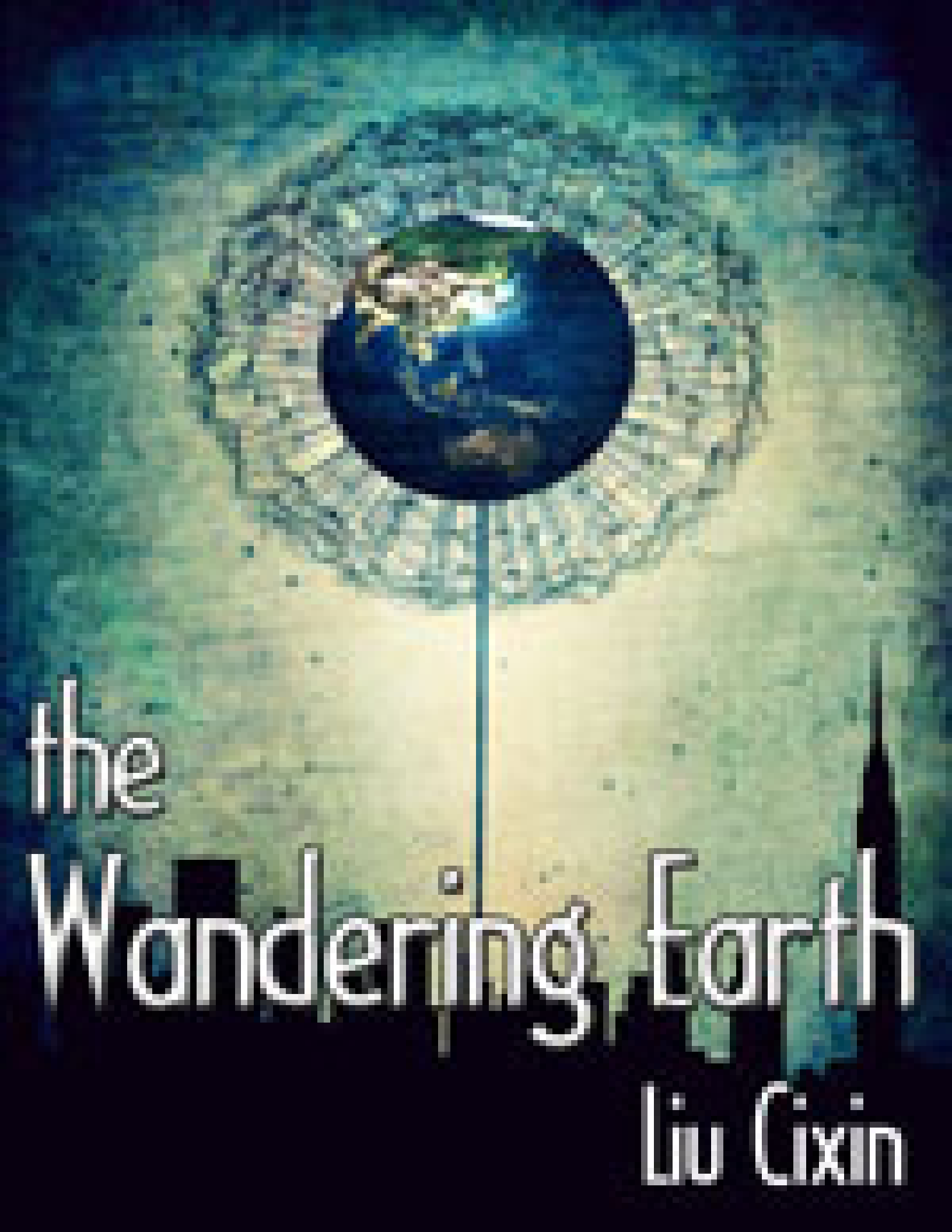
the
Wandering Earth
Liu Cixin

# The Wandering Earth

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# The Wandering Earth

# CHAPTER 1

# The Reining Age

I've never seen the night, nor seen a star; I've seen neither spring, nor fall, nor winter. I was born at the end of the Reining Age, just as the Earth's rotation was coming to a final halt.

The Reining lasted for 42 years, three years longer than the Unity Government had projected. My mother once told me about the time our family witnessed the last sunset. The Sun had ever so slowly crept toward the horizon, almost as if it had stopped moving altogether. In the end, it took three days and three nights to finally set. Naturally, that was the end of all "days" and all "nights". The Eastern Hemisphere was shrouded in perpetual twilight for a long time then, perhaps for a dozen years or so — with the Sun hiding just beyond the horizon — its rays reflected by half of the sky. It was during that long sunset that I was born.

Dusk did not mean darkness. The Northern Hemisphere was brightly illuminated by the Earth Engines. These giant generators had been raised all across Asia and North America; only the solid and stout tectonic plates beneath those two continents could withstand the enormous thrust forces they exerted. There were about 12,000 Earth Engines built and distributed across the Asian and American plains.

From my home I could see the bright plasma plumes of several hundred Earth Engines. Just imagine a gigantic palace, one as large as the Parthenon on the Acropolis. Now

imagine countless colossal pillars raising from that palace, reaching to the heavens, each emitting brilliant, bluish-white light like a titanic fluorescent tube. And then there is you; you are a microbe on the palace's floor. This only begins to paint the picture of the world we lived in.

This picture, however, is not yet complete. Only the forces acting tangentially to the Earth's rotation could slow it, so the Earth Engines' jets had to be aligned to a specific angle. Those gigantic pillars of light were slanted to that angle. Now imagine what that meant for our palace, with its pillars all leaning on the very verge of toppling down! Many who came from the Southern Hemisphere went mad when suddenly confronted with this awesome vista.

Worse than the view was the scorching heat emitted by the Earth Engines. Outdoors the temperature was stuck at around 160 to 180 degrees, forcing us to wear thermal suits just to leave the house. The extreme, nearly suffocating temperatures often brought torrential rains. It was always a nightmarish scene when the beam of an Earth Engine cut through dark clouds. The clouds scattered the brilliant, bluish-white light of the beam, erupting it into countless frenzied, surging halos of rainbow light that covered the entire sky like white-hot magma. One time my senile grandfather — tormented by the unrelenting heat — couldn't take it anymore; when a heavy downpour arrived, he was so elated that he ran outside, bare to the waist. We couldn't stop him in time and the top of his skin was scalded off by the raindrops which were heated to a boil by the Earth Engines' plasma beams.

To my generation, born in the Northern Hemisphere, all of this was perfectly normal and natural, just like the Sun, stars and Moon had been to generations before the Reining Age. We called the entire history of the human race that had come before us the Pre-Solar Age; what an enthralling and golden era that had truly been!

When I started primary school, my curriculum included a journey around the world. I went on this journey with my teachers and a class of thirty. At the time, the Earth's rotation had already come to a complete halt. The Earth Engines were only being used to maintain the planet's equilibrium and to make a few minor adjustments. Because of this, the beams were significantly throttled during the three years from when I was three until I turned six. It was due to this throttling that we were able to take our trip, giving us a chance to get to know our world better.

First, we visited an Earth Engine up close. The engine was in Shijiazhuang, near the foot of the Taihang Mountains. The engine was a towering metallic mountain, looming over us, filling half the sky. To the west of it the Taihang Mountains seemed to be no more than a ridge of small hills. Some of us children exclaimed in wonder that it must be as tall as Mount Everest. Our beautiful teacher, Ms. Xing, smiled as she told us that it was in fact 36,000 feet tall, a good 6,000 feet taller than Mount Everest.

"People call it 'God's Blowtorch'," she said.

We stood in its enormous shadow, feeling its tremors shake the very Earth.

There were two major types of Earth Engines. The larger ones were dubbed "Mountains", while the smaller ones were called "Summits". We ascended North China Mountain 794. Let me tell you, it took a lot longer to scale a "Mountain" than to ascend a "Summit". The top of a Summit could be reached via a giant elevator, while you could only go up a Mountain in a car, snaking your way up a coiled road. Our bus weaved into the endless procession of other vehicles, following the smooth steel road up the outer side of the Mountain. To our left, there was only a blank face of azure metal; to our right, a yawning abyss.

The traffic mostly consisted of 50-ton dump trucks, fully loaded with rocks from the Taihang Mountains. Our bus quickly ascended to 16,000 feet as the Earth below almost

completely disappeared, obscured by the reflection of the Earth Engine's greenish blue light. Ms. Xing then told us to put on our oxygen masks. As we approached the plasma plume, the light and heat increased immensely, causing the visors we wore to gradually dim and the mini-compressors in our thermal suits to whir along with all their might. At 20,000 feet we came upon the material intake. Truckload after truckload of large rocks was dumped into the faint, red sparkling light of its giant maw. It devoured the rocks without sound.

Fascinated, I asked my teacher about it. “How is the Earth Engine able to turn those rocks into fuel?”

“Heavy element fusion is a very arcane field of study,” she told me, “too difficult to understand at your age. You can content yourself to understand that the Earth Engines are the most powerful machines mankind has ever built. The one we are standing on, North China 794, operating at full power has the capability of exerting 15 billion tons of thrust on the Earth.”

Finally, our bus reached the very top of the engine. Here the mouth of the plasma jet was directly above us. The beam emanating from it was so enormous that, when we tilted our heads up, all we could see was a gargantuan wall of blue plasma reaching into infinity above us. Looking far up at that blue, I then recalled a riddle posed to us in philosophy class:

“You are walking along on a plain when you suddenly come across a wall,” I told my teacher. “It stretches endlessly upward, endlessly downward, endlessly to your left and endlessly to your right. What is this wall?” Our haggard teacher had asked our class that riddle. I now asked Ms. Xing, curious at her answer. Even the memory of that question made me shudder as we stood atop the engine.

Ms. Xing stood next to me, thinking of the answer. After a perplexed moment, she shook her head as she

contemplated my query.

Leaning close, I whispered the riddle's terrible answer into her ear. "Death."

For a few seconds she stared at me in silence, and then she suddenly embraced me. As she held me tight, I gazed over her shoulder into the distance. Rising from the hazy Earth below, I could see a range of gigantic metal peaks. The range stretched in all directions as far as the eyes could see, each peak shooting forth a beam of bright plasma. It looked just like a gigantic, slanting cosmic forest, puncturing our teetering sky.

After a while, we made our way to the ocean. Standing on the seashore we could see the pinnacles of submerged skyscrapers reaching up out of the waves with the ebb of the tide. We beheld the gleaming whitewash of water rush out of their windows, forming cascades of waterfalls.

Back then the Reining Age had only just come to an end, leaving the Earth with the horrifying aftermath of its passing. The tides, quickened by the Earth Engines, had swallowed two out of every three cities in the Northern Hemisphere; then the global increase in temperatures melted the polar icecap, turning the ensuing floods into a deluge that spread to the Southern Hemisphere. Thirty years earlier my grandfather had witnessed giant 300-foot waves that had engulfed Shanghai. Even now, he could never tell us about it without his gaze slipping into a thousand-mile stare.

Our planet had already changed beyond recognition before it even set out on its journey. Who knew what hardships awaited us on our long travels through outer space?

At the seashore we boarded an archaic vessel called "ship". As we departed the coast, the Earth Engines grew ever more distant. Within a day's travel, they had disappeared altogether behind us. Before us the ocean was bifurcated by light; in the west, the azure glow of the Earth

Engines' jets; in the east, the shimmering pink water, illuminated by the Sun's rays. We sailed straight down the glittering seam where the two glows met on the ocean's surface. It was a truly marvelous sight to witness. As our voyage continued, the azure glow slowly waned, while the pink light gradually waxed. With its waxing, unease began to spread across the ship. We children could no longer be seen on deck. Seeking shelter in the belly of the ship, we even drew the porthole blinds tight.

One day later, the moment we dreaded most finally arrived. We all gathered in the large cabin that we used as our classroom to hear Ms. Xing's announcement.

“Children,” she said, “we will now go and watch the Sun rise.”

None of us moved a muscle; we all stared at her in blank disbelief. She attempted several times to get us going, but we refused to move.

Seeing our fear, another teacher pointed out the problem to Ms. Xing. “It's just as I said,” the teacher told her. “The world-trip should be scheduled before we teach them modern history. It would make it easier for the students to adapt.”

“It's not that simple,” Ms. Xing retorted. “They learn it all from their surroundings, long before we teach them any modern history.” She then turned to some of the class monitors. “You children go first and don't be afraid. When I was a little girl, I was very nervous before seeing my first sunrise, just like you are now. But it was all good.”

Finally, we got up and one by one made our way to the cabin door. As we shuffled along, I felt a small, clammy hand grip my own. I looked down and saw it was Ling.

“I’m scared,” she whispered, her voice trembling.

“We've seen the Sun on TV. It will be just like that,” I told her consolingly.

“Just like what?” she countered. “Is a snake on TV like seeing a real snake?”

For a second I searched for the right words, but then decided not to give an answer. “... Anyway, we should get a move on or we'll get marked down for the course!”

Ling and I grasped each other's hands tightly as we made our way onto the deck with the other children.. Shaken by fear and full of trepidation, we faced our first sunrise.

“Consider this,” Ms. Xing told us. “We only began fearing the Sun three or four centuries ago. Before that, humanity was not afraid of the Sun. In fact, on the contrary; in their eyes the Sun was both dignified and magnificent. Back then, the Earth still turned and people saw the Sun rise and set every single day, cheering the dawn and praising the beauty of sundown.”

Ms. Xing stood with us as we watched at the ship's bow. Her long hair was caught by a gust as the first rays of light shot over the horizon, and for a moment I could not shake the thought of some monstrous sea creature breathing up the front of the ship.

Then, finally we beheld that soul-chilling blaze. At first it was only a point of light on the horizon, but it quickly grew into an expanding arc. My breath caught in my throat as I felt myself falling into the clutches of terror. It felt as if the deck below my feet had disappeared. I imagined myself plummeting into the watery abyss below; and I fell … Ling fell with me, her wispy frame clinging to my shaking body. The other children, everyone else — the entire world — all fell.

And then I remembered the riddle.

When I first heard it, I had asked my philosophy teacher what color that wall was.

He had told me: “It must be black.”

The answer had seemed off to me. I always thought that a wall of death ought to shine. That was why I had remembered it when I saw the wall of plasma. In that era,

death was no longer black; it was the glare of a flash, for it would be a final flash that would vaporize the world.

Three centuries ago, astrophysicists discovered that the fusion of hydrogen to helium inside the Sun had abruptly accelerated. In response, they launched more than 10,000 probes straight into the Sun. Ultimately they managed to establish a precise mathematical model describing the celestial body. Using this model, supercomputers calculated that the Sun was already on the verge of evolving away from the main sequence, ending its hydrostatic equilibrium and with it, its life-giving heat and light. It was projected that there was only a short time before the fusion of helium would spread through the entire Sun, causing a runaway explosion, the so-called helium flash. After the flash, the Sun would transform into a huge but dim red giant. It would grow so large that the Earth would be inside the Sun, as if swallowed into the Sun!

In fact, that could never happen; never happen because the preceding helium flash would have already vaporized the Earth.

It was all to occur in 400 years; since then, 380 years had passed.

This stellar disaster would not only annihilate and consume every inhabitable telluric planet in the solar system, but it would also forever change the nature and orbits of the Jovian planets. After the primary helium flash, the heavy elements would re-accumulate in the core of the Sun and further helium flashes would repeatedly occur for a period of time. This was a “period” in the stellar sense, lasting many, many thousands of human lifetimes.

All of this made it impossible for humanity to continue living in the solar system, leaving only one last resort: The migration to another star. The technology of the time allowed for only one destination for this migration. That destination was Proxima Centauri, the star closest to ours, a mere 4.3 light-years away. But while it was easy to reach a

consensus on the goal of the migration, the means were far more controversial.

