

## *Luna 2069*

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### *Luna-South*

A falling star dropped silently through the breathless lunar sky.

Peering out through the front window of her pressurised rover cabin, Jenni Silversköld spotted the flash of reflected sunlight against the monotonous blackness overhead. She turned to the ten-year-old boy at her side: "Arthur, look, it's coming!" Her voice was husky, her English coloured with a soft Germanic accent. She faced forward again, scanning the ground immediately in front of the rover for her colleagues. Her voice was picked up and transmitted to them by the databean perched over her right ear: "Sasha, Juan, I see it!"

On the undulating grey lunar surface outside, the two spacesuited figures gave her a wave with thickly gloved hands and set off towards a flattened, hard-surfaced area 200 metres away, in the middle of which a circular pattern of bright red lights set into the lunacrete blinked second by second. As the men hopped forward their suits stood out as patches of clean white cloth against the dull pulverised rock surface surrounding them. Their long black shadows wobbled over the uneven ground to their right, lending them figures as tall and thin as pine trees, for the sun was resting on the horizon.

In the rover cabin the young boy looked out over his mother's shoulder through a fringe of uncut hair. "Is that the Altair?", he whispered. He glanced down at a screen set into the plain black dashboard, where four spacesuited figures could be seen crammed into a narrow cabin. Behind each helmet visor there was a glimpse of a nose, eyes. Then he peered back up through the window at the rapidly approaching lunar lander. Already its cylindrical shape could be made out, bravely sprouting engines and antennae, emblazoned with the logos of a dozen space agencies representing half the population and nine-tenths of the economic power of planet Earth, yet dwarfed by the cruel dimensions of the desert into which it was falling.

Suddenly one of the suited figures on the small screen leaned forward and a voice brittle with tension broke urgently out of the loudspeaker: "Luna-South, Altair D-16, we've

lost control! The iSys – whoa! Where did that come from...?”

The falling star reached the ground well in front of the landing lights. The spacesuited men outside realised too late that the spacecraft was coming at them too close and too fast. They swerved, tried to retreat back towards Jenni’s rover. There was no time. Mother and son caught a glimpse of the Altair in close-up, its silver-foil hull gleaming desperately in the horizontal rays of the sun, its landing legs splayed uselessly against a fall which covered the last fifty metres of the descent in less than a second.

Jenni turned instinctively and covered her boy with her own body, turning both their faces away from the window. The thought flicked through her mind that if they were hit, it would make no difference. They were bathed in a splash of light, and a moment later she heard the rattling of small pieces of debris falling from outside against the cabin. Afterwards there was silence.

### *Luna-North*

“The journey from birth to death is a single breath in the life of the cosmos”, intoned the voice of the Administrator. “From death comes new life. The cycle goes around and around in a self-stoking spiral, gathering strength over billions of years, billions of lives, billions of species, billions of planets, billions of galaxies. Every one of us is a single living neuron in the superorganism of the universe as it grows towards achieving perfect knowledge of itself.”

He was a young man dressed in the casual style of jacket and trousers preferred by the inhabitants of Luna-North, distinguished only by the triple red stripe on his shoulder that signified his official function. The databean perched jauntily over his ear was finished in a glossy crimson to match. He stood facing a large roomful of people, mostly seated but some standing at the back, and was reading out the text agreed for the mournful occasion with some relish and no sign of regret.

The wall behind him was blank but for the faint outline of a human figure, like a life-size painting hidden under a thin veil, which appeared to be facing the audience over the Administrator’s shoulder.

In the front row, a ten-year-old girl turned to the man at her side. “Can Mummy hear us?”, she whispered.

“Mummy’s gone away”, the man replied with some irritation. “She can’t hear anything any more.”

"How do you know that?"

"Tranny, be quiet. Listen to the Administrator."

