, the pod twice changed rails. Each shift was preceded by a soft warning ‘ping’ and the flash of a warm orange light in the ceiling.

All in all, the ride took no more than a couple of minutes, hauling Ayla from the city centre to the periphery where the Balkania Institute of Space Exploration was located.

Halting with a prolonged ‘piing’ Ayla jumped on her bike and sped straight out of the station.

Flavia had no shortage of greenery. When remodelling the city, the focus was on creating open spaces and filling them with an abundance of vegetation.

BISE was a sprawling complex of buildings and brains. From a small research institute only two decades ago, the site was now home to more than thirty thousand scientists. They came from every corner of the world.

The mission had united them.

Entering the BISE grounds, her second home, Alya took a deep breath and smiled. Low brick buildings with even grass roofs were dispersed throughout the grounds. Crystal blue ponds potted green spaces. The odd grassy knoll breaking the eye line. The visual calm masked the pressure felt by all those who worked there.

Ayla walked the final straight to her office, leaving her bicycle outside. In her mind she paced through the order of tasks for today’s experiment.



Sheng was an outwardly stern man slightly softened by his bushy brows and curly grey hair. Today he marched through the halls of BISE with a hurried, heavy step.

The first manned mission to the moon had seen the world come together. In hope and expectation alike. The mission had been more than twenty years in the making... To be fair, it had been in the making throughout all of human history, but the world's resolve had finally been pushed to unite, aiming to make the age old dream a reality.

No one element of the task was guaranteed to succeed, yet too much was at stake for it to fail. There was already speculation amongst some Core States that failure could challenge the still fledgling social order, bringing a return to instability.

Sheng tried to push such thoughts out of his head and focus on that which he could control. After all, at his disposal were thousands of the world's most prominent minds.

One of those bright minds, Deputy Director to the mission, stumbled through the heavy wooden doors ahead of him.

"Ayla, I do hope the eclipse was worth it." Sheng's dry voice echoed through the corridor.

"I haven't missed a single one yet. If you ever came up, you'd see why," Ayla composed herself, walking closer.

She stopped in front of Sheng, his podgy, bearish frame loomed above her. The soft lines of her face stood in contrast

to his craggy furrows. A firm handshake and the two headed towards the fabrication halls.

“The Council has sent a delegation of observers for this test. It seems some of our partners are becoming anxious to see results.”

“You know that’s a terrible idea,” Ayla broke pace. “We’ve made a lot of progress but there are still so many unknowns. Every solution we create opens up new uncertainties.”

Sheng continued walking, “At some point we have to decide. Go or don’t go?” he looked square into Ayla’s eyes. “Uncertainty is in the very nature of a mission that has never been attempted before.”

They entered the cavernous fabrication halls. Every conceivable element of the moon mission was brought to life within this hangar.

Ayla paused, “Lives are at stake.”

“Jonah and Tomias are well aware of the risks involved. They will write history,” Sheng replied.

“... Yes, Sheng, and it’s our job to make sure that history involves no accidents.”

They approached the engineering team as they assembled the last few test components.

Strewn around them, the halls were filled with equipment and rigging. Cranes, wires, lathes, welders, rolls of aluminium as well as countless other presumably vital components. Order was known only to those working there; bits scattered

and stored in every conceivable nook across the spider web of ladders and walkways.

The team for today's test was huddled around a ribbed metal cylinder the size of a stool. A rounded tip was fitted to the end of a stumpy tube. Smooth rivets connected both parts. The whole assembly was bolted to a sled.

Chief Engineer Petra emerged from the group as they stared at the connection between cone and cylinder. She placed a crystal cube into her lab coat pocket, brushing her cinnamon curls out of the way.

"Ready to go!"

"Bring it outside, place it on the rail and I'll get the gawkers," ordered Sheng.

"Have you had any noteworthy issues?" Ayla asked as she ran a hand over the engine's smooth outer shell.

"I'm confident that we have finally solved the overpower issue, however, I'm still apprehensive about its stability." Petra mimed her hand landing hard on an invisible surface.

"This topic has been exhausted," Sheng barked. "We have five buildings full of mathematicians and physicists who have calculated timing, forces and stresses on every nut and bolt of the system. There has never been a more intensely scrutinised pile of metal."

"Hopefully it won't end up a pile of metal on the moon," Ayla retorted, "Considering my partner's inside. If we focus on improving Advanced AB, it will be able to handle the landing."

“We don’t have time for this argument, Ayla. Your technology is little more than a prototype. A mission of this scale can’t rest on a fanciful idea.”

“I need to prepare for the test,” Ayla walked away from the group. The rest of the team began moving the rig outside.



With regular live tests of all kinds, BISE had an on-site facility capable of powering a scale model Spinlaunch system and launch craft. After a few early mishaps above ground, an improved facility had been burrowed underground.

A wide circular shaft sank through the soil. Sticking out of the hole was a thick steel rail. Surrounding the hole was a raised earthen mound covered in trimmed grass.

Mounted to the rail was the day’s experiment: a tenth scale run of the descent and landing engine. It was fixed in place above the chasm using a heavy pin connected to a wire.

Power control had been a significant issue. Massless propulsion was in its early days. Delivering a steady landing curve was one of the largest hurdles facing the team. The difference between a soft landing and a ... faster arrival to the moon’s surface was a matter of nanoseconds of throttle.

Competing solutions from other Cores had been shelved in favour of an AB impulse system aided by a passive suppressant. It resonates a series of massive and massless particles at an exact height above the moon’s surface, ensuring a smooth landing on a cushion of baryonic matter. While this gave