To enrich the learning experience, our ship was turned back twice on the Pacific, giving us two sunrises. By then we had become accustomed to the sight and we started to believe that the children of the Southern Hemisphere, who were constantly exposed to the Sun, could actually exist and live. We continued our journey into the dawn, watching the Sun rise higher and higher in the sky. With it the temperatures too began to rise.

One day, as I was drowsily resting in my cabin, I was suddenly disturbed by the sound of a quarrel coming from outside. Moments later the door opened and Ling popped her head in.

“Hey, the Spaceship Faction and the Earth Faction are at it again!” she shouted excitedly.

I could not have cared less; after all, they had been fighting for almost 400 hundred years now. Nonetheless, I went outside with her for a quick look and saw a group of boys fighting. It was immediately obvious that Tung was up to his usual games again. His father was an incorrigible member of the Spaceship Faction, and was in fact still in prison for joining an insurgency against the Unity Government. Seeing Tung, I guessed that the apple hadn’t fallen far from the tree.

Ms. Xing and some of the burly sailors had managed to separate the fighting children, but it was no easy feat.

Even as he was being dragged away with a bloodied nose, Tung shouted, “Throw the Earth Faction overboard!” He pumped his fist in to emphasize his point.

“I am Earth Faction, too,” Ms. Xing said with exasperation. “Do you want to throw me overboard, too?”

“We'll throw every last one of the Earth Faction overboard!” Tung shouted, utterly unwilling to back down.

In those days, the Spaceship Faction was losing in public popularity and they had grown even more unruly as a result.

“Why do you hate us so much?” Ms. Xing asked.

“We don't want to wait for death together with you Earth Faction fool!” a couple of the Spaceship Faction kids immediately shouted in response.

“We will build the spaceships! All hail the spaceships!” they chanted.

Ms. Xing pressed the holographic emitter on her wrist. Immediately, a holographic image appeared in the air in front of us. We children stared at it in rapt attention and, at least for a moment, peace returned. Floating in front us was the image of a glittering and translucent glass sphere. The hermetically sealed sphere was about four inches in diameter. Two-thirds of it was filled with water. A small shrimp, a small sprig of coral and a bit of green algae swam in the water. The shrimp languidly moved about inside the sphere.

Ms. Xing said, “This is something Tung came up with for natural science class. There is more inside this small ball than meets the eye; it is also full of microscopic bacteria. All things inside it interact with and support one another. The shrimp eats the algae and draws oxygen from the water. It then discharges organic matter in its feces and it breathes out gaseous carbon dioxide. The bacteria further breakdown the discharge into inorganic matter and carbon dioxide. With the inorganic matter, the algae then use artificial sunlight to perform photosynthesis.”

We all gazed in awe as she explained to us the process.

“They thereby can manufacture nutrients, grow and reproduce, all while exuding oxygen for the shrimp to breathe,” she told us. “With nothing but sunlight, this ecological cycle should be infinitely self-perpetuating. It was the best class work I had ever seen and I was well aware that it encapsulated Tung's dreams, as well as the dreams of every other child of the Spaceship Faction,” she said fairly.

“In essence, it is a miniature of the spaceship they so desire! Tung told me that he had designed it according to computations based on rigorous mathematical models and that he modified the genes of every life form in the sphere, ensuring that their metabolisms would achieve a perfect balance. He firmly believed that life within the sphere would endure, right down to the natural end of the shrimp's life. All of us teachers loved the project and we provided it with artificial sunlight at the required intensity. Convinced by Tung's calculations, we quietly wished that his little world would succeed. But today, just about a dozen days later ...”

With great care, Ms Xing produced the real glass sphere from a small box. The shrimp floated on the water's surface, dead. The water itself had gone a dismal shade of cloudy and the rotting algae inside had lost their green, and had now turned into a dead, woolly substance covering the coral.

“This small world is dead. Children, who can tell me why?” Ms. Xing asked, showing us the lifeless sphere.

Someone quickly called out an answer. “It is too small!”

Ms. Xing smiled and nodded. “You are right; it is too small. A small biosphere, no matter how precisely designed, can never withstand the test of time. It is no different with the vessel that the Spaceship Faction imagines.”

“We could build a spaceship the size of Shanghai or New York,” Tung retorted, his voice subdued, his eyes on the sphere.

“That is true, but that would be the limit of our current technology and compared to the Earth, such a biosphere would still be very small,” Ms. Xing replied gently. “Too small, in fact.”

“We can find a new planet,” Tung countered.

“Even your faction does not really believe that,” Ms. Xing said. “There are no available planets in Centaurus. The nearest fixed star with an available planet is eight-hundred-fifty light-years away. Even the fastest ship we can build can

travel no more than zero-point-five percent of the speed of light. At that speed it would take us one-hundred seventy-thousand years just to get there. The spaceship's biosphere would not even be able to last a tenth of that. Children, only an ecological system the size of Earth, with its vigorous and all-encompassing biosphere, can exist in perpetuity. Should humanity leave Earth to travel across the universe," she said, concluding her impassioned explanation, "it would be no different from an infant leaving its mother in the middle of a desert!"

"But," Tung said, pausing before he continued in an almost pleading tone, "teacher, it's too late for us and too late for Earth. It is too late for it to reach sufficient speed and to make it far enough away. The Sun is about to explode!"

Ms. Xing would have none of that sort of talk. "It is not too late," she told him, and us as we all listened in. "We must trust the Unity Government! How many times have I told you? Even if you don't believe, even if worst comes to worst, 'At least humanity died with pride, fighting to the end!' "

Humanity's exodus would proceed in five steps: First, the Earth Engines' jets would be used to counteract the Earth's movement, stopping its rotation. Second, the engines' entire power would be used to set the Earth on a new path, accelerating the Earth into escape velocity, taking it away from the Sun. Third, in outer space, the Earth would continue to accelerate as it traveled to Proxima Centauri. Fourth, in transit, the Earth Engines would be re-aligned, the Earth's rotation would be restarted and the deceleration process initiated. And then fifth, the Earth would be moored in an orbit around Proxima Centauri, becoming its planet. People also called these five steps the "Reining Age", the "Exodial Age", the "First Wandering Age" (during

acceleration), the “Second Wandering Age” (during deceleration), and the “New Sun Age”.

The entire exodus would last 2,500 years, about 100 generations.

Our ship continued its voyage, making its way into the Earth's night. Neither the light of the Sun nor the glow of the Earth Engines could be seen here. As we stood in the cool Atlantic breeze, we children saw our first starry sky.

God, the beauty of it was heartbreaking!

Ms. Xing arched her arm around the nearest few of us, as if to embrace us all with one hand. “Look, children,” she said as she pointed to the heavens with her other hand. “There is Centaurus and that is Proxima Centauri, our new home!” Tears began trickling down her face as she spoke those words, leading her to weep.

It was an emotionally infectious moment, seeing her tears. By the time she finished, we were all sobbing. All around us — even the sailors and the captain, hardened seafarers one and all — no one could stop the tears from welling up in their eyes. Through our tears we all looked in the direction that Ms. Xing was pointing, the stars in the sky twinkling as we cried. Only one point of light did not waver; a heavenly lighthouse on the distant shores of the wild sea of the night, a faint beacon for lonely travelers freezing in the cold desolation: The star of our hearts, Proxima Centauri. It was the only hope and support for a hundred future generations, set on a course through a sea of woes.

On our return voyage, we saw the first sign that Earth had begun its journey. A gigantic comet had appeared in the night sky. It was the Moon, abandoned by humanity. The comet's tail was, in fact, the jet of Lunar Engines, pushing the Moon out of its orbit to ensure that there would be no catastrophic collision as the Earth began its acceleration. The Lunar Engines' trail covered the ocean in a blue glow

and drowned out the stars. As it moved, the gravitational tide of the Moon riled up the ocean, raising towering waves. We quickly transferred to a plane to continue our journey to our destination in the Southern Hemisphere.

The day of departure had finally arrived!

When we deplaned, we were immediately blinded by the brilliant jets of the Earth Engines. Their plasma plumes were several magnitudes stronger than when we had last seen them. Even through closed eyes we could see that the beams had been righted and were now shooting straight toward the sky. The Earth Engines were running at full power.

The acceleration gave rise to 300-foot rolling, thunderous waves that assaulted every continent. Scorching hurricanes howled through the boiling froth, screaming through the countless towering beams of plasma with unbridled fury, uprooting almost every tree on Earth. Our planet had also become a gigantic comet, its blue tail piercing the dark of space.

Earth was on its way, and with it, all of humanity.

Just as we began our journey, my grandfather passed away, his burnt body ravaged by infection.

In his final moments, he repeated over and over, “Oh, Earth, my wandering Earth…”

# CHAPTER 2

# The Exodial Age

**A**fter we de-boarded, our school prepared to relocate us to a subterranean city; we would be among the first group of inhabitants. Our descent began when our school bus entered a massive tunnel which soon became a smaller corridor deep below, always sloping downward. After traveling for about half an hour, we were told that we had entered the city; but as I looked out of the bus' window as we drove on, I could only ask myself, 'What city?'

All I could see was an endless parade of labyrinthine, branching cave passages and countless sealed, metal doors. A row of floodlights hung from the cave's high ceiling, bathing everything in a dull, metallic blue. I could not help but feel disheartened at the realization that, for most of the remainder of my life, this would be my world.

"Early humans lived in caves and so will we," Ling said quietly, but not quietly enough for Ms. Xing not to hear.

Turning to us all, she intoned, "There is nothing we can do about it, children. The surface will soon become a very, very terrible place. It will be so bad, that your spit won't even make it to the ground. When the cold comes, it will freeze in mid-fall and when it is hot, it will evaporate even as it leaves your mouth!"

Our teacher had barely finished her admonishment when a younger child turned to me and asked, "The cold part I

understand; it's 'cause the Earth will move further and further away from the Sun, but why will it get hot?”

“Idiot, didn't you learn about orbital acceleration?” I snapped back.

“No,” he responded, shirking.

It was Ling who took it upon herself to patiently explain the situation to the child, almost as if she wanted to dispel her erstwhile melancholy. “Things are different than you think. It’s like this: The Earth Engines are not that powerful. They can only accelerate the Earth a bit and certainly not enough to launch the Earth out of its solar orbit in one fell swoop. In fact, the Earth will circle the Sun fifteen orbits before it can escape! During these fifteen orbits, the Earth will slowly pick up speed. Right now, the Earth's orbital path is still pretty much circular, but as the Earth accelerates, its orbit will become increasingly elliptical. The faster it moves, the flatter the ellipse will become, and the more the Sun will be shifted toward one end of the orbit. When the Earth is at its farthest point away from the Sun, it will naturally be very cold.”

“Right, but it still doesn't make sense! When the Earth is furthest from the Sun, it will be very cold and when it is at the other end of the ellipse, its distance from the Sun will … hmm, let me think.” He thought for a moment. “No, the orbital dynamics states that we'll not get closer than we are now… So why should it get hotter?”

The child truly was a little genius. It was a real blessing that genetic memory engineering had brought such a child the memories of his father, making him the norm. Without them, even in 400 years we could not have realized the god-eclipsing miracle such as the Earth Engines.

Even so, I gave a snarky answer. “But there are still the Earth Engines, you dolt. Right now, more than ten-thousand of those giant blow-torches are being switched to full power. The Earth itself is basically just the ring that holds those

rocket nozzles.” I shook my head in mock disgust. “Now just be quiet. You're annoying me!”

Thus we began our life underground. The subterranean cities spread across the continents. They were built one-third of a mile below the surface and each one had enough space for over a million inhabitants. Under the Earth’s surface, I finished primary school and entered middle school.

Most of my schooling concentrated on the physical sciences and engineering; the arts and philosophical subjects, on the other hand, were condensed to a bare minimum. The human race had no time for such distractions now. All in all, humanity was then probably the busiest it had ever been. The work never ceased and there was always more to do. Interestingly enough, the religions of the surface world vanished without a trace overnight. We still had history lessons, but our history books portrayed humanity's history under the Sun as life in a mythical paradise.

My father was an astronaut serving in the space fleet's Low Earth Orbit Wing. He was on the job almost constantly and I rarely saw him at home. I remember that in the fifth year of the Earth's acceleration, our entire family visited the seaside as the planet reached its aphelion. For us Aphelion Day was a holiday much like New Year or Christmas. At the furthest point from the Sun, we could indulge in a false sense of security.

We still needed to wear thermal suits to go to the surface. To keep us warm, these suits were fully sealed and powered by nuclear batteries. Once outside, the blinding light of Earth Engines' plasma jets was almost all that we could see. The brilliant glow of this forest of energy beams seemed to swallow the entire world. We had to travel for many hours in our flying car before we managed to escape their glow and we were actually able to see the sunlit

seashore. The Sun itself had become tiny, no larger than a baseball. It hung in the sky, utterly unmoving, its distant rays only illuminating that one area with dawn-like light. Around us, the sky was the deepest blue we had ever seen and in it the stars were clearly visible. Looking into the distance, I for a moment wondered where the ocean had gone. Now before my eyes there was only a vast white, icy plain stretching to the horizon.

A large group of revelers had gathered on the frozen ocean, shooting fireworks into the dark blue sky. The mood of the celebration was truly extraordinary. All around I could see drunken party-goers rolling on the ice as my ears were assaulted by songs being belted out. It seemed that no one could agree on which song would be appropriate, leading to a cacophony of voices, all trying to outdo each other at the top of their lungs.

“Despite it all, they all want to live their own life and there's nothing wrong with that,” my father said. He paused, suddenly remembering something he had not yet shared. “Oh, I forgot to tell you all; I've fallen in love with Li Xing. I want to move out to live with her.”

“Who is she?” my mother asked tranquilly.

“My primary school teacher,” I answered in my father's stead. Having started middle school two years ago, I had no idea how my father had come to know Ms. Xing. Maybe he had met her at my graduation.

“Well, then go,” my mother said.

My father continued his thought. “I'm sure to tire of it after a while. I'll come back then. Does that sound all right?”

“If you want to, certainly,” my mother answered, calm as the frozen ocean all around. But then, a few moments later, her emotions were at last stirred. “Ah, look at how beautiful that one is!” she shouted, pointing at an exploding firework in the sky, genuinely moved by its spectacular display. “I bet it had a holo-projecter inside!”

Back then we were baffled when we watched films and read stories from the Pre-Solar Age. We just could not understand why people should invest so much emotion into matters that had nothing to do with survival. Watching a protagonist despair or cry over love was strange beyond words to us. In those days, the imminent threat of death and the desire to escape alive overwhelmed all else. The daily updates on the condition of the Sun and position of the Earth all but devoured our attention and ruled our emotions. This all-consuming focus gradually changed the essence of human psychology and spirituality. Love and all its foibles became mere distractions, just like a quick swig of a drink was for a gambler who cannot take his eyes off the spinning wheel.

Two months later, my father really did come back home, done living with Ms. Xing. My mother was neither happy, nor sad.

“Li Xing was very impressed with you. She told me you were a very creative student,” my father told me.

My mother, who had overheard our conversation, was genuinely puzzled. She asked, “Who is impressed with him?”

“Ms. Xing, my primary school teacher. Father just spent two months living with her,” I answered, just as perplexed as she.

“Oh, now I remember!” My mother laughed, shaking her head. “I am not even forty and my memory is already shot.” Looking up at the holographic starry sky that covered the ceiling of our house and then to the holographic forest on our walls, she continued. “You picked a good time to come back. You need to change these images. The kid and I are tired of seeing them and we don't know how to program the damn thing.”

When the Earth again began its long fall toward the Sun, all of us had entirely forgotten the episode.

One day, the news reported that the ocean was thawing. When we heard it, our family again made its way to the seashore. At that time Earth was just crossing Mars' orbit and with its approach, the strength of the Sun had again increased. It still should not have been enough to thaw the Earth on its own, but the Earth Engines ensured that the surface temperatures had reached rather pleasant heights. People everywhere were delighted that for once they did not need to wear their thermal suits.