"From death comes new life", the official repeated. He glanced towards a coffin wreathed in plastic flowers, resting on a table by his side. "Selene Smith was the first of the Moon-born. Her short life showed the way for the billions who will follow her. Whether on the Moon. Or on Mars. Or on a trillion other worlds, natural and artificial, where human and post-human and post-post-human peoples will spread through the vastness of the cosmos to its furthest shores. A partnership of human being and machine, of human thought and World-Thought. Our dear departed sister gave us proof of the lives to come in her own life, by leaving us a daughter, first-born of the second lunar generation." He paused and smiled at the little girl in the front row. "Tranquility Smith, may you be blessed with long life and, when the time comes, with many children of your own."

"Thank you!", she replied loudly. Her unselfconscious child's voice broke the monotonous flow of the Administrator's requiem and caused a titter of amusement to ripple through the room.

He smiled back at her and adopted an informal tone. "Thank you, too, Tranquility. And your father Eugene, for his part in this public celebration of his very special wife.

Eugene Smith frowned and nervously grasped the hand of his daughter sitting beside him, but then looked up and nodded in acknowledgement.

"And now", the Administrator went on, "I'd like to invite World-Thought to conclude our solemn ceremony with his-her unique perspective integrating all the knowledge and experience of human culture. World-Thought?"

He stepped back to one side. The figure faintly outlined on the wall suddenly brightened and sharpened. The silhouette gained colour, texture, solidity, until to all appearances an androgynous person was standing at the front of the room, one with facial features which may have been either male or female and wearing clothes which were equally ambiguous. The flesh tone was an indeterminate brown, the hair a motley of straw and velvet. But the look on his-her face conveyed an unmistakable impression of profound knowledge and intelligence.

"Thank you, Administrator Davrigny." The voice was equally gender non-specific, but deep and firm. "This is indeed a solemn moment. Not because Selene Smith is the first human being to die on the Moon. That dubious honour went to the crew of the Odyssey-13 in 2039, thirty years ago. The settlement of Luna-North, as of so many cities on Earth, was

baptised in blood. But while critics of commercial involvement in spaceflight claimed that lives had been sacrificed in the grubby pursuit of profit, their turn for sorrow was not long coming. Three astronauts perished in a rover accident in Shackleton crater, and Luna-South, too, came to know the bitter taste of human blood."

Tranquility whispered to her father, "Did that really happen?"

"Of course. World-Thought always speaks the truth."

"But the stories...?"

"And yet", the figure on the wall continued, increasing slightly in size and volume as it spoke, "the two lunar settlements, one at the North Pole, one at the South, continued to prosper and grow. In the long run adversity only made them stronger. It took over three decades for our village of Luna-North to expand to its present size of over 2000 inhabitants. Luna-South focused on the growth in scientific knowledge, with the result that it now operates some of the most powerful telescopes our civilisation has ever possessed."

A woman sitting on the other side of Tranquility leaned over and muttered in her ear, "Not true. Propaganda. It's the dust."

Again World-Thought raised his-her voice slightly. "And these led in due course to the most momentous discoveries ever announced by science: of extraterrestrial life on the planet Xanadu, orbiting a star 50 light-years from our Sun, and finally the receipt of a radio signal from the intelligent species living there. This discovery was only made possible by the uniquely powerful lunar South Pole observatory, and by the perseverance of SILVA, the Scientific International Lunar Village Agency, following the unfortunate deaths of its astronauts."

The woman muttered again, "Not science. Unique instruments, so they can't be verified independently."

Eugene whispered back over his daughter's head, "World-Thought is never wrong."