Earth Engines still filled the sky of our hemisphere, but on the other half of the planet people could truly feel the Sun draw closer. Their sky was bright blue and the Sun was as brilliant as it had been before our exodus began.

We took our flying car and as we flew over the ocean, we could not spot any signs of thaw, instead seeing only a white expanse of ice. Disappointed, we got out of our car. Just as we closed the doors, we were shocked by an almighty rumble that seemed to rise from the very depths of the Earth. It sounded as if the entire planet was about to explode.

“That is the sound of the ocean!” my father shouted over the noise. “The rising temperatures are heating the thick sheets of ice unevenly, causing something very much like an earthquake.”

Suddenly, a sharp, discordant thunderclap pierced the low rumble and the people watching the ocean behind us began to cheer. I looked and saw a long crack appear, shooting across the frozen ocean like a vast, black lightning bolt; then, in the midst of the ongoing thunder, crack after crack appeared in the frozen ocean. Sea water erupted from these cracks, quickly forming torrents that spread across the icy plain.

On the way home, we looked out over the vast, long-barren land below. Weeds had begun to drill their way out of the soil, and all manner of flowers had sprung into full bloom, and tender leaves draped withered trees in green.

Life had wasted no time, flourishing everywhere with vibrancy.

Every day that the Earth drew closer to the Sun tightened the hold of anxiety gripping humankind, making ever fewer choose to emerge to admire the now spring-like surface. Most of us remained hidden within the subterranean cities. We did so not to avoid the imminent heat, torrential rain, and hurricanes, but to elude the dread of the approaching Sun.

One day after I had already gone to bed, I overheard my mother quietly telling my father, “Maybe it really is too late.”

My father replied in equally hushed tones. “There were rumors like that at the first four perihelions.”

“But this time it's true. I heard it myself from Professor Qian Dele's wife,” came my mother’s quick and soft response. “He is an astronomer of the Navigation Commission. You all know him. Anyway, he himself told her that they have observed a further acceleration in the concentration of helium.”

“Listen, my dear, we must hold on to hope,” my father calmly but insistently replied. “Not because hope is real, but because we have to live up to nobility. In the Pre-Solar Age nobility meant money, power or talent, but now one must only hold to hope. Hope is the gold and the jewels of this age. No matter how long we live, we must hold fast to it!” He then added, “Tomorrow, please tell our child the same.”

Like everyone else, I felt ill at ease as the perihelion approached. One day, as I was going home from school I — without really knowing why — ended up in the city's central plaza. I stood by the round fountain in its middle, in turn looking down at its sparkling blue water and up to the ethereal ripples of light reflected by the gushing water below that played across the dome above me. After a while I noticed a familiar face. It was Ling, holding a little bottle in

one hand and a small tube in the other. She was blowing soap bubbles, her eyes blankly following each string of bubbles as they floated away. She watched them until they vanished, only to blow another string.

“Aren't you a bit too old to find that amusing?” I asked her as I approached.

Ling looked at me in surprise and with a warm smile said, “Let's go on a journey!”

“A journey?” I asked, now the one surprised. “Where to?”

Her smile beamed brighter. “The surface, of course!” She waved her hand through the air, using her wrist computer to project a hologram. The translucent image revealed a beach sunset. A breeze gently swayed the palm trees, while white waves washed ashore. A couple lay on the golden beach, black silhouettes against the backdrop of the glittering sea.

“Mengna and Dagang just sent me this. They're already on the other side. They said that it's not too hot out there and being in the open air would really be nice about now, so let's go!” she told me, her enthusiasm showing.

“They've just been expelled for missing school,” I objected.

Ling frowned. “Hmm, that's not what you’re really afraid of. You’re afraid of the Sun!”

“And you aren't scared? Have you forgotten that you had therapy to treat your heliophobia?” I retorted.

She smiled again. “But I am no longer that person. I've finally seen the light. Look,” she said using the small tube to blow another string of soap bubbles. “Watch them closely!” She pointed at the bubbles.

I stared at the bubbles, watching the raging waves of color and light play over their surfaces, their twisting turbulences far too complex and intricate for the human mind to take in. I could not shake the thought that the bubbles knew how short their lives would be and were frenziedly revealing the countless dreams and legends of their vast memories to the world. Seconds later, the raging

waves of color and light disappeared in a nearly soundless explosion, leaving behind only the tiniest wisp. They remained for less than a second before disappearing; and then there was no trace that anything had ever existed.

“Did you see? The Earth is a cosmic soap bubble; with a pop, it will be nothing. So what is there to be afraid of?” Ling asked.

It was my turn to frown. “It's not really like that; the calculations show that after the helium flash it will take about a hundred hours before the Earth is fully vaporized.”

“That's the absolutely terrible part!” she shouted. “We are a third of a mile underground, just like the meat stuffing in a pie. First we'll be roasted and then we'll be vaporized!”

For a moment a cold shiver ran down my entire body.

Ling continued. “But it won't be like that on the surface. There everything will evaporate in the blink of an eye. The people on the surface will be like soap bubbles, gone in a pop.” She smiled again. “And because of that, I think it would be better to be on the surface when the helium flash hits.”

I couldn't say why, but I did not go with her. Instead, she left with Tung and I never saw them again.

The helium flash did not happen. The Earth rushed past the perihelion and began its sixth journey to the aphelion, allowing humankind's taut nerves to relax. Once we passed the perihelion, the Asian Earth Engines faced in the direction of Earth's orbit. With the Earth no longer in rotation, this meant that, save for the occasional minor positional adjustments, Asia's Earth Engines were shutdown completely. We sailed into a quiet and very long night.

The American Earth Engines, on the other hand, were operating at full capacity with that continental plate now acting as the superstructure for the jets of our planet-rocket. Because the Western Hemisphere also faced the Sun, the

temperatures there were truly horrific; horrific enough to burn all their vegetation to ash.

The Earth's orbitally-assisted acceleration carried on like this, year after year. Every time the Earth sped toward the aphelion, humanity's collective nerves relaxed in tune with the Earth's increasing distance from the Sun; every new year, with the Earth falling toward the Sun, they would grow tauter with each passing day. And, every time the Earth came to the perihelion, rumors would begin to fly, proclaiming that this time the helium flash would happen. The rumors would persist until the Earth again sped toward the aphelion; then the people's fears would begin to gradually diminish, together with the shrinking of the Sun in the sky.

But the next wave of fear would already be brewing.

It was as if humanity's spirits were caught in a cosmic swing. Or perhaps it would be better to say that we were playing a cosmic game of Russian Roulette; the journey to the aphelion and back to the perihelion was like the turning of the chamber, and passing the perihelion was just like pulling the trigger! Every time the trigger was pulled our nerves would be more frayed than the last. We passed our youth under the shadow of this oscillating terror.

Actually, when one really thought about it, the Earth never left the blast radius of the helium flash. Even at the aphelion, the only difference would have been that the Earth would have been slowly liquefied instead of being vaporized by the explosion; and that end would have been worse than what would have happened at the perihelion.

The Exodial Age soon became an age of catastrophes.

The first came when the acceleration produced by the Earth Engines and the change of orbital trajectory disturbed the equilibrium of Earth's iron-nickel core. The effect crossed the Gutenberg-Discontinuity and spread into the planet's mantle. All across the world, geothermal energy escaped

and a cataclysmic rampage of volcanic eruptions followed in its wake. From the sixth orbit on, the subterranean cities were thrown into mortal peril as magma seepage became all too frequent and catastrophic events.

On the day it happened, I was just on my way home from school when I heard the blare of the municipality's emergency broadcast.

“Alert! All citizens of City F112! The city's northern protective barrier has been breached by crustal stress and magma has entered the city! Magma has entered the city! At this moment magma is flowing into Block Four! The Underway exits are blocked off. All citizens are to gather in the central plaza and evacuate from there via elevator. Attention, the evacuation will commence according to Article Five of the Exigency Law! I repeat: The evacuation will commence according to Article Five of the Exigency Law!”

Looking around the labyrinth of passages, our subterranean city seemed eerily normal. But I was aware of the immediate danger; there were only two Underways to the outside and one was blocked since last year due to necessary reinforcement work on the protective barrier. If the other way was also blocked, we could only escape by elevator through the vertical shafts and the carrying capacity of the elevators was very limited. It would take very long indeed to evacuate all 360,000 inhabitants that way. There was no need, however, for it to turn into a struggle for survival; the Exigency Laws of the Unity Government ensured a well-ordered escape.

It brought to mind an ethical question in the olden days; it had gone, 'You are in a flood and you can only save one person. Do you rescue your father or your son?' In the eyes of our age, that question made absolutely no sense.

When I arrived in the central plaza, I saw the other inhabitants already lining up in long rows according to their age. Closest to the elevator doors stood the robot nurses

holding the infants, then came the kindergarteners, followed by the children in primary school and so on; my place in the ranks was still rather close to the front.

At the time my father was on duty in Low-Earth-Orbit, leaving only my mother and myself in the city, and I could not find her. Running along the crowded ranks, I looked for her, but was soon stopped by soldiers. I knew that she would be in the last group, all the way at the end. Our city was first and foremost a school city, with only a few families, and she had already calculated where her age peers would be.

The queue moved at an exasperatingly slow pace. It took three long hours before it was my turn, but I felt no relief as I boarded the elevator. I knew that there were still 20,000 college students between my mother and her survival; I could already smell the strong odor of sulfur.

Two and a half hours after I had made it to the surface, magma swallowed the entire subterranean city a third of a mile below me. Imagining my mother's final moments felt like twisting a knife in my heart. She, along with 18,000 others that could not be pulled out, must have seen the magma surge into the central plaza. The power had already failed then, leaving the horrible crimson glow of the magma as the only remaining light. The white dome high over the square would have slowly blackened under the heat and those trapped would have surely perished. They must have never felt the magma actually engulf them; the scorching air, hotter than 2,000-degrees, would have taken their lives long before.

But life had to go on, and even in our cruel and terrible reality, the enticing sparks of love could flash at any moment. During the twelfth journey to the aphelion, the Unity Government, in an attempt to ease humanity's anxiety, unexpectedly revived the Olympic Games 200 years after they had been suspended. I was going to

participate, having been selected for the motorized sled rally team. The competition would involve racing my motorized sled from Shanghai, across the frozen Pacific, and then on to New York.

As soon as the starting shot rang out, more than a hundred sleds shot off across the frozen ocean, blazing across the ice at 120 miles per hour. During the first leg there was always a competitor in my sights. Two days later, however, all others, whether they were ahead or behind me, had disappeared over the horizon.

The light of the Earth Engines had disappeared together with my fellow racers. By this time I had come upon Earth's darkest corner. Here all things stretched into infinity; above, the starlit sky, and below, the frozen ocean. It almost seemed as if they reached the ends of the universe; or perhaps I had reached the ends of the universe itself.

I felt as if I was the only human in this cosmos of infinite stars and endless ice, and I was overwhelmed by an avalanche of loneliness. At the edge of tears, I sped on, racing as if my life depended on it. My race was no longer for a spot on the podium; it was to rid myself of this terrible loneliness before it killed me. In my mind there was no longer a far shore for me to reach.

Just as these thoughts raced through my head, I saw the silhouette of a person against the horizon. As I closed in, I realized that it was a woman. She was standing next to her sled, her long hair fluttering in the icy wind. You may already have guessed that it was this chance encounter that would shape the second half of both of our lives.

Her name was Koriyama Kayoko and she was Japanese. The women's group had set out from the starting line 12 hours before us, but her sled had been caught in an ice crack, breaking one of its runners. As I helped her with the repairs, I could not help but share the bleakness that had just overcome me.

Nodding in acknowledgment, Kayoko said, “Oh, absolutely. It was exactly the same for me! It really feels just like being the only person in the universe!” She smiled as she continued. “You know, when I saw you appear in the distance, it was just like what seeing the dawn must have been like in the Pre-Solar Age.”

After a moment I had to ask, “Why didn't you call for the rescue plane?”

She raised her small fist and, with the perseverance so characteristic of the Japanese, declared: “This competition embodies the spirit of the human race and we all need to realize that the Earth, wandering through the universe, cannot call for help!”

I nodded, but replied, “Nonetheless, we now have to call; we don't have a replacement runner. Your sled is broken for good.”

She grimaced and then said, “How about I hitch a ride with you? That is, if you really don't care about your ranking.”

I really did not care, and so Kayoko and I completed the remainder of our long journey over the Pacific.

As we passed Hawaii, we saw the first light of dawn on the horizon. On this endless field of ice, illuminated by a tiny Sun, we sent our application for a marriage license to the Ministry of Civil Affairs of the Unity Government.

In New York, the race judges had — having impatiently waited for us — already wrapped up the competition and left. But there was one official waiting for us. A worker from the municipal Bureau of Civil Affairs was more than pleased to congratulate us on our marriage. He then carried out his duties. With a wave of his hand, he projected a hologram into the air, revealing neat rows of thousands upon thousands of dots; one dot for every couple that had registered for marriage in the past few days.

Due to the harsh conditions, the law stipulated that only one of every three newly married couples would be given

the right to procreate as determined by the luck of the draw. Faced with the many thousand dots, Kayoko hesitated for a long while before choosing one.

When the dot turned green, she leapt with joy. I, on the other hand, did not really know what to feel. Would it be fortune or folly to bring a child into this miserable age? The official, at least was jubilant. He told us that it always made him a little happier when he got to see a newlywed couple get their “green dot”. He retrieved a bottle of vodka and poured each of us a drink. We slammed it down, toasting to humanity's survival.

Behind us the feeble light of the distant Sun bathed the Statue of Liberty in a golden glow. Before us stood the long abandoned skyscrapers of Manhattan, the Sun's weak light casting their long shadows across the quiet ice of the New York Harbor. In my tipsy haze, tears began to gush down my cheeks.

Earth, oh, my wandering Earth!

Before we parted, the official gave us a key ring. In a drunken drawl he said, “These are for your newly allotted home in Asia. Go home; oh, your wonderful home!”

“Why is it wonderful?” I asked coldly. “Asia's subterranean cities are full of dangers; but you in the Western Hemisphere wouldn't know that.”

“We are about to experience a danger that you have never known,” he shot back. “The Earth will soon make its pass through the asteroid belt and this time the Western Hemisphere is facing right toward it.”

This somewhat sobered me. “We passed through the asteroid belts a couple of times in the past few orbits; isn't it a non-issue?”

The official shook his head as he responded. “We just scraped the edges of the asteroid belt. Of course, the space fleet could handle that. They have the lasers and nukes to get rid of all the small rocks in the Earth's path. But this time…” He choked. “Haven't you seen the news? This time

the Earth will pass directly through the asteroid belt! The fleet can only deal with those big rocks; but the small one…”

As we were flying back to Asia, Kayoko asked me, “Are those asteroids very big?”

My father was in orbit then, tasked with securing Earth's journey. Therefore, despite the government's news blackout aimed at avoiding a panic, I had some idea what we were facing. I told Kayoko some of that. “The Earth is heading towards asteroids the size of large mountains; even a fifty megaton nuclear bomb would do no more than leave a small scar on their surface. They will have to use humanity's most powerful weapon!” I added in an enigmatic tone.

“Are you talking about anti-matter bombs?” she asked.

“What else could it be?” I replied.

“What is the fleet's operating range?” she asked.

“Currently it is limited. My father told me it’s about a million miles away,” I answered.

“Oh, then we will be able to see it!” she said excitedly.

I gave her a look of warning. “But it would be best not to look.”

But Kayoko did look, and did so without protective goggles. The first flash of an anti-matter bomb arrived from outer space shortly after our plane had taken off. Kayoko was looking out a window admiring the stars at the exact moment it happened. The flash blinded her for more than an hour. Even a month later her eyes were still red, swollen, and teary.

It shook every one of us to our core. The anti-matter shells continued to bombard the asteroid. Over and over again, the brilliant, destructive flashes seared the black heavens as if a crazed horde of titanic paparazzi surrounded the Earth and was snapping away with abandon.

Half an hour later, we saw the first meteors, their long, blazing tails cutting across the sky, enthralling us all with

their terrible beauty. Ever more followed in their wake, each streaking farther than the last.

Then, the sky suddenly shook behind us with a loud boom, immediately followed by continuing rumbling and more shaking. Kayoko, under the impression that a meteor had hit the plane, screamed in fear and jumped almost right into my arms.

Just then the captain's voice came through the speakers. “To all passengers; please do not panic. That was the sonic boom of a meteor breaking the sound barrier. I do ask everyone to use their headphones in order to avoid permanent hearing loss. Because the flight's continued safety cannot be guaranteed, we will make an emergency landing in Hawaii.”

As the captain spoke, I saw a meteor much larger than the others fall. As I watched the fireball plummet, I became convinced that it would not burn up in the sky like the ones before it. Sure enough, it sped across half the sky and while it shrunk smaller and smaller, it struck the frozen ocean in the end. Looking at it from 30,000 feet, the point of impact was just a small white dot. But that white dot immediately spread into a white circle, rapidly expanding across the ocean's surface.

“Is that a wave?” Kayoko asked me, her voice quivering.

“It is a wave, a hundreds of feet high wave,” I answered. ”But the ocean is frozen. The ice cover will soon weaken it.” I had concluded with the last part, trying to calm myself, no longer looking down.

We soon landed in Honolulu, where the local government had already arranged to take us to a subterranean city. Our bus traveled along the shore, giving us a glimpse at a sky covered in meteors. From here it looked as if a legion of fiery-haired demons had all at once burst from a single point in space.

One meteor hit the ocean not far from the shore. There was no column of water; instead we saw steam rise to form

a giant white mushroom cloud above the impact site. The swell of it surged to the shore under the frozen surface as thick layers of ice shattered with loud thunder. The ice rolled like waves, as if a school of giant, sinuous sea monsters was swimming under the surface toward the shore.

“How big was that one?” I asked the official who had come to pick us up.

“Less than a dozen pounds, no bigger than your head,” he told us. “But I have just been informed that a twenty-ton one is going down over the ocean five hundred miles north of us.” His wrist communicator began beeping. He glimpsed at it and then immediately told the driver, “We won't make it to Gate 244; just head for the closest entrance!”

The bus turned a corner and stopped in front of an entrance to the subterranean city. As we got out we saw a group of soldiers at the entrance. They stood motionless, staring into the distance, their eyes filled with dread. We followed their gaze to the horizon where the ocean joined the sky. There we saw a black barrier. At first glance, it looked like a low layer of clouds on the horizon, but its height was far too even for it to be a “layer of clouds”. It was more like a long wall lying across the horizon. On longer inspection, we could make out a gleam of white on top of that wall.

“What is that?” Kayoko asked an officer, a soft fear in her voice.

His answer made every hair on my body stand on end. “A wave.”

The tall metal gates of the subterranean city were shut with a rumble. About ten minutes later we felt and heard a low rumble emanate from the surface, as if a titan was rolling about on the ground far above. We looked at each other, our faces blank with dismay, for we all knew that a 300-foot wave was now rolling over Hawaii. Before long it would impact every continent; but the shocks that followed provided for an even greater terror. It was as if a giant fist

had reached from the heavens and had begun pounding the Earth. Underground these shocks were faint, hardly noticeable, but each tremor shook our very souls. It was meteors, unceasingly striking the Earth without mercy.

This brutal bombardment of our planet continued intermittently for an entire week. When we finally left the subterranean city, Kayoko shouted, “Heavens, what happened to the sky?”

All above us was gray; gray because the upper atmosphere was filled with the dust that had been kicked up as the asteroids impacted the dry land. Sun and stars had disappeared behind this endless gray, as if the entire universe had been covered with a dense fog. On the surface, the water left behind by the billowing waves had frozen solid, covering those lonely buildings fortunate enough to survive with long veils of ice. The falling impact dust had also covered the frozen ocean, leaving a monochrome world. A world of gray.

Kayoko and I continued our return to Asia with the very next flight. As the plane crossed the now long meaningless international dateline, we witnessed humanity's darkest night. It was as if the plane had dived into inky depths. Not a single ray of light could be seen in the world outside the window. And with this world, our moods turned pitch black.

“When will it end?” Kayoko mumbled into the dark.

I did not know whether she meant our journey or our miserable and adversity-ridden life. It wouldn't have mattered anyway; at that moment, both seemed equally everlasting. Even if the Earth made it beyond the reach of the helium flash and we escaped with our lives, so what? We would just have made it onto the first rung of an unfathomably tall ladder. Even if, in a hundred generations, our descendants should see the light of new life, our bones would have long turned to dust. I could not even dare think of all our future suffering and deprivations, much less dare

consider that I would be dragging my wife and child along that endless, muddy road with me.

I was tired, too tired to go on …

Just as despair and sorrow threatened to suffocate me, I heard a woman cry out: “Ah! No! You can't, love!”

As I turned to look, I saw a woman a few rows away from us. She held a gun that she had wrestled from the hands of the man next to her. It was apparent that he had just attempted to put the gun's barrel to his temple. The man looked wane and emaciated, his dull and lifeless eyes staring out into infinity. The woman buried her head in his lap and began to sob.

“Quiet,” the man said, devoid of all emotion.

The sobbing stopped, leaving only the sound of the engine softly humming a funeral dirge. In my mind the plane was stuck in the vast blackness surrounding us. We seemed absolutely motionless. All that was left in the entire universe was the darkness and us, nothing else. Kayoko pressed herself tightly into my embrace, her entire body ice-cold.

Suddenly, a commotion started in the front of the cabin and people began whispering excitedly. I looked out the window to see a dim light emerge from the darkness in front of the plane. The light was blue and formless, spreading uniformly through the impact dust suffused sky.

It was the glow of the Earth Engines.

A third of the Western Hemisphere's Earth Engines had been destroyed by the meteorite strikes — fewer losses than the calculations projected at the start of our journey. The Earth Engines of the Eastern Hemisphere had suffered no losses, being on the reverse side of the impacts. In terms of power, there was nothing stopping the Earth from completing its escape.

The dim light before us left me feeling like a deep sea diver finally seeing the light of the surface after a long ascent from the abyss. I began to breathe easy again. Behind me, I heard the woman's voice.

“My dear, we can only feel fear and pain while we are alive,” she said. “Death…death leaves nothing. On the other side there is only darkness. It is better to be alive, wouldn't you say?”

The thin man did not reply. He was staring at the blue glow, tears welling in his eyes. I knew that he would be able to hold on; we would all be able to hold on, just as long as that promising blue light remained. Watching him and the glow, I remembered my father's words of hope.

After we landed, Kayoko and I did not go directly to our new home in the subterranean city. Instead, we went to visit my father at his surface-side space fleet base. When we arrived, however, all that remained of him was a posthumously awarded medal, cold as ice. I was given the medal by a rear admiral of the fleet. He told me that it happened during the operation to clear the asteroids in Earth's path. An anti-matter explosion had blasted an asteroid fragment straight into my father's single-seater.

“When it happened, the relative speed of rock and spaceship had been sixty miles per second,” the officer told me. “The collision instantly vaporized his micro space-ship. He did not experience any pain; I can assure you, there was no pain.”

When the Earth again began its descent toward the Sun, Kayoko and I ascended to the surface to see the spring. But there was none.

The world was still a vista of gray below the gloomy sky. On the surface, frozen lakes had formed from the residual ocean water, but nowhere was there even a speck of green. The impact dust in the atmosphere blocked the Sun's rays, preventing the temperature from rising. The surface and oceans did not even thaw at the perihelion. All throughout, the Sun remained a faint, dim glow, a ghost looming beyond the impact dust.

Three years later, the impact dust had at last begun to dissipate and humanity was finally approaching its ultimate perihelion. As we reached it, those living on the Eastern Hemisphere had the joy of seeing our world's fastest sunrise and sunset. The Sun leapt from the horizon, only to streak across the sky. The angle of all of Earth's shadows changed so quickly that they looked like the sweeping hands of countless clocks, racing around their imaginary chapter rings with manic determination. It was Earth's shortest day, over in less than an hour.

After that hour, the Sun plummeted back below the horizon and darkness fell across the Earth. I was left with a feeling of sadness. This fleeting day had been like an all too brief synopsis of Earth's 4.5 billion year history in the solar system. And until the end of the universe, Earth would not return.

“The dark has fallen,” Kayoko said then, stricken with grief.

“The longest night,” I replied. We had entered a night that would last 2,500 years. Not until a hundred generations later would the first light of Proxima Centauri again illuminate our hemisphere. The other side of the world was facing the longest day. Even so, it would last just a moment when compared to the age-long night. The Sun would quickly rise to its zenith, where it would remain, motionless, slowly shrinking. Half a century later, it would be difficult to pick out from among the surrounding stars.

The Earth's intended path led it straight to a rendezvous with Jupiter. The Navigation Committee plan was as follows: The Earth's fifteenth orbit would be so elliptical that the aphelion would reach Jupiter's orbit. There Earth would brush past Jupiter, nearly colliding with the giant planet. Using Jupiter's enormous gravity to assist its acceleration, Earth would finally achieve escape velocity.

We first caught sight of Jupiter two months after passing the perihelion. At first the naked eye could only see it as a dim point of light. Soon however, it grew into a small disk. Another month passed and Jupiter had grown to the size of Earth's lost Moon, but it was a sphere of dark crimson, not glowing silver. Already, one could faintly make out its bands. Then some of the Earth Engines beams, all of which had been perpendicular to the Earth for 15 years, began to tilt. Final adjustments were made to the Earth's angle as we approached our cosmic rendezvous.

Jupiter slowly sank below the horizon and three months later it vanished altogether. Now it was visible only to the Western Hemisphere and we knew that two planets had just met.

It almost came as a surprise, when one day we heard that Jupiter would again be visible from the Eastern Hemisphere. Throng upon throng made their way to the surface to witness the cosmic display. When I passed through the gates of the subterranean city and reached the surface, I saw that the Earth Engines that had driven our planet for 15 long years had all fallen completely silent.

Once again, we could see the starlit sky. Our final rendezvous with Jupiter was already in progress.

Everyone nervously stared toward the west as a dim red glow began to appear beyond the horizon. This glow slowly grew, stretching across the entire width of the horizon. Only then did I realize that a neat border had formed between the dim red light and the starry sky. The border was curved, its arc so massive that it spanned from one end of the horizon to the other. Ever so slowly it rose, and as it did, everything below the arc turned dim red. It was as if a theater curtain the size of the night sky was being raised to separate the Earth from the rest of the universe. I could not help but gasp as this occurred to me; that dim red curtain was Jupiter! Of course I knew that Jupiter was 1,300 times the volume of Earth, but only when I saw its immense splendor did I truly

take in its incredible size. It is almost impossible to express the horrible feeling of oppression that this cosmic monster engendered as it rose across the entire horizon.

One reporter later wrote, “I could not help but wonder if I had woken in my own nightmare or if the entire universe is but a nightmare in the gigantic mind of that god!” As Jupiter continued its terrible rise, it gradually occupied half of the sky. We could then clearly see the tempests raging in its cloud layers; chaotic, swirling lines of those storms dazed all who beheld their maddening dance. As I stared, I recalled the boiling oceans of liquid hydrogen and liquid helium that lay beneath those thick cloud layers.

Then the famous great red spot of Jupiter rose, the cyclopean maelstrom that had raged for hundreds of thousands of years. It was large enough to swallow our insignificant planet three times over.

Jupiter now filled the entire sky. Earth seemed to be no more than a balloon, bobbing on Jupiter's boiling ocean of dim red clouds! Even worse, Jupiter's giant red spot had come to occupy the middle of our new heaven, like a titanic red eye staring at our world. All of Earth was shrouded in its ghastly red light; in that moment it was impossible for anyone to believe that our tiny Earth could escape the gravitational pull of that enormous monster. For us, it was not even imaginable that Earth could become Jupiter's satellite; we would certainly plummet straight into the inferno concealed beneath that boundless ocean of clouds!

But the navigator's calculations were exact. That bewildering, dim red heaven slowly began to move and, after some indeterminable time, the western sky began to reveal a black crescent. This black quickly grew in size and within it stars began to twinkle; Earth was rushing out of Jupiter's gravitational clutches.

As Earth escaped, sirens began to wail. The gravitational tide that Jupiter had drawn toward itself was rushing back to land. Later I learned that great waves reaching higher than

300 feet had again swept across the continents. As the waters rushed toward the sealed gates of the subterranean cities, I stole one last glimpse at Jupiter, now filling but half of the sky. As I did, I could clearly see streaks marring the planet's cloud oceans. Subsequently, I came to realize, that they had been the result of Earth's own gravitational pull; our planet, too, had caused massive waves on the Jupiter's liquid hydrogen and helium oceans.

Then the Earth, accelerated by Jupiter's gravitational forces, was hurled into deep space.

As we left Jupiter, the Earth reached escape velocity. It no longer needed to return, to lurk within the grasp of the doomed Sun. It was flying toward the vastness of outer space, to begin its long Wandering Age.

It was under the dark red shadow of Jupiter that my son was born, deep beneath the Earth.

# CHAPTER 3

# Rebellion

**A**fter leaving Jupiter behind, the more than 10,000 Asian Earth Engines again began firing at full power, and this time they would not stop for 500 years as they perpetually accelerated Earth toward its destination. In these 500 years, half of Asia's mountains would be consumed, burnt in the Earth Engine's nuclear fire.

Humanity was free, free from the dread of death that had been our constant companion for more than 400 years. What followed was one long, deep, and collective sigh of relief. But the revelry that everyone had expected never materialized. What in fact followed was beyond anything what anyone could have ever imagined.

After our subterranean city's celebratory rally had ended, I donned my thermal suit and ascended to the surface, alone. The mountains of my childhood had already been leveled by the super-excavators, leaving only bare rock face and frozen Earth. The bleak emptiness was broken by splotches of stark white that covered the land as far as the eye could see; the salt marshes left behind by the great ocean tide. Before me loomed the city of my father and my grandfather. What had once been a home to 10 million now lay in a pile of ruins. The Earth Engines' blue glow dragged long shadows from the exposed steel skeletons of the city's skyscrapers as they reached from the Earth like the fossil remains of prehistoric beasts.

The repeated floods and meteorite strikes had destroyed virtually everything that had once stood on the Earth's surface. All that humankind and nature had wrought over millennia lay in ruins. Our world had been reduced to a Mars-like desolation.

Shortly thereafter I noticed that Kayoko had become restless. She would often leave our son to fly off in the car on her own. When she returned, she would only say that she had been to the Western Hemisphere. Then finally, one day she dragged me along.

We traveled for two hours at Mach 4 in our flying car until we could finally see the Sun rising over the Pacific, barely the size of a baseball. It illuminated the frozen ocean below with its faint, cold light.

Kayoko put the car into hover at an elevation of three miles. She then produced a long tube from behind our backs. As she removed its cover, I saw that it was an astronomical telescope, the type that hobbyists use. Kayoko opened the car's window and pointed the telescope at the Sun. Then she asked me to look.

Through the telescope's colored lens I could see the Sun, magnified by several hundred magnitudes. I could clearly see even the Sun's faint halo and the sunspots ever so slowly moving across its surface.

Kayoko connected the telescope to a computer that she had also brought along and captured an image of the Sun. She then opened another image of the Sun on the screen and said, “This is an image of the Sun from four hundred years ago.” As she spoke, the computer began comparing the two images.

“Do you see that?” she asked, pointing at the screen. “All the parameters, the luminosity, the pixel arrays, the pixel probability, the layer statistics — they are all exactly the same!”