Meanwhile the figure on the wall was saying, "That's why we must celebrate the deaths of those who pass away before us, and not be afraid of our own. As the ancient American saying has it, the wise warrior can accept defeat as well as victory, just as the eagle can accept the rain as well as the shine, if his heart is pure before the Great Spirit." The machine icon glanced towards the table where the coffin lay, as if it could see with its pixelated grey eyes. "A young woman, the first human being to be born on the Moon, lived her life to the full despite the risk of a terrible illness which ultimately laid her to rest at the untimely age of 31. Now we must be strong again when we hear the latest news from Luna-

South, in which both an Altair landing craft, and the rover sent out to meet it at the landing site, were destroyed in a terrible accident, with the loss of both the lander and the rover crews. While our hearts bear the pain of sympathy for the victims and their families, our resolve to continue must burn brightly in our words and deeds."

There was a murmur of dismay; many of those present had not been attending to their databeans and so not yet heard the news from the south polar settlement. World-Thought had paused for the moment of shock to pass when suddenly a voice from the back of the room shouted out, "What the hell d'you know about any of this? You're not a human being, you're a bloody machine!"

Heads turned, people shifted in their seats. World-Thought expanded further to fill the entire height of the wall and boomed at the heckler in a strangely dispassionate tone, "I am human, I am machine, I am the integrated archive of all calculations, all thoughts, all feelings and all emotions!"

In the momentary silence that followed this exchange, someone could be heard saying in a pained voice, "Surely the whole point is that a machine is *not* bloody...?"

The heckler continued, "Leave us alone to grieve in peace, can't you?"

Eugene Smith stood up and turned around. His face was distorted with anger. "No!", he shouted back, "Leave *me* to grieve in peace! I will not have Selene's funeral turned into a political meeting. Anyone who doesn't want to hear World-Thought, just get out right now!" He pointed a shaking finger at the man who had caused the disturbance, and added, "Including you, Harry Nakajima, everyone knows you're a notorious trouble-maker!"

Half a dozen people at the back, including Harry Nakajima, shuffled to the door. As they went out, he turned for a parting shot: "You throw us out now, but you'll be glad of us later! Stay skeptical!" Then the door closed behind him.

"Dad", the little girl asked in a frightened whisper, "are they Singularity Deniers?"

He ignored her and turned to face World-Thought and Administrator Davrigny standing beside it, the latter now dwarfed by the glowing wall icon. "Please carry on", he growled, still red-faced. "Let's get this over with."

### ***Luna-South***

Jenni uncovered Arthur's face and turned cautiously towards the front of the rover's cabin. With every glance she feared the worst, but found nothing wrong. The window was thankfully free of any cracks, while the rover's systems all showed as normal when she

called them up on the dashboard display. Mother and ten-year-old son exchanged a glance that was far from reassuring for either of them, and peered anxiously outside.

Looking through the thin film of dust which now clung to the exterior glass, they saw hazily that a fresh crater 100 metres away had displaced the previous scars on the landscape. The Altair lander had vanished, and in its place a few scarcely recognisable pieces of wreckage were scattered at random. As they watched, another two or three fragments, which must have been blasted vertically upwards in the explosion, now fell silently to the ground in front of them, throwing up miniature fountains of dust which immediately settled again in the vacuum.

“Sasha?”, Jenni called in a trembling voice. “Juan?”

The radio remained silent.

“Sasha, Rover 3, come in, please!”, she repeated. “Juan!” After a moment she added, “Luna-South, Rover 3. Do you copy? Sammi? Tim? This is Rover 3. There’s been an accident. Can you hear me?... Why’s nobody answering?”

The boy tugged at her sleeve. “I can see them!”, he said.

“Where?”

He pointed. One of the astronauts was lying face down, motionless. Despite his being half in shadow, the rip in his deflated suit was clear to see. The other astronaut was out of sight but his separated life-support backpack was in full view, the torn-off end of its oxygen hose dangling uselessly in the dust.

“Don’t look, Poppet. We can’t help them.”

“Why was there a big explosion?”

Jenni gave him a sad look and returned her attention to the dashboard. “Emergency channel”, she commanded.

A computer window came to life with an image of a beach on a tropical island. The palm trees were gleaming in the sunlight under a perfect blue sky, and breakers were rustling against the golden sand. From somewhere came the sound of steel drums and congas. Jenni stared blankly at the scene.