I shook my head. “And what does that show? A toy telescope, a basic image processing program and you, an

ignorant amateur.” I paused, but then continued. “Just forget about it; don't believe the rumors!”

“You're an idiot,” she shot back, taking back the telescope and turning the flying car around.

Only as she did so did I notice a number of other flying cars in the distance, both above and below us. They were hovering in the air, like we had been, a telescope extending from every car toward the Sun.

Several months later the terrible theory began spreading across the entire world like a wildfire. More and more people took it upon themselves to study the Sun with ever larger and more precise instruments. An NGO even came to launch a group of probes toward the Sun. After three months the probes hit the Sun. The data they sent back finally proved the fact: In the past 400 years, the Sun had not changed, not changed at all.

All around the world, the subterranean cities turned into bubbling volcanoes of unrest threatening to explode at any moment. In this atmosphere, Kayoko and I placed our son in a fostering center in accordance with the laws of the Unity Government. As we returned home, we both felt the undeniable truth that the only strand holding us together had been removed. As we passed the central plaza, we came upon a rally in full swing. We saw that some of the instigators were handing out weapons to the attending citizens.

“Citizens! The Earth as been betrayed! Humanity has been betrayed!” the leader of the rally shouted out. “Civilization has been betrayed! We are all the victims of a colossal hoax! A hoax so great and terrible that it would shock the gods! The Sun still is our old Sun; it will not explode! Past, present and future, it is the very symbol of eternity! What is explosive is the wild and insidious ambition of those in the Unity Government! They fabricated it all so that they could bring about their dictatorial empire! They have destroyed the Earth! They have destroyed human

civilization! Citizens, you citizens of conscience, take up arms!” the speaker shouted out to the masses. “Rescue our planet! Rescue civilization! We will topple the Unity Government! We will take control of the Earth Engines! We will guide our planet back from the cold depths of space, home to its intended orbit! We will return to the warm embrace of our Sun!”

Kayoko quietly stepped forward, accepting an assault rifle from one of the men handing out the weapons. In silence she joined a column of armed citizens. She did not look back as she disappeared into the depths of the city together with that vast formation of like-minded citizens. I stood dumbfounded. In my pocket I tightly grasped the medal that had been given in exchange for my father's life and loyalty.

Its points dug into my hand and drew blood.

Three days later the fires of rebellion were ignited simultaneously across the world. Wherever the rebels went, the people rose to meet their call. At that time, very few people still doubted that they had been deceived. Nonetheless, I joined the army of the Unity Government. It was not that I had great faith in the Unity Government, but my family had served in the military for three generations and they had sown the seeds of loyalty deep in my heart. For me, rebellion against the Unity Government was unthinkable, no matter what the circumstances.

One after another, the Americas, Africa, Oceania, and Antarctica fell into rebel hands as the Unity Government drew defensive lines around the Earth Engines in Eastern and Central Asia, ready to defend them to the very last. The rebels quickly surrounded these lines. Their forces vastly outmatched the government troops. There was only one reason that their offensive stalled; it was all about the Earth Engines. The rebel forces had no desire to destroy the engines and so they avoided deploying heavy weapons in

this vast theater of war. The government forces could thus cling to their positions, even as their situation worsened with every day.

The two sides remained locked in this stalemate for three months. But, when a succession of twelve Unity Government field armies defected in the midst of critical engagements, the government's defensive lines in East and Central Asia finally and completely collapsed. Two months later, the Unity Government, its situation bleak beyond hope, found itself encircled at the Earth Engine control center, its back to the frozen ocean. All that was left of its army was a contingent of less than 100,000 troops. I was a major in that remnant army.

The control center was the size of a city, built around the Earth Bridge. I found myself in its field hospital, my arm badly burnt by laser fire. It was there I learned that Kayoko had been killed in action in Australia. Like the others in the field hospital, I drank myself into a stupor virtually ever day. We lost all track of the war raging outside, and we could not have cared less.

I do not know how much time had passed when I heard someone shouting at the top of their lungs.

“Do you know how things came to this? You have only yourself to blame. In this war, you stood against humanity and so did I.”

As I turned my head to see, I discovered a general's star gleaming on the speaker's shoulder. He continued his speech. “Be that as it may, we have one more chance to save our souls. The Earth Bridge is only three blocks away. We can take it and hand it over to the sane humanity outside. We gave our all fulfilling our duty to the Unity Government; now we must do the same for our duty to humanity!”

Using my good arm I drew my pistol and together with this suddenly frenzied mass of able-bodied and wounded, I surged down the steel passageways toward the Earth

Bridge. To our surprise, we encountered almost no resistance along the way. In fact, more and more people emerged from the maze of metal corridors to join our march. In the end we came upon a gigantic metal gate, rising above us as far as the eye could see. With a loud rumble it opened and we charged onto the Earth Bridge.

Even though we had seen it countless times on TV, we were all nonetheless shocked by the magnificence of the Earth Bridge. In was hard to judge the size of the bridge by just looking at it as its dimensions were hidden by the gigantic hologram that dominated the room. The hologram was a simulation of the solar system. Almost all of it was black space, stretching limitlessly in all directions.

Entering the bridge we seemed to float in the middle of this blackness. Because the model was designed to represent the actual proportions as accurately as possible, the Sun and planets were tiny. They were so tiny that they looked like mere fireflies glowing in the distance. Nonetheless, they remained clearly distinguishable. A conspicuous red spiral expanded out from the distant central dot of light that represented the Sun. It spread like red rings of water on a black ocean. It was the Earth's path. At a point far along the spiral, the line turned from red to bright green, representing the route the Earth had yet to travel.

The green line swept over the top of our heads and as we let our gaze follow it, we could see a splendid sea of stars. The line disappeared into the depth of that sea, its end beyond our purview. Many specks of glittering dust also floated in the middle of the vast blackness of the hologram. As some of these specks floated closer, I realized that they were virtual screens, revealing a scrolling procession of complex figures and curves.

I then saw the Earth Navigation Platform, the apple in the collective eye of humanity. It looked like a silver asteroid, floating in the blackness. Seeing the platform, it was hard to

grasp its immense size; the Navigation Platform itself was a large forum, currently densely packed with more than 5,000 people. They included the leaders of the Unity Government and a large part of the Interstellar Migration Committee — which was responsible for implementing the plans for Earth's travels — as well as some last remaining loyalists. As we took all of this in, we heard the voice of the Supreme Executive Officer echo into the black around us.

“Of course we could fight to the end, but that could lead to us losing control of the Earth Engines. If that should happen, the excess fissile material could burn straight through the entire planet or evaporate all of Earth's oceans. And so we have decided to surrender. We understand the people. They have already endured forty generations of hardship and struggle and they have nothing to look forward to for a further one-hundred generations. It would certainly be unrealistic to expect them to remain reasonable throughout it all. But we ask that the people remember that we, the five thousand who stand here, from the Supreme Executive Officer to every last private, stood firm in our convictions to the very end. We know that we will not see the day that we are proven right, but if humanity should endure eternally, all will eventually come to shed tears before our graves. This sphere called Earth shall be an eternal monument in our memory!”

The giant doors of the control center opened with a deep rumble and those 5,000 people, the last of the Earth Faction, emerged. They were then marched to the coast by rebel forces. The road they took was lined with throng upon angry throng. The enraged masses spat at the prisoners and pelted them with rocks and pieces of ice. The visors of some thermal suits shattered, exposing the faces beneath to temperatures more than 150-degrees below freezing. But even as they were numbed by the terrible cold they trudged on, fighting for every step. I saw a small girl pick up a large chunk of ice. Exerting all the strength her small body could

muster, she furiously smashed it against the body of an old government official, the unbridled rage in her eyes seeming to burn straight through her visor.

When I heard that every last one of these 5,000 had been sentenced to death, I could not help but feel that they were being treated too leniently. How could one death be enough? How could one death redress their crimes? How could they pay for the crime of perpetrating an insane hoax that destroyed both the Earth and human culture? They should die a thousand times over! I then recalled those astrophysicists who had forecast the explosion of the Sun and those engineers who had designed and built the Earth Engines. They might have all passed away a century ago, but I then truly thought that they should be exhumed and that they too should suffer a thousand deaths.

I was genuinely grateful when I learned that their executioners had come up with a good way to put them to death: They would remove the nuclear battery from the thermal suits of all those who had been sentenced to death. Then, they would leave them on the frozen surface of the ocean. Without the batteries to heat their suits they would succumb to the subzero temperatures, the cold slowly wresting all life from their bodies.

So the most treacherous, most disgraceful criminals of human history were gathered on the frozen ocean. As they stood there densely packed, more than a hundred thousand gathered on the shore to witness their demise. More than a hundred thousand jaws clenching in anger, more than a hundred thousand pairs of eyes burning with the same fury I had seen in that little girl.

All of the Earth Engines were shut down then. The stars hung majestically over the frozen ocean. As I looked up at them, I imagined the countless frozen pins and needles that the cold was driving into the bodies of the convicted. I imagined their blood freezing; the life slowly seeping from their bodies. A pleasant warmth flowed from my mind and

over my entire body as I embraced those images. Seeing those people slowly die, tormented by the cold, cheered the spirits of everyone watching from the shore and they began to sing, “My Sun.”

I sang as well, my eyes gazing into that direction. There a slightly larger star shone, its round disk sending forth yellow light; the Sun.

Oh, my Sun, mother of life, father of all things; what could be more steady than you? What could be more eternal than you? We are so tiny, carbon-based bacteria, below the contempt of even dust, crowded on a pebble that revolves around you. We dared to prophesize your doom; how incredibly stupid we were!

An hour passed and those criminals, those enemies of humanity, still stood on the frozen ocean. But there was no more life in them, their blood having frozen in their veins.

Suddenly, I lost all sight. Seconds passed before my vision slowly began to recover. The ice fields, the seashore, and all the people standing on the ocean and at the shore gradually began to reform in front of my eyes. Finally everything was clear, even clearer than it had been before; clearer because the world was enveloped in an intense brightness. It was this sudden glare that had blinded me a moment ago.

The stars did not reemerge, their light drowned out by the intense glare. It was as if the entire universe had melted into brilliance. The light burst from a point in the sky, a point that was now the center of the universe. That point was in the direction that I had just stared into a moment before.

The helium flash had occurred.

The chorus of “My Sun” froze in mid-song. The many thousand on the shore were dumbfounded; they almost resembled the 5,000 on the ice beyond, standing frozen, rigid as rock.

The Sun's light and warmth blessed the Earth one last time. The dry ice on the surface was first to melt, rising into

plumes of white steam; then the surface water of the ocean also began to thaw. A great rumble that shook the heavens and the Earth rose as the layers of ice were unevenly heated. Gradually, the light softened and a faint blue began to color the sky. Later, polar lights born by the intense solar wind began to play across the sky above. They waved across the firmament like giant colorful curtains.

The last of the Earth Faction stood firm in this sudden splendid sunlight; 5,000 dignified statues.

The solar eruption lasted only briefly, and after two hours the light rapidly weakened and then faded altogether.

Where the Sun had been, a dark red sphere now hung, gradually swelling. Seen from our wandering Earth, it slowly grew to the size of the Sun of old, a strange memory from Earth's original orbit. In fact, it was now so massive that it stretched beyond the orbit of Mars. Mercury, Mars, and Venus, Earth's three terrestrial fellows, had then already been burned to wisps of smoke, vaporized by radiation of almost 200 million degrees.

The red sphere in the sky was not our Sun anymore. No longer glowing with light and warmth, it looked like a cold piece of red paper glued to the firmament. Its dark red radiance seemed but a reflection of the surrounding starlight. The Sun had reached the final destination of all low-mass stars, transforming into a red giant.

Five billion years of majestic life now were no more than a passing dream. The Sun had died.

Fortunately, humanity remained.

# CHAPTER 4

# The Wandering Age

**A**s I recall of this, half a century has come to pass. Twenty years ago our path crossed Pluto's orbit. Earth had left the solar system for good, continuing its journey in the cold vastness of outer space alone.

I last visited the surface more than a dozen years ago accompanied by my son and daughter-in-law, a blond haired, blue-eyed girl. She was heavily pregnant then.

After arriving on the surface, the first thing I noticed was that I could not see the Earth Engines' massive beams even though I knew they were all running at full power. The Earth's atmosphere had disappeared, leaving nothing for the plasma's glow to diffract against. I saw strange translucent yellow and green crystals scattered across the Earth's surface. They were made of solid oxygen and nitrogen; our frozen atmosphere.

Interestingly enough, the atmosphere had not frozen evenly across the Earth's surface. Instead, it had formed irregular bulges, like small translucent hills. On the frozen, once flat ocean they gave birth to a new and alien landscape. Above, the stars of the Milky Way stretched unmoving across the sky. They too seemed frozen. Their light, however, was bright enough to dazzle the eyes, if one looked long enough.

The Earth Engines will now run for 500 years without interruption, accelerating the Earth to 0.5 percent of the

speed of light. The Earth will then cruise, shooting through space at this incredible speed for 1,300 years. Then, when the Earth has completed two-thirds of its journey, we will again turn the direction of the Earth Engines and the Earth will begin its 500-year deceleration. After 2,400 years of travel the Earth will finally reach its new home, Proxima Centauri. Over the course of a century it will be docked into orbit around the star, becoming its planet.

In time, I will be gone,
So far our voyage wandering,
But call me at the dawn
When the East glows in light rising.
In time, I will be gone,
So long past the journey began,
But call me at the dawn
When the sky above shines blue again.
In time, I will be gone,
So distant our solar story,
But call me at the dawn
When the trees bloom with fresh glory…

Every time I hear that song, warmth flows through my stiff, aging body and my dry, old eyes moisten once more. Before my mind's eye the three suns of Alpha Centauri rise in procession, bathing life in their warm light. The solid atmosphere has melted, once again rising as blue sky. Two-thousand-year-old seeds are reborn from the thawed soil, covering the Earth in green. I see my great-grandchildren, a hundred generations removed, laugh and play in these green fields. Clear streams cross the grassland, giving home to small silver fishes… I see Kayoko, running towards me across the green Earth; she is young and beautiful, like an angel…

Oh, Earth, my wandering Earth…

# Mountain

# CHAPTER 1

## Where There's a Mountain

**“T**oday is the day I'm finally going to get you to tell me what is up with you never going on land,” the Captain declared, arching an eyebrow. “It's been five years and the *Bluewater* has docked in heaven knows how many ports in more countries than I can count, yet you have never gone ashore; not even when we docked back in China. And not even last year, back in Qingdao when we were in for overhauls. You're the last person I’d need to tell that the ship was a complete mess, and noisy, and still you stayed put, holed up in your cabin for two months,” the Captain continued, eying Feng Fan intensely he spoke.

“Do I remind you of that guy Tim Roth played in 'The Legend of 1900'?” Fan asked in return.

“Are you insinuating that if we ever scuttle the *Bluewater*, you plan on going down with the ship like he did?” the Captain countered, himself not sure if Fan was joking or not.

“I'll change ships. Oceanographic vessels always have a place for a geological engineer who'll never leave ship,” Fan replied.

The Captain returned to his original point. “That naturally begs the question: Is there something on land that keeps you away?”

“On the contrary,” Fan answered, “there is something that I yearn for.”

“And what's that?” the Captain asked, curious and now a bit impatient.

“Mountains,” Fan uttered, his gaze dissolving into a thousand-mile stare.

They were standing portside on the geological oceanographic research vessel the *Bluewater*, looking out onto the equatorial waters of the Pacific. The *Bluewater* had crossed the equator for the first time a mere year ago. Back then, they had given into the whimsy of marking the occasion with the ancient rite of the line-crossing ceremony. Their discovery of a manganese nodule deposit in the seabed, however, had left them crisscrossing the equator more times than any of them could possibly remember. Now, they had all but forgotten about the existence of that invisible divider.

As the Sun slowly set beyond the sea's western horizon, Fan noticed that the ocean was unusually calm. In fact, he had never seen it so quiet. It reminded him of the Himalayan lakes, perfectly still to the point of blackness, like the eyes of the Earth. One time, he and two of his team had sneaked a peek at a Tibetan girl bathing in one of those lakes. A group of shepherds had spotted them and given chase, blades drawn. When they had failed to catch them, the shepherds had resorted to slinging stones at them. The disconcertingly accurate bombardment had left Fan and his cohorts no other option than to surrender. The shepherds had sized them up and finally let them go.

Feng Fan recalled that one of them had muttered in Tibetan: “For outsiders, they sure could not run quickly up here.”

“You like the mountains? So that's where you grew up then?” The Captain ended Fan’s reminiscing.

“No, not at all,” Feng Fan explained. “People who live their entire life surrounded by mountains usually care nothing for them. They end up seeing the mountains as the thing that stands between them and the world. I knew a

Sherpa who had scaled Everest forty-one times, but every time his team would get close to the peak, he'd stop and watch the others climb the final stretch. He just couldn't be bothered to make it to the top. And make no mistake about it; he could have easily pulled off both the northern and southern ascent in ten hours.

“There are only two places where you can really feel the true magic of the mountains: On the plains from far away and standing on a peak,” Feng Fan continued. “My home was the vastness of the Hebei Plain. In the West, I could see the Taihang Mountains, but between them and my home lay an immense expanse of perfectly flat land, without obstructions or markers. Not long after I was born, my mother carried me outside the house for the first time. My tiny neck could barely carry my head, but I already turned to the West and babbled my heart out. As soon as I learned to walk, I took my first tottering steps toward those mountains. When I was a bit older, I set out one early morning and walked along the Shijiazhuang-Taiyuan Railway. I walked until noon before my grumbling stomach made me turn back, yet the mountains still seemed endlessly far away. In school, I rode my bicycle toward the mountains, but no matter how fast I peddled, the mountains seemed to withdraw just as quickly. In the end, it never felt as if I had gotten even an inch closer to them. Many years later, far mountains would again become a symbol of my life. Like so many things in life that we can clearly see but never reach; a dream crystallized in the distance.”

“I visited there once,” the Captain noted, shaking his head. “The mountains are very barren, covered with nothing but scattered stones and wild grasses. You were doomed to be disappointed.”

“I wasn't. You and I feel very differently about these things. For me, all I saw was the mountain and all I wanted was to climb it. I really wasn't looking for anything on the mountain. When I climbed those mountains for the first time

and I saw the plain stretch out below me, I felt like I had been reborn." As Feng Fan finished, he realized that the Captain was paying no heed to his words; instead, he was looking to the sky, staring at the scattered stars.

"There," the Captain said, pointing skyward with his pipe. "There shouldn't be a star there."

But there was a star. It was very dim, barely visible.

"Are you sure?" Fan turned his gaze from the sky to the Captain. "Hasn't GPS done away with sextants? Do you really know your stars that well?"

"Of course I do," the Captain answered. "It is one of the basics of knowing the craft of sailing." Turning back to Fan, he again took up the topic at hand. "But you were saying ..."

Feng Fan nodded. "Later at the university, I put together a mountaineering team and we climbed a few seven-thousand-footers. Our final climb was Everest."

The Captain carefully studied Feng Fan before finally saying, "I thought so! It really is you! I always thought that you looked familiar. Did you change your name?"

"Yes, I used to be called Feng Huabei," the now-marine geologist admitted.

"Some years ago you caused quite the stir. Was what the media said about you true then?" the Captain asked.

"The gist of it. In any case, those four climbers certainly are dead because of me," Fan said glumly.

Striking a match to relight his pipe, the Captain continued. "I reckon that being the leader of a mountaineering team is not that different from being a captain: The hardest part is not learning when to fight on, but understanding when to back down."

"But if I had backed down then, it would have been very hard to get another shot at it," Fan immediately replied. "You probably know that mountain climbing is a very costly undertaking, and we were just college students. It was not easy for us to find sponsors." He paused, taking a deep breath. "The guides we hired had refused to go on and so it

took much longer than anticipated before we set up the first base camp. The forecast predicted a storm, but we studied the images and maps and came to the conclusion that we still had at least twenty hours before it would hit. By then, our team had already set up the second camp at twenty-six thousand feet and so we thought that we could make it to the peak if we just set out immediately. You tell me, how could we have backed down then? We never even contemplated giving up, and so continued our ascent."

"That star is getting brighter," the Captain said, looking up again.

"Of course it is; the sky is getting darker," Fan retorted dismissively.

"This seems different," the Captain noted. "But go on."

"You probably know what happened next: When the storm hit, we were close to the so-called 'Chinese Ladder' of the Second Step on a vertical rock face that rises from twenty-eight thousand five-hundred feet. The peak was almost within reach, and save for a strand of cloud rising from the other side of the summit, the sky was still perfectly blue. I can still clearly remember thinking that the peak of Everest looked like a knife's edge cutting open the sky, drawing forth its billowing, pale blood." Fan paused at the memory before returning to his tale. "It only took moments before we lost all visibility; when the storm hit us out of nowhere, it whipped up the snow. Everything was shrouded in impenetrable white that left only murky darkness. In a dread instant, I felt the other four members of my team blown off the cliff. They were left hanging by my rope. And all I was clinging to was my ice ax wedged into a crack in the wall. It simply could not have held the weight of five. I acted on instinct, cutting the buckle strap that held the rope. I let them fall." He paused again, swallowing hard. "They still haven't found the remains of two of them."

"So four died instead of all five," the Captain noted dryly.

“Sure, I acted in accordance to the mountaineering safety guidelines. Even so, it remains my cross to bear.” Fan paused again, this time distracted by something other than his memories. “You are right; there is something strange about that star. It definitely is getting brighter.”

“Never mind,” the Captain said. “Does your current…” he paused, pursing his lips, “…shall we say *condition,* have anything to do with what happened then?”

“Do I have to spell it out? You must remember the overwhelming condemnations and the crushing contempt the media heaped on me back then,” Fan reminded. “They said that I acted irresponsibly, that I was a selfish coward, that I sacrificed my four companions for my own life.” He was clearly still pained. “I thought that I could at least clear myself of that last accusation, so I donned my climbing gear and put on my mountain goggles. Ready for a climb, I went to my university's library and scaled a pipe straight up to its roof. I was just about to jump when I heard the voice of one of my teachers; I hadn't noticed him come up to the roof behind me. He asked me if I was really willing to let myself off the hook that easily and if I was just trying to avoid the much harsher punishment awaiting me. When I asked what he meant he told me that of course it would have to be a life as far away as possible from mountains. To never again see a mountain – would that not be a harsher punishment?

“So I did not jump. Of course, I attracted even more ridicule, but I knew that what my teacher had told me was right: It would be worse than death for me. To me, mountain climbing had been my life; it was the only reason I studied geology. To now live a life, eternally separated from the object of my passion, tormented by my own conscience – it really felt just. That was the reason why I applied for this job after graduation, why I became the geological engineer of the *Bluewater*. On the ocean,” he said with a sigh, “I am as far as I can be from mountains.”

The Captain stared blankly for a long moment, at a loss for words. Finally, he came to the conclusion that it would probably be best to just leave it be. Conveniently, something in the sky above abruptly forced a change of topic. “Take another look at that star,” he said, an edge in his voice.

“Heavens,” Fan exclaimed as he, too, looked up. “It is turning into something!”

The star was no longer a dot, but had become a small but rapidly expanding disk. In the blink of an eye it had turned into a striking sphere in the sky, glowing with blue light.

A flurry of rapidly approaching footsteps drew their gaze back down to deck. It was the First Mate, running straight towards them.

He was barely within earshot when he in one breath called to the Captain, “We have just received message; an alien ship is approaching Earth! We can clearly see it from our position on the equator! Look, there it is!”

The three of them looked up only to see that that small sphere had continued its rapid expansion. It had already ballooned to the size of the Moon.

“All stations have ceased their regular broadcasts and are now reporting on it!” the First Mate rattled on. “The object had been spotted earlier, but they have just now confirmed its true nature. It is not responding to any of our attempts to hail it, but its trajectory shows that it is being propelled by some immense force, and it is hurtling straight toward Earth! They say it is as big as the Moon!” He held an ear-piece to his head, listening intently.

Above, the alien sphere was no longer the size of the Moon; it was now easily 10 times as big, looming large in the heavens. It appeared much closer than the Moon. With a finger firmly on his ear-piece, the First Mate continued, “... they say that it has stopped. It is now in geosynchronous orbit twenty-two thousand miles above the Earth. It has become a geostationary satellite.”

“A geostationary satellite? Are you saying it is just going to hang above us?” the Captain shouted.

“It is! Over the equator, right above us!” the First Mate confirmed.

Feng Fan stared at this huge sphere in the sky; it seemed almost transparent, suffused with an unfathomable blue light. Looking at it left Fan with the strange impression of staring right up at an orb of seawater. There was the feeling of profound mystery, an intense anticipation that would grip him every time the sampling probe was raised from the seabed. Looking up now, he experienced a very similar sensation. It was as if some long-forgotten remnant of time immemorial had returned to the surface.

“Look, the ocean!” the Captain shouted, wildly thrusting his pipe aft-ward. “What is happening to the ocean?” He was the first to break free from the hypnotic power the giant sphere seemed to exert over all of them.

Where he pointed, the ocean's horizon had begun to bend, curving upward like a sine wave. This huge swell of rising water rapidly grew taller and taller. It was as if a titanic yet invisible hand was reaching down from space to scoop up the ocean.

“It’s the spaceship's mass! Its gravity is pulling at the ocean!” Feng Fan exclaimed, rather surprised that he still had enough of his wits about him to understand what was happening. The ship's mass was probably equivalent to that of the Moon, but it was 10 times closer! It was fortunate that it had only entered a geosynchronous orbit. The water it was pulling would be held in one spot. If the spaceship moved, it would send a gravitational tidal wave across the world so large that it could easily ravage continents and destroy cities.

This colossal flood had by now swelled up to the heavens, rising as a flat-topped cone. Its body shone with the blue glow of the ship above, even as its edges burned with the bright crimson fire of the setting Sun, now hidden

behind the towering waves. The stark, cold air at the cone's top chilled the froth, sending forth streams of misty clouds. These clouds quickly bled away in the night sky, almost as if the dark heavens had been cut open. Feng Fan felt his heart stir with memories as he took it all in. His mind drifted toward the day of the climb…

“Give me its height!” the Captain shouted, jerking him back to the here and now.

A mere minute later, someone called out, “Almost thirty-thousand feet!”

Before them was the most terrifying, most awesome, and most magnificent sight humanity had ever faced. All on deck stood transfixed by its spell.

“It must be destiny …” Feng Fan mumbled, mesmerized more than most by its grandeur.

“What did you say?” the Captain loudly demanded, his eyes still fixed on the rising waters.

“I said that this must be destiny,” Fan repeated.

It was – it *had* – to be destiny. He had gone to sea to avoid mountains, to put as much distance between them and him as humanly possible; and now he was in the shadow of a mountain that eclipsed even Everest by almost a thousand feet. It was the world's tallest mountain.

“Port five! Full ahead! We need to get out here now!” the Captain commanded the First Mate.

“Out of here? Is it dangerous?” Feng Fan asked, confused.

“The alien spaceship has already created a huge area of low pressure. Right now a gigantic cyclone is taking form. I tell you, this could be the greatest tempest the world has ever seen. If it catches the *Bluewater*, we will be ripped straight out of the water and tossed about like a leaf in a storm. I just pray we will be able to outrun it,” the Captain explained, sweat clearly visible on his brow.

Just then the First Mate signaled them all to be quiet. Covering his ear-piece with one hand, he listened intently, and then said, “Captain, the situation is much worse than

that! They are now saying that the aliens have come to destroy Earth! With nothing but its enormous mass, their ship is doing much, much worse than just raising a storm; it is about to spring a leak in Earth's atmosphere!”

“Leak? Leak to where?” the Captain asked, his eyes wide.

The First Mate explained what he had just heard over the radio. “The spaceship's gravity will puncture the upper layers of the atmosphere. Earth's atmosphere will be like a pricked balloon, its air escaping through that puncture, right into space! All of Earth's atmosphere will disappear!”

“How long do we have?” the Captain asked, confronted with horror after horror.

“The experts say that it will only take a week or so for the atmospheric pressure to fall to a lethal level,” the First Mate reported mechanically, but his wild eyes betrayed his panic. “They say that when the pressure falls to a certain point, the oceans will begin to boil.” He continued, his voice beginning to break. “Heavens, that would be like ...” His head shook as he heard further news. “All of Earth's major cities have fallen into chaos. Humanity has lost all semblance of sanity. Everywhere people are rushing into hospitals and factories, pillaging all the oxygen they can get their hands on.” His eyes continued to widen. “Wait, now they are saying that Cape Canaveral is being overrun by a crazed mob trying to get its hands on the liquid oxygen used in the rocket fuel.” The First Mate's spirit appeared to slump along with his body. “Oh, it’s all over!”

“A week? That doesn't leave us enough time to make it home,” the Captain said steadily. It seemed that his composure had returned. With a quick flick of his fingers, he re-lit his pipe.

“Right, there's no time to make it home ...” the First Mate echoed, his voice now devoid of all emotion.

“If that is what it's going to be, we might as well get on with it and make the best of the time we have left,” Feng Fan noted, a sudden edge of enthusiasm in his voice. His

entire body was readying to the occasion, flush with the energy of excitement.

“And what is it that you want to do?” the Captain asked.

“Climb a mountain,” Fan answered with a smile.

“Climb a mountain? Climb…?” The First Mate's face suddenly twisted from puzzlement to outright shock. “*That* mountain?” He gasped, pointing at the mountain of water looming above them.

“Yes; now it is the world's tallest peak. Where there's a mountain, there will be someone to climb it,” Fan replied calmly.

“And how do you plan to climb it?” the First Mate asked.

“Isn't it obvious? Mountain climbing is something one does with hands and feet; so I will swim,” Fan said with a smile.

“Are you crazy?” the First Mate shouted. “How are you going to swim up a thirty-thousand-foot slope of water? It looks like a forty-five degree incline to me! That is going to be very different from climbing a mountain. You will have to swim non-stop; and if you stop, even for a moment, you'll be sliding down the side!”

“I will give it a try.” Fan would not be dissuaded.

“Let him go then,” the Captain flatly stated. “What better time than now to embrace our passions? How far is it to the foot of that mountain?”

“About a dozen miles,” someone answered.

“You can take one of the life-boats,” the Captain told Feng Fan. “Remember to take enough food and water.”

“Thank you!” Fan expressed his heartfelt gratitude.

“It looks like today fortune smiles upon you,” the Captain said with a wry smile, giving Feng Fan a slap on the shoulder.

“I believe so,” Fan replied. “Captain, there is one thing I haven't yet told you: One of the four climbers on Everest was my girlfriend. A single thought flashed through my mind when I cut that rope: I don't want to die; there is still

another mountain to climb," he said, pain and bright enthusiasm merging in his eyes.

"And," the First Mate said, looking lost, "what do we do?"

"Full speed ahead and away from that storm; we'll take it a step at a time. One more day to live is one more day to live," the Captain answered thoughtfully.

Feng Fan stood in the lifeboat, his gaze following the *Bluewater* as it sailed into the distance. Soon, the ship he had once seen as his home for life was well and truly out of reach.

Behind him, the mountain of water towered serenely under the blue glow of the alien sphere. Had he not seen it form, he could have easily been tricked into thinking that it had been there for millions of years. The ocean was very calm, its flat surface unruffled by waves. Feng Fan, however, could feel a breeze brush past his face; it was still weak, but it blew toward the looming waters. Raising the lifeboat's sail, he began his journey to the mountain. Soon, the wind picked up and his vessel's sail filled in its wake. The lifeboat's prow now cut the ocean's surface like a knife as it sped toward Fan's goal.