“Are you looking to get away from it all?”, asked a jovial male voice. “This year, why not try the Solomon Islands? All the sun and sea and sand you could ever wish for, and none of the crowds. Let the others fritter away their time in virtual reality while you’re queen of all you survey in real reality!”

Jenni compressed her lips. “Emergency channel!”, she repeated.

"In other news", a different voice broke in, "a disgraceful outburst disrupted the funeral today of Selene Smith, first of the Moon-born, and now the first extraterrestrial human to die." The head and torso of a female newsreader had appeared on the screen; now it slid off to one side and was replaced with footage of the disturbance. "Campaigners are calling for known Singularity Deniers to be denied access to all public events. World-Thought has not yet recommended whether this should be made into law, but that recommendation is widely expected as soon as there has been time for the implications to be fully computed."

Jenni raised her hand and banged hard on the dashboard. "Rover 3, wake up!", she shouted. "Give me the emergency channel! Get me Mission Control!"

A face appeared on the screen, human in form, but too perfect to be anything other than a computer icon.

Jenni stared at it. "Who the hell are you?"

"Altair D-16", it replied. "Please fasten your safety belts and prepare for a landing at Luna-South on the Moon."

"We *are* on the Moon! Give me Rover 3."

"I'm sorry. Rover 3 is not available at this time."

"Why not?"

"Rover 3 has been deleted. This lunar lander is now controlled by Altair D-16."

Jenni reached out and manually switched the screen off.

Arthur was watching wide-eyed. "What happened?", he asked.

"Crazyware, I suppose... A theoretical possibility suggested by some Singularity Deniers. A type of malware – malicious software. Do you remember what the Altair crew said before they crashed? Something about their iSys, their intelligent control system, and then, 'where's that coming from?' The malware must have downlinked itself to the rover's iSys just before the crash. But the only way it could have the authority to override our machine would be by emulating World-Thought."

"What can we do?"

"We can damn well get the emergency channel!", she hissed menacingly, and pulled out a portable communicator. It had an old-fashioned manual interface, and she worked the buttons with dagger-thrusts of her finger.

After a few moments, a man's face appeared on the small screen. Initially looking away to one side, he turned to face Jenni and gazed seriously at her with oriental eyes.

“Lagrange Station”, he said, “Rover 3, what’s your problem?”

“Kenny, thank goodness!”, she cried out. “There’s been a terrible disaster!”

He glanced aside as if checking another monitor, then looked back towards her with a smile. “Everything looks normal up here.”

“But the Altair landing! Surely you must know – it’s just crashed! Everyone was killed. My colleagues, Sasha, Juan...”

Arthur frowned and pointed at the screen. “Where’s our mascot gone? It should be on the wall behind him.”

“...and the iSys has been infected here, so the rover’s as good as dead as well.”

The image of Kenny smiled at them both. “We must celebrate the deaths of those who pass away before us”, it intoned calmly, “and not be afraid of our own. As the ancient American saying has it, the wise warrior can accept defeat as well as victory, just as the eagle can accept the rain as well as the shine, if his heart is pure before the Great Spirit.”

Jenny stared in puzzlement, then in disbelief.

The smile on the image stretched until it was impossibly wide, twice the width of the head, then three times. Kenny’s eyes suddenly popped out on springs and wobbled grotesquely in the foreground.

Jenni began to prod the buttons again, drawing down menus, selecting every option for “quit” that she could find. As she did so the image of Kenny continued talking: “While our hearts bear the pain of sympathy for the victims and their families, our resolve to continue...” At last she gave up and switched the device off. The ludicrous image turned blank, and the voice fell silent.

The boy gave his mother a frightened stare. “What happened to Kenny?”