In the end, the 12-mile journey took no longer than 40 minutes. As soon as Feng Fan began to feel the hull of his boat climb the slope of water, he bailed. Off the side of his vessel he leapt into the shining blue waters that were aglow with the light of the alien vessel above.

A few strokes later he had become the first person to climb a mountainside by swimming.

From where he was now, he could no longer see the summit. Lifting his head out of the water, all before him was an unending expanse of sloping water. He could almost image a titan beyond the horizon, lifting the ocean like a vast, watery blanket.

Feng Fan began to swim with a breaststroke, conserving as much energy as possible. The First Mate's warning was

still fresh in his mind. A quick calculation told him that it would be about eight miles to the summit. On level water, his endurance would easily have allowed him to cover the distance, but here he would have to deal with the slope. If he stopped moving up, he would be slipping down. That alone would make reaching the summit almost impossible. It did not matter; the very act of even attempting to climb this watery Everest was a greater realization than he had ever dared hoped for in all of his mountaineering dreams.

As these emotions washed over him, Fan became aware of more physical sensations. He almost felt as if his body was gradually being pulled up along the slope. Swimming up seemed to demand no additional effort. Looking back, he could see the lifeboat that he had abandoned at the mountain's foot. Before leaving the vessel he had lowered its sail, yet it remained floating on the slope, strangely stationary. Fan gave it a try.

He ceased his strokes and began to carefully observe his surroundings. He was not sliding. Quite to the contrary, he was floating on the slope as if it did not exist at all! Fan slapped his forehead as he cursed his and the First Mate's foolishness: If the ocean's water on the slope did not flow downward, why would a person? Or a boat, for that matter?

The gravitational pull down the incline was being neutralized by the giant sphere's mass. The further up he climbed, the less he would feel of Earth's gravity. It meant that the slope's angle would not matter one bit. As far as gravity was concerned, there was neither a watery slope nor a mountain in the ocean. The forces acting on him would be no different from those on the level ocean.

He now knew this mountain would be his.

He continued to swim upward. As he climbed, he felt his strokes gradually become less and less exerting. In large part, this was due to his body growing lighter, making it easier and easier to come up for air. Around him, Fan could see another sign of the reduced gravity: The higher he got,

the slower the ocean's spray fell. This phenomenon was mirrored in the undulations and movements of the waves. They, too, grew ever slower the higher he swam. The harshness of the open sea had all but left them, leaving the waves softer and gentler than normal gravity would ever allow.

It was by no means calm, however. The wind was picking up and bands of waves had begun to rise on the watery slope. Freed from much of Earth's gravity, these billows rose to considerable heights. However, they did not roll up the slope as full-bodied waves, but as thin slices of water that twisted in on themselves as they gently collapsed. In a strange way they reminded Fan of exquisitely thin wood shavings sliced from the ocean by an invisible planer. The waves did nothing to hinder his progress. In fact, it was quite the opposite; sweeping toward the summit, they actually pushed him along as he continued his climbing swim.

As the pull of gravity grew ever weaker, even stranger things happened: Instead of pushing him, Fan was now being gently thrown along by the waves. In the blink of an eye he felt himself leaving the water and flying over the ocean's surface, only to be caught by another wave a moment later, and then it was up into the air again. The gentle yet powerful hands of the ocean carried him along, rapidly passing him upward and onward. He soon discovered that under these strange conditions the butterfly stroke was best suited to expediting his already rapid ascent.

Around him the wind had picked up even more strength. Gravity's grip on Feng Fan, on the other hand, was becoming weaker and weaker. The waves up here easily reached 30 feet in height before falling as if in slow motion. These huge billows were also gentler than they had ever been, softly rolling into one another; they did not even make a sound as they fell. The only remaining noise was the howling of a growing cyclone.

Fan's ever-lighter body was leaping from wave crest to crest. As he jumped again, he suddenly realized that he was spending more time in midair than he was in the water. Up here, he could hardly tell if he was swimming or floating. Numerous times the thin waves would come to completely envelope him, rolling him into a tunnel formed by the slowly tumbling waters. The gently roiling roof of these tunnels glowed in blue light. Through the thin, watery roof he could see the light's source – the giant alien sphere hanging in the sky. The wave tunnel distorted the ship's form; to Feng Fan it looked as if he was seeing it through teary eyes.

He glanced at the waterproof watch he wore on his left wrist. He had been *climbing* for a mere hour and at this hope-defying speed it would only take that long again for him to reach the summit.

It made Fan think of the *Bluewater*. Considering the current wind speeds, the tempest was only moments away from unleashing its fury. There was no way that the ship would be able to outrun the coming cyclone. In a flash it occurred to Fan that the Captain had made a fatal mistake: He should have turned the *Bluewater* straight toward the water mountain. As the gravity exerted no pull down the slope, the ship could have sailed up to the peak just as easily as it sailed the level ocean, and the peak would be the eye of the storm – safe and calm! No sooner had he realized this than he pulled the walkie-talkie from his lifejacket. He tried to reach her, but the *Bluewater* would not respond.

By now, Feng Fan had mastered the skill of leaping from wave crest to crest. He had been climbing like this for about 20 minutes, making it two-thirds of the way to the top. From here, the perfectly round summit already seemed within reach. It glittered in the softly glowing light of the alien spaceship above. To Fan the Summit looked just like an alien world, waiting for him. At that moment the whistling of the wind suddenly turned to a sharp howl. This terrifying noise

seemed to come from all directions and it was accompanied by a sudden increase in the wind's strength. Fifty-foot waves – even 100-foot waves – thin as sheets, rose high; but they never fell, torn apart by the cyclone's gale in midair. Looking up, Feng Fan could see that the slope above him was covered in the spray of broken wave crests, dancing a crazed, wind-whipped dance over the ocean's surface. Illuminated by the glow of the alien sphere, the chaotic splashes shone with dazzling white light.

Finally, Feng Fan made his last leap. A thin, hundred-foot wave carried him into the air. It was torn to slivers by the powerful wind the moment he left its crest and he found himself falling toward a band of waves slowly rolling in front of him. The waves looked like giant, transparent wings slowly unfurling as if to embrace him. Just as Fan's outstretched hands reached the waves, they shattered into white mist, their glittering crystal film ripped apart by the violent winds. A strange noise that sounded disturbingly like laughter accompanied the bizarre spectacle. It was also the very moment that Feng Fan stopped falling; his body was now light enough to float. The manically twisting ocean below slowly began to grow more distant as he was thrown into the air like a feather in a hurricane.

Almost weightless, Fan was turned and swirled in the twisting air. Dizzy, he felt as if the glowing alien sphere was spiraling around him. When he finally managed to begin steadying himself, he realized with a start that he was actually swirling through the air *above* the summit of the water mountain!

From up here, the bands of giant waves rolling up the mountain looked to be no more than long lines. Spiraling toward the peak, they made the mountain look like a titanic watery whirlwind. Feng Fan felt his circles above the peak become smaller and smaller, all the while his speed accelerating. He was being carried directly into the heart of the cyclone.

The moment Fan arrived at the exact eye of the storm, he felt the wind suddenly weaken. The invisible hand of air that had been holding him suddenly let go and he fell toward the water mountain, straight into the faint blue glow of the summit.

He plummeted deep into the mountain before he felt himself floating upward again. He was surrounded by darkness and in mere moments the fear of drowning beset him. With mounting panic, Fan suddenly realized that he was in mortal peril: The last breath he had gulped before he fell had been at 30,000 feet! At that height he would have hardly breathed in any oxygen at all, and in the minimal gravity here, he would only rise very slowly. Even if he swam up with all his strength, he feared that the air in his lungs would not be enough to carry him back to the surface.

Feng Fan was gripped by an eerie sense of deja vu. He felt himself returned to Everest, completely in the dark, enshrouded by the swirling snow of the storm, utterly overwhelmed by mortal fear. Within this darkest moment, Fan found a light in the black; several silvery spheres were floating upward next to him. The largest of these spheres was about three feet in diameter. Looking at them, he suddenly realized that they were made of air! The weak gravity had allowed giant bubbles of oxygen to form in the ocean. With all the strength he could muster, he thrust himself at the largest bubble. No sooner had his head pierced the silvery shell than he was immediately able to draw breath again. As he slowly recovered from the dizziness the lack of oxygen had induced, Fan found himself enveloped by the air bubble. Yet again he was in a space of air completely surrounded by water. Looking up, he could see the ripple of the surface shimmer through the top of his bubble. Floating upward, he noticed a sudden drop in the water pressure, causing his bubble to rapidly expand. As the bubble grew, Feng Fan could not shake the impression that

he was caught in a crystal party balloon, floating into the sky.

The blue shimmer of the waves above slowly grew brighter and brighter, until finally its glare was so strong that he was forced to avert his gaze. Just then the bubble burst with a soft pop. Fan had reached the surface; and he was going further, the weak gravity launching him a good three feet into the air. His drop back to the surface was not sudden, but a gentle descent.

As he fell, Feng Fan noticed countless beautiful watery orbs gently dropping alongside him. These orbs greatly varied in size, the largest being roughly the size of a soccer ball. All shone and glittered with the blue light of the gigantic sphere above. As Fan looked more closely, he saw that they in fact contained layers upon layers, making them sparkle with crystal light. These orbs were splashes of water cast from the ocean as he had broken its surface. The low gravity had allowed their surface tension complete freedom to shape their form. Reaching out, Fan touched one of the orbs. The sphere shattered with a strange metallic ring that was wholly unlike any sound he had ever imagined water producing.

Other than the orbs, the summit of the water mountain was altogether tranquil, the waves rushing in from all sides undoing each other into nothing but broken swell. This was, beyond all doubt, the eye of the storm, the only place of quiet in a world gone mad. The calm was offset by a titanic background howl – the screaming of the cyclone. Looking into distance, Feng Fan found himself, along with the entire mountain of water, to be in a massive “well”. The walls of this well were made of the swirling, frothing waters of the cyclone. These impenetrable masses of water and wind slowly turned around the water mountain. Looking upward, Fan saw that they appeared to reach straight into space. Shining through the mouth of the well was the alien sphere. Like a giant lamp hanging in space, its light illuminated all

within the well. Gazing up, Fan could see strange clouds forming around it. They looked liked fibers, trailing a loose net around the alien vessel. These strands of cloud shone brightly, as if glowing from within. Fan could only guess that they were made of ice crystals formed by the Earth's atmosphere, escaping into space. Even though they appeared to surround the spaceship, there actually had to be a good 20,000 miles between the web and the blue sphere. If his guess was right, the atmosphere had already begun to leak and the mouth of this giant, swirling well was nothing other than the fatal hole in Earth's shell.

It did not matter, Fan thought to himself. *I have reached the summit*.

# CHAPTER 2

## Words on the Mountaintop

**S**uddenly, the all-pervading, ambient light changed. Flickering, it began to dim. Looking up again, Feng Fan saw that the alien sphere's blue light had disappeared. It suddenly occurred to him what that light had been: It was the background light of an empty display; the entire body of that huge alien sphere was one gigantic screen. Just then, this massive screen began to display an image. It was a picture taken from a great height and it revealed a person floating in the ocean, his face turned skyward. That person was Feng Fan. Thirty seconds ticked past, then the image disappeared. Fan had immediately understood its meaning; the aliens had shown that they could see him. It truly made Fan feel like he was standing on the roof of the world.

Two lines of text appeared on the screen. They contained all the alphabets and characters Fan had ever seen. Recognizing the words for “English”, “Chinese”, and “Japanese”, he surmised that they must spell out the names of all the world's languages. He also spotted a dark frame quickly moving between the different words. It all appeared rather familiar. His guess was soon proven right, as he discovered that this frame actually *did* follow his gaze! He fixed his eyes on the characters for “Chinese”, causing the dark frame to stop over them. He blinked once, but there was no response.

Maybe it needed a double-click, Fan thought and blinked twice. The dark frame flickered and the giant sphere's

language menu closed. In its stead, a huge word appeared in Chinese.

>> Hello!

“Hello!!” Fan shouted his response into the sky. “Can you hear me?”

>> We can hear you; there is no need to shout. We could hear the wings of a mosquito anywhere on Earth. We picked up the electromagnetic waves leaking from your planet and so learned your languages. We want to have a little chat with you, the text on the sphere now read.

“Where do you come from?” Fan asked, his voice now considerably lower.

A picture appeared on the surface of the giant sphere, showing a dense cluster of black dots. These dots were connected by a complicated web of lines. The sheer intricacy of the picture made Fan's head swim. It obviously was some sort of star map. Sure enough, one of these dots began to glow in a silver light, growing brighter and brighter. Unfortunately, Feng Fan could not really make heads or tails of it, but he was confident that it would already have been recorded elsewhere. Earth's astronomers would be able to understand it. The sphere soon displayed characters again, but the star map did not disappear. Instead, it remained in the background, almost like some sort of alien desktop.

>> We raised a mountain. You came and climbed it.

“Mountain climbing is my passion,” Fan answered.

>> It is not a question of passion; we must climb mountains.

“Why?” Fan asked. “Does your world have many mountains?” He realized that this was hardly humanity's most pressing issue, but he wanted to know. Everyone he knew considered mountaineering an exercise in foolishness, so he might as well talk about it with aliens. After all, they had just professed that they were prone to climb; and after all, he had gotten this far all by himself.

>> There are mountains everywhere, but we do not climb as you do.

Feng Fan could not tell if this was meant as a concrete description or abstract analogy. He had no choice but to give voice to his ignorance. “So you *do* have many mountains where you come from?” It was more question than statement.

>> We were surrounded by a mountain. This mountain confined us and we needed to dig to climb it.

This answer did nothing to alleviate Fan's confusion. For a long time he remained silent, contemplating what the aliens where trying to tell him.

Then they continued.

# CHAPTER 3

# Bubble World

**>> O**ur world is a very simple place. It is a spherical space, somewhat more than 3,500 miles in diameter, according to your units of measurement. This space is completely surrounded by layers of rock. No matter what direction one chooses to travel, the journey will always end with a solid wall of rock.

>> Naturally, this shaped our first model of the cosmos: We assumed that the universe was made of two parts. The first was the 3,500-mile space in which we lived; the second was the surrounding layers of rock. We believed the rock to stretch endlessly in all directions. Therefore, we saw our world as a hollow bubble in this sold universe and so we gave our world the name “Bubble World”. We call this cosmology the Solid Universe Theory. Of course, this theory did not deny the possibility of other bubbles existing in these infinite layers of rock. However, it gave no indication how close or far those other bubbles might be. That became the impetus for our later journeys of exploration.

“But, infinite layers of rock cannot possibly exist; they would collapse under their own gravity,” Feng Fan pointed out.

>> Back then we knew nothing of gravitational forces. There was no gravity inside the Bubble World and so we lived our lives without ever experiencing its pull. We only

really came to understand the existence of gravity many thousands of years later.

“So these bubbles were the planets of your solid universe? Very interesting,” Fan commented. “Density in our universe is entirely the inverse. Your universe must be an almost exact negative of the real universe.”

>> The real universe? You are ignorantly only considering the universe as you know it right now. You have no idea what the *real* universe is like, and neither do we.

The chided Fan decided to continue his line of inquiry. “Was there light, air, and water in your world?”

>> No, none, and we needed none of them. Our world was made entirely of solids. There were no gases or liquids.

“No gases or liquids; how did you survive?” Fan asked.

>> We are a mechanical life form. Our muscles and bones are made of metals; our brains are like highly integrated chips, and electricity and magnetism are our blood. We ate the radioactive rocks of our world's core and they provided us with the energy we needed to survive. We were not created, but evolved naturally from the extremely simple single-celled mechanical life forms when – by pure chance – the radioactive energies formed P-N junctions in the rocks. Instead of your use of fire, our earliest ancestors discovered the use of electro-magnetism. In fact, we never found fire in our world.

“It must have been very dark there then,” Fan remarked.

>> Actually, there was some light. It was generated by the radioactive activity in our world's walls. Those walls were our sky. That ‘sky's’ light was very weak and constantly shifted as the radioactivity fluctuated. Yet, it led us to evolve eyes.

>> As our world's core was without gravity, we did not build on the walls. Instead, our cities floated in the dim, empty space that was our world. They were about as big as your cities and, seen from afar, would have looked to you like glowing clouds.

>> The evolutionary process of mechanical life is much slower than that of carbon-based life, but in the end we reached the same ends by different means; and so one day we, too, came to contemplate our universe.

“That sounds like it must have felt cramped; did it for you?” Fan asked, mulling over the strange revelations of the sphere.

>> ‘Cramped’ … … … That is a new word. We came to experience an intense desire for more space, much stronger than any similar longing that might affect your species. Our first journeys of exploration into the rock layers began in earliest antiquity. Exploration for us meant tunneling into the walls in an attempt to find other bubbles in our solid universe. We had spun many fascinatingly alluring myths around these distant spaces and almost all of our literature dealt with the fantasy of other bubbles. Soon, however, exploration became outlawed, forbidden on pain of death by short-circuiting.

“Outlawed? By your church?” Fan assumed.

>> No, we have no church. A civilization that cannot see the sun and stars will be without religion. There was a very practical reason for our senate to forbid tunneling: We were not blessed with the near infinite space you have at your disposal. Our existence was limited to that 3,500-mile bubble. All the debris that the tunneling produced ended up within this space. As we believed in infinite layers of rock stretching in all directions, those tunnels could have become very long indeed; long enough even to fill the entire bubble space at the core of our would with rubble! To put it another way: We would have transformed the empty sphere in the core of our world into a very long tunnel.

“There could have been a solution to the problem; just move the newly mined rubble into the already excavated space behind the diggers,” Fan suggested. “Then you would have only lost the space needed by the explorers to sustain themselves and dig.”

>>Indeed, later explorers used the very method you just described. In fact, the explorers would only use a small bubble with just enough space for them and their mission. We came to call these missions ‘bubble ships’. But even so, every mission meant a bubble ship-sized pile of debris in our core space and we would have to wait for the ship to return before we could return those rocks into the wall. If the bubble ship failed to return, this small pile would mean another small piece of space lost to us forever. Back then we felt as if the bubble ship had stolen that piece of space. We therefore came to call our explorers by another name – Space Thieves.

>> In our claustrophobic world, every inch of space was treasured, and ages later an all too large area of our world had been lost in the wake of the far too many bubble ships that had failed to return. It was because of this loss of space that bubble ship exploration was outlawed in antiquity. Even without legal censure, life in the bubble ships was fraught with hardships and dangers beyond imagining. A bubble ship was usually made of a number of diggers and a navigator. At the time we did not yet have mining machinery and so had to rely on manual excavation, comparable to rowing on your early vessels. These early explorers had to dig tirelessly with the simplest of tools, pushing their bubble ship through the layers of rock at a painfully slow pace. Working like machines in those tiny bubbles surrounded by solid rock – confined in every way, in search of an elusive dream – doubtlessly proves an incredible strength of spirit.

>> As the bubble ships tended to return along the way they had come, the journey back was usually a good deal easier. The rock in their path would have already been loosened. Even so, a gambler's hunger for discovery often led the ships to go well beyond the point of safe return. These unfortunate explorers would run out of strength and supplies and remain stranded mid-return, their bubble ship becoming their tomb. Despite all of this, and even though

the scale of our exploration was greatly scaled back, our Bubble World never gave up on the dream of finding other worlds.

# CHAPTER 4

# Redshift

**>> O**ne day in the year 33,281 of the Bubble Era – this is expressed in your chronological terms, as our world's reckoning of time would be too alien for you to understand – a tiny hole began to open in the rocky sky of our world. A small pile of rocks drifted out of this hole, their weak radioactive light sparkling like stars. A unit of soldiers was immediately dispatched to fly to this crack and investigate. Now keep in mind, that there is no gravity in the Bubble World. They discovered an explorer's bubble ship that had returned. This ship had set out eight years ago and the world had long given up hope that it would ever return. The ship's name was the *Needle's Point* and it had dug 125 miles deep into the rock. No other ship had ever made it as far and returned.

>> The *Needle's Point* had set out with a crew of 20, but when it returned, only a single scientist remained. Let us call him Copernicus. He had eaten the rest of the crew, including the captain. In ancient times this means of sustenance had, in fact, proven to be the most efficient method for explorers going into the deep layers of rock.

>> For breaking the strict laws against bubble ship exploration and for cannibalism, Copernicus was sentenced to death in the capital city. On the day the sentence was to be carried out, more than a 100,000 gathered in the central square of the capital to witness his execution. Just as they

were waiting for the awesome spectacle of Copernicus being short-circuited in a beautiful shower of sparks, a group of scientists floated onto the square. They were from the World Academy of Science and they had come to announce a groundbreaking discovery: Researches had discovered something in the density of the rock samples the *Needle's Point* had retrieved. To their great surprise, it could be shown that the rocks' density had continually decreased the further the ship had dug!

“Your world was without gravity; how ever did you measure density?” Fan interjected.

>> We used inertia; it’s somewhat more complicated than your methods. No matter, in those early days our scientists thought that the *Needle's Point* had merely chanced upon an uneven layer of rock. Then, however, in the following century, legions of bubble ships journeyed forth in all directions, penetrating deeper than the *Needle's Point* ever had, and returned with rock samples. What they found was incredible: Density decreased in all directions, and it did so consistently! The Solid Universe Theory that had reigned supreme in the Bubble World for 20 millennia was shaken to its core. If the density of the Bubble World continually decreased as one dug outward, then it stood to reason that it would eventually reach zero. Using the gathered data, our scientists were easily able to calculate that this would happen at about 20,000 miles.

“Oh, that sounds very much like how Hubble used the redshift!” Fan exclaimed, recognizing the concept.

>> It is indeed very similar. Since you could not conceive of the redshift velocity exceeding the speed of light, you concluded that it denoted the edge of the universe; and it was very easy for our ancestors to understand that an area with a density of zero is open space. Thus a new model of the universe was born. In this model, it was assumed that density decreased away from the Bubble World, eventually reducing to the point of opening into space that would then

continue into infinity. This is known as the Open Universe Theory.

>> The Solid Universe Theory, however, was deeply ingrained in our culture and its supporters dominated the discourse. Soon they found a way to salvage the Solid Universe Theory, coming to the conclusion that all that the decreasing density meant was merely that a spherical layer of looser rock encircled the Bubble World. Were anyone to pass through this layer, they theorized, they would find no further decrease. They calculated the thickness of this loose layer to be 200 miles. Testing this theory was, of course, not difficult; one merely needed to dig through 200 miles of rock. It did not take long for ships to reach this distance, but the decrease of density continued unabated. So the supporters of the Solid Universe Theory declared that their previous calculations had been mistaken and that the true thickness of the layer of loose rock was 300 miles. Ten years later, a ship also surmounted this distance and again the decrease in density was shown to continue beyond it. In fact, the speed of decrease increased. The Solid Universe purists then expanded the layer of loose rock to 900 miles ...

In the end, an incredible, epochal discovery forever sealed the fate of the Solid Universe Theory.

# CHAPTER 5

# Gravity

**>> T**he bubble ship that crossed the 200-mile mark was called the *Saw Blade*. It was the largest exploration vessel we had ever built, outfitted with an extremely powerful excavator and an advanced life-supporting system. Its cutting edge equipment enabled the ship to travel farther than anyone had ever gone before, changing the course of our history.

>>As it passed a depth – or one might say *height* – of 200 miles, the mission's chief scientist – we shall call him Newton – reported an utterly baffling observation to the ship's captain: Whenever the crew went to sleep floating in the middle of the bubble ship, they would wake up lying on the tunnel wall closest to the Bubble World.

>> The captain did not think it meant anything; he concluded that it was the result of homesick sleep floating and nothing more. In his mind, the crew wanted to return to the Bubble World and so they would always find themselves floating toward home in their sleep.

>> Consider, however, that there was no air in the Bubble World, and therefore no air in the bubble ship. This meant that there were only two ways to move: Either by pushing off the wall, something that could not possibly happen while the crew was floating in the middle of the ship; or by discharging their body's excrements to propel

themselves. Newton, however, never found any sort of trace of that having happened.

>> Even so, the captain would not put stock in Newton's claims. He should have considered otherwise, as it was this indifference that would soon leave him buried alive. On the day it happened, the crew was particularly exhausted after having completed the latest stage of the dig and so they did not immediately move the day's debris to the back of the ship. The plan was to move the rocks first thing after they had rested. The ship's captain joined the diggers and they went to sleep in the center of the ship. They all woke with a start, buried alive! In their sleep, they and the rocks had all moved toward the rear of the bubble ship, closer to the Bubble World! Newton very quickly realized that all things in the ship had a certain tendency to move toward the Bubble World. This movement was very gradual and barely noticeable under normal conditions.

“So your Newton did not need an apple to discover gravity,” Fan quipped.

>> Do you really think it was that easy? For us, the discovery of gravitation was a much more involved process than it ever could have been for your kind; it had to be, considering the environment in which we lived. When Newton discovered the directionality of attraction he had to assume that it originated from the 3,500-mile empty space of the Bubble World; and so our early theory of gravity was marred by a rather silly assumption. We concluded that it was vacuums that produced gravity, not mass.

“I can see how that happened. In an environment as complex as yours, it would of course be much more difficult for your Newton to figure things out than it had been for ours,” Fan said, nodding.

>> Indeed. It took our scientists half a century before they began to unravel the mystery. Only then did we begin to truly understand the nature of gravity, and soon we were able – by using instruments not too different from those you

used – to measure the gravitational constant. Even so, it was a painfully slow process before the theory of gravity found widespread acceptance in our world. As it spread, however, it became the final nail in the coffin of the Solid Universe Theory.

>> Gravity did not allow for the existence of an infinite, solid universe around our bubble. The Open Universe Theory had finally triumphed and the cosmos it described soon came to exert a powerful attraction on the inhabitants of our world.

>> Beyond the conservation of energy and mass, Bubble World physics was also bound by the law of the conservation of space. Space in the Bubble World was a sphere roughly 3,500 miles in diameter. Digging tunnels into the layers of rock did nothing to increase the amount of available space; it merely changed the shape and location of the already existing space. Furthermore, we lived in a zero-gravity environment and so our civilization floated in space at the core of our world. We affixed nothing to the walls of our world, which would have been comparable to the way you live on your planet. Because of this, space was the most treasured commodity of the Bubble World. The entire history of our civilization was one long and bloody struggle for space.

>> Now, we had suddenly learned that space was quite possibly infinite. How could it not have whipped us into a frenzy? We sent forth an unprecedented number of explorers, waves upon waves of bubble ships digging forward and outward. They all did their utmost to reach that paradise of zero density that the Open Universe Theory predicted could be found beyond 19,900 miles of rock.

# CHAPTER 6

# World's Core

**>> F**rom what has been said you should now, if you have grasped it, be able infer the true nature of our Bubble World.

“Was your world the hollow center of a planet?” Fan gave his best guess.

>> You are correct. Our planet is about the same size as Earth; its radius roughly 5,000 miles. Our world's core, however, is hollow. This space at its center is approximately 3,500 miles in diameter. We are the life of that core.

>> Even after the discovery of gravity, it still took us many centuries before we finally came to understand the true nature of our world.

# CHAPTER 7

# The War of the Strata

**>> A**fter the Open Universe Theory had fully established itself, the quest for the infinite space outside became our only real concern. We paid no more mind to the consumption of space inside the Bubble World. Massive piles of rock, dug out by the fleets of bubble ships, soon came to fill the core space. This debris began to drift around our cities in vast, dense clouds. It got to such a bad point that merely floating across the city was no easier a task than navigating an obstacle course. And because the cities themselves moved about, the denizens of the core also suffered devastating downpours of stone rain. Only half of the space these rocks stole was ever recovered.

>> At the time, a World Government had come to replace our senate. Its politicians took on the responsibility of overseeing and safeguarding the core space. They attempted to harshly crack down on the frenetic explorers, but this had very little affect. Most of the explorer's bubble ships had already dug into the deep layers of our planet.

>> The World Government soon realized that the best way to stop bubble ships would be with bubble ships. Following this logic, the government began building an armada of gigantic ships designed to intercept, attack, and destroy the explorers’ vessels deep within the rock. The government's ships would then retrieve the space that had been stolen. This plan naturally met with the resistance of

the explorers and so the long drawn-out War of the Strata broke out, fought in the vast battlefield of layers of rock.

“That sounds like a very interesting way to fight a war!” Fan called up at the sphere, intrigued.

>> And very brutal, even though at first the pace of the fighting was languid, at best. The excavation technology of the time only allowed our bubble ships to move at a pace of less than two mph through the rock.

>> Large ships were the most highly valued asset on both sides in the War of the Strata. There was a simple reason for this: The larger the bubble ship, the longer it could go without refueling; also, the ships' offensive capabilities scaled with their size.

>> Regardless of how big they were, the ships of the Strata War were all built to have the smallest bow width possible. Again, this had a very simple reason: The slenderer the bow, the smaller the area of rock that the ship would need to dig through and the faster the ship would be able to move. As a result, almost all of the ships of the war looked very similar when seen from the front. On the other hand, their bodies and lengths varied widely. In its extreme, it meant that our largest ships ended up looking like very long tunnels.

>> The battlefields of the Strata War were of course three-dimensional and so the combat was fought somewhat like your forces engaging in aerial warfare, even if things were a good deal more complicated for us. When a ship encountered the enemy, its first course of action was to hastily broaden its bow width. The ships did so to present the largest possible front of weaponry to bear; in this new configuration, the ships transformed into a shape reminiscent of a nail.

>> When necessary, the bow of a bubble ship could also split out into multiple sections, like a claw ready to strike. This configuration would allow the ship to attack from multiple directions at once. The raw complexity of the War

of the Strata also revealed itself in another tactic: Every warship could separate at will, transforming into multiple smaller ships. Ships could also band together, quickly combining to form a single, giant ship. Whenever opposing battle groups met, the question whether to form up or split up was an object of profound tactical analysis.

>> Interestingly enough, the War of the Strata did little to hinder the drive for further exploration. In fact, the war spurred a technological revolution that would play a critical part in our future endeavors. Not only did it bring about the development of extremely efficient excavators, but it also lead to the invention of seismoscopes. This technology could be used to communicate through the layers of rock and could also be employed as a form of radar. Powerful seismic waves were also used as weapons. The most sophisticated seismic communication devices could even transmit pictures.

>> The largest bubble battleship we ever built was called the *World-of-the-Line*. It was commissioned by the World Government. In its standard configuration, the *World-of-the-Line* was more than 90 miles long. It was just as its name suggested; a small, very stretched world all of its own. For its crew, serving on the *World* was much like it would be for you to stand in the English-French Channel Tunnel; every few minutes a high-speed train rushed by, delivering tunneled debris to the aft of the ship. The *World-of-the-Line* could of course break up into an armada all by itself, but for the most part it operated as a singular vessel of war. Naturally, it did not always remain in its ‘tunnel’ configuration. In motion, its stretched hull could be bent impressively, forming a closed loop or even crossing its own path to create intricate shapes of destruction. The *World-of-the-Line* was equipped with our most advanced excavators, allowing it to travel twice as fast as ordinary bubble ships, reaching a cruising speed of up to four mph. In combat, it could even maneuver at speeds exceeding six mph!

Furthermore, an extremely powerful seismoscope was installed in its hull, allowing it