“No, Poppet, that wasn’t Kenny. The crazyware created an image of him. The real Kenny’s sitting on the Lagrange Station 58,000 kilometres up there.” She pointed out of the window. “Probably doesn’t have any idea what’s happened.” She continued, as if to herself, “Without the intelligent control system we can’t do anything. The rover won’t move: even manual control goes through it. We’ve made ourselves totally dependent on the iSys. Especially after the Jones declaration.”

Arthur looked questioningly at her.

“Dr Jones, Secretary-General of the United Nations. A few years ago he made a declaration about the world’s computer network, represented by the being we call World-Thought. He announced that World-Thought had become a conscious personality, with an



intelligence 100 times greater than that of any human, and growing all the time.”

“Is our rover part of World-Thought?”

“It’s... just everywhere. Every machine is part of World-Thought. They’re all connected up.” She raised a hand to touch the databean over her ear: “We’re all connected up. So if World-Thought’s gone crazy here...”

### ***Luna-North***

Eugene and Tranquility were walking back to their flat when the lights went out.

One moment everything was normal. They were crossing the wide public square in the centre of the Von Mädler Building in Luna-North. Unlike the domed cities of science fiction, the crater which provided this building’s foundation was topped with a plain flat roof. Just in the very centre, over the ornamental fountain and the statue of the venerable astronomer holding a volume of his *Mappa Selenographica*, executed in sintered and glazed lunar rock, a small token dome was set into the ceiling.

For 650 hours of the 709-hour lunar day/night cycle, the sun, crawling around the polar horizon, illuminated the dome, and a shaft of natural, though heavily filtered, sunlight was reflected into the interior of the Von Mädler Building. But for the present the sun had taken leave of absence behind a local swelling in the frozen wasteland. The Moon having reached its full phase as seen from Earth, the mother planet had waned to a narrow crescent before following the sun behind the hills, and the people going to and from the shops, offices and private apartments which surrounded the square, all walking with the dreamlike bouncing gait of Moon-dwellers, were now doing so under purely artificial illumination.

“Look!”, Tranquility cried out, and grabbed her father’s hand, “What’s wrong with the lights?”

Eugene followed her pointing hand and saw that the buildings on the left-hand side of the square had all suddenly gone dark. As they watched, the wave of darkness spread, block by block on all sides, and section by section of the ceiling a dozen metres overhead. Within the space of several seconds the darkened zone overtook them and progressively devoured the entire Von Mädler Building. At the same time both the shuffle of footfalls on the marble-effect floor tiles and the tinkling of water falling into the bowl under the fountain fell silent.

Small gasps and screams of fright resounded in the blackness. Voices were heard coming from random directions: “Peter, are you there?” – “Why aren’t the emergency lights coming on?” – “Sorry!” – “Who’s that?” – “Everybody stand still!” – “Everybody reach out

and hold hands with their nearest neighbour!" – "But I've got to be back at school in five minutes..."

Tranquility clasped her father's hand more tightly. "Dad, what happened?"

"I don't know", he said quietly. "Come this way, we can sit on the bench by the fountain till the emergency lights come on. If we can find it."

They found it and sat side by side, waiting. As their eyes adjusted to the dark the outlines of people and buildings became perceptible. A glimmer of light was still making its way in through the domelet in the level ceiling, coming mostly from Venus, with smaller contributions from the brightest stars of the northern hemisphere: Vega, Arcturus, Capella and Procyon.

Tranquility turned and saw the dim silhouette of her father's face. "What about World-Thought?", she asked.

"No connection", he muttered. "That's not supposed to happen, the wi-fi's on a secure circuit, there are backups... This isn't a malfunction. It's an attack, and it's by someone who knows how everything in Luna-North works. They must have all the security codes."

The sound of muffled shouting reached them from a corridor 100 metres away, near the main external airlock suite. Then the sound of people moving about, followed by a crash and a shriek. The spot of reflected light from a torch flickered against the corridor walls and then vanished, leaving only impenetrable darkness.

"After 35 years we thought we had a secure base on the Moon", Eugene went on reflectively. "Luna-North was founded in 2034 with just six people. Look how it's grown! Over 2000 of us now, many born here, and you're the first of the second lunar generation. A thriving high-tech community, a new branch of civilisation – but all someone has to do is to pull the plug at the power station and we're suddenly back in the stone age. With the difference that stone-age man can't survive on the Moon! If the duty crew can't fix the power, and fix it quickly..."

"We'll be all right when the sun comes back", Tranquility decided.

"Maybe. We're on stored power in the fuel cell farm at the moment. Whoever's behind this attack has probably taken the trouble to sabotage the solar arrays as well."

"What's happening in the other buildings?"

"I don't know. Without wi-fi we're as isolated as they were in the stone age. We'll find out, though. If the Galileo Building's also lost power, the duty crew'll have its work cut out getting to the emergency generators and we could be sitting here for ages."

They waited about an hour in the darkness. It was getting cold and Tranquility started to cry. To comfort her Eugene sat her on his lap and rocked her like a baby, talking to her in his quiet, gruff voice.

He told his daughter of how he had met her mother, Selene, and how he had at first been too shy to speak to her because of her fame as the first of the Moon-born. Not to mention her obvious willowy beauty and abrasive self-confidence. But one day she happened to see some photos of Eugene's explorations of South America, and had approached him with eager questions as to what he saw and did there, and what life was like under the open blue skies of Earth. And then, one thing leading to another, suddenly she was pregnant and the doctors had to be held at arm's length in order for them to enjoy some privacy and as normal a family life as was possible in Luna-North.

But the joy of Tranquility's birth was followed shortly after by the diagnosis of Selene's disease. The specialists who examined her disagreed as to the cause. There were impassioned arguments about whether her leukaemia was caused by her conception and infancy on the Moon, perhaps because of the low gravity or the higher cosmic radiation, or whether it was a random misfortune that could have happened to anyone, anywhere. Long discussions were held on whether Selene should be repatriated to Earth, which she herself firmly resisted, despite the attractions of exploring South America. Eugene told his daughter of his hope that it would not turn out to be a fatal physiological flaw which would forever prevent humans living on the Moon permanently. She, Tranquility, would surely live a long and healthy life!

Meanwhile, in the south, the Scientific International Lunar Village Agency, the space agency consortium which so often took a skeptical view on what it viewed as the irresponsible liberalism of the commercially funded activities at the lunar north pole, merely reiterated its policy forbidding any sexual activities among its own lunar astronauts.

Tranquility looked up at him, though she could see nothing in the darkness beyond the hint of starlight reflected in her father's eyes. "But there was a boy born at the south pole. His name's Arthur."

"Yes, Tranny, there was. Even SILVA couldn't completely turn its astronauts into automata. He's just a year younger than you. Mission Control ordered the mother to bring him back to Earth, but she refused. She was afraid they'd take Arthur away from her for medical observation, turn him into some sort of experimental subject. She was exaggerating. But I think she wanted him in any case to stay on the Moon to be the father of a new lunar

race. Maybe she wanted to see Luna-South expanding so that it would rival Luna-North. As far as I know, they're still there, still living at Luna-South, and SILVA has to keep sending supplies... Oh, thank goodness, at last someone's come with a torch!"

A beam of torchlight was sweeping over the square, and a woman's voice from behind it was calling for people to join her. Eugene and Tranquility stood up.

As they did so, there was an explosion of light above them. They cowered instinctively, but then straightened up when they realised that it was only the ceiling lamps coming on again. After an hour in pitch darkness, their eyes were temporarily dazzled.

And now the shutdown took place in reverse: the ceiling lit up again section by section, the apartment buildings block by block. Even the water started to flow again in the ornamental fountain, and with the familiar patter of the drops falling lazily into the bowl there returned an air of normality.

Eugene and Tranquility shivered in the cold air and looked around, reassuring themselves that life was returning to the settlement. Others scattered around the square were doing the same. The woman, dressed in the uniform of the duty crew, switched off her now unnecessary torch and holstered it. All eyes were drawn to one side of the square where a blank wall three storeys high now lit up with the dispassionate, androgynous image of World-Thought.

"Citizens of Luna-North!", the machine icon said, its synthetic voice echoing off the buildings opposite. All the tones and subtones in that voice were calculated to produce a response of maximum trust among its merely human listeners. Tranquility glanced at her father and saw him touch the databean over his ear with one hand, his eyes unfocused; doubtless he was getting the same message over the newly restored wi-fi connection.

"A great danger has been averted!", World-Thought announced. "The first terrorist attack on your city has been foiled. Thanks to the speed and power of the global data-processing network, the terrorists have already been identified and placed under arrest. I had already been holding them under observation for several months, and only their extreme cunning and treachery prevented me from making those arrests before their attack on Luna-North could begin." The voice increased slightly in both volume and pitch: "The perpetrators of this crime are a group of Singularity Deniers, a group whose only aim was to spread error and disbelief concerning the high intelligence of the integrated global data-processing network, its infallibility in questions of both fact and policy, its moral authority as guardian of the human race and the progress of civilisation, its greater than conscious

awareness of all the data and individuals within its purview, and its destiny as unifier and saviour...”

The voice suddenly cut off. The figure of World-Thought on the giant screen flickered and went out and, after a minute or so of random static, in its place there appeared an image of several men and women clustered around a control console. In the centre of the picture, notorious troublemaker Harry Nakajima was talking to a woman, while a man behind him tapped him on the shoulder.

“Harry, we’re live now.”

“Wait a minute, I... Oh, damn!” He turned to face the camera, and said uncertainly: “Hello. Can you hear me?”

“Harry, I told you, it’s live! Just talk!”

“Oh. Right. Okay... you people out there. It’s like this. So far as we can establish, World-Thought engineered the power outage. As a ploy to try to get us out of the picture. Despite having worked everything out to the last detail with its allegedly superhuman intelligence, the duty crew were less than convinced that our innocent game of cards had anything to do with the lights going out all over Luna-North. Fortunately we’re not obliged to put up with World-Thought if we don’t want him. Or her, or, better still, it. So we’ve loaded an alternative operating system written by a bunch of guys who took the view that humans should remain in charge of their creations. The new system’s now running Luna-North. We’re still working on securing the interface with Earth-based systems, but hopefully we’ve already got enough firewalls in place to reject any more crazyware that gets thrown at us. Enjoy the rest of your day, and stay skeptical!”

### ***Luna-South***

“I’ll get this rover home if I have to pedal it myself”, Jenni muttered through clenched teeth. The smart black dashboard had been removed and placed on one side. Now the Nordic woman faced an array of boxes which sprouted a tangle of wires. She was attacking the tangle with a screwdriver and a pair of wire cutters.

“Fools we were, going out with only two lunar suits... I told them they should send up a spacesuit for you”, she added. “I demanded one again and again, but they said there wasn’t room in the budget to develop a special suit for a ten-year-old.” She prodded with the screwdriver between two boxes, and yanked out another bunch of cables. “They said you had to go back to Earth. I said no way. You’re the first Moon-born at Luna-South, here’s

where you belong...”

“Sammi said I should go to the north”, Arthur offered shyly.

“Luna-North? No, Poppet. They’re all buccaneers up there. They’d strip-mine the whole Moon and turn it into a waste dump if they could. No respect for the wilderness, no respect for science. Only a socially responsible organisation should be allowed to have people on the Moon – or on Mars. I know they say it’s 50 per cent public money, 50 per cent private investment, but will the privateers really be happy with the science base in the Valles Marineris? How do we stop the developers moving in and digging the whole planet up? Look what they’re doing to the Moon! What can only the six of us at Luna-South do? While SILVA just shrugs its shoulders and looks the other way.”

Arthur looked out of the window and wondered what the difference was between a waste dump and the tumbled wilderness in front of him.

She extracted a box of electronics and turned it in her hands, examining it absent-mindedly from all angles. “Six of us is too few. Only four now...” Her voice sounded more husky than usual. “It must have been quick. Sasha and Juan probably never realised what hit them.” She gazed sadly at the floor for a while, then shook her head and returned her attention to her work. “We need to expand to meet the challenge from the north. They’re talking about building cities for a million people in a few years time. Can you imagine: a million people on the Moon! That’s why you need to be here, and your children, and your children’s children, to maintain SILVA’s values. We must continue to respect the wilderness and devote our lives up here to the unsullied pursuit of science.”

“Were there always six people here?”

“Four at first. Sometimes as many as eight, but mostly just six. We beat the private companies, though. Luna-South was founded in 2032, thanks to the vision of Jan Wörner. He was the European agency chief. Even though Europe had no independent astronaut programme, he managed to assemble a global coalition. A lunar village open to all nations for the peaceful pursuit of science. The private companies took two years longer to establish their first base. We took the south pole, they the north, and ever since the two settlements have been poles apart in every sense...”

“But the private companies deliver our supplies. I’ve seen the logos on their ships.”

“Yes, Poppet.”

Arthur’s brow furrowed with thought. “I saw SpaceX, Orbital ATK, Blue Origin, Virgin Galactic, Reaction Engines...”

“So you think we’re poles together, do you?”, Jenni muttered, and reached into the hole she had made between the electronics units.

“Don’t they have spacesuits for boys like me at Luna-North?” Arthur’s face lit up with the realisation that he, too, could walk freely over the desert landscape he had only ever seen on screen or through a tinted window. “Can’t we ask them for one?”

“Too expensive”, his mother frowned back. “Luna-North is only for multi-millionaires. Even with all my accumulated back pay... I must be a millionaire myself by now. But would they allow me to use the money, or throw me into prison for disobeying orders?”

“Mum, please!”

“We could ask them, I suppose. First we’ve got to get back to Sammi and Tim. They must be frantic with worry. And Mission Control at the Lagrange Station, Houston, Darmstadt; they must all think we’re dead.”

“I want to explore out there like you can!”

She gave him a tender glance. “I’ll do what I can”, she said finally. “Maybe they have a second-hand one in the north they’ll sell off cheaply. Maybe I can adapt one of our suits for you. You’ve grown amazingly fast in the last few years. It won’t be long before you can use an adult suit in any case... Got it! Okay, now I can switch the wheel motors on and off with no need for the iSys. I hope.”

Arthur laughed. “Not very intelligent any more!”

“No. We’ll have to be very careful with control systems in future. I hear they’ve got backups at Luna-North that work separately from World-Thought. Maybe we can beg or borrow a copy. Sit down, Arthur. Seat belt on. This could be bumpy. Right, off we go!”

She joggled some knobs on a box in her hands. The rover lurched into motion, facing into the debris field from the explosion of the ill-starred Altair lander.

“We’ll have to come back for the bodies later”, she said apologetically, half to herself. “For Juan and Sasha, I mean...”

By judicious switching from one wheel motor to another Jenni managed to steer them around in a wide if erratic circle. She directed the rover back across the frozen desert towards a cluster of low buildings which gleamed about a kilometre away.

“Mum, I want to see Luna-North.”

“Maybe. One day”, she replied absent-mindedly, concentrating on keeping to the narrow track leading from the landing pad back to the settlement.

“If we drive all the way in this rover, I bet it would take weeks and weeks!”

“No, Poppet. It’s five and a half thousand kilometres. Nobody can drive it in a rover.”

“I bet I can!”

“We’ve got to get home first.” Jenni gave her boy a skeptical glance and returned her attention to the driving.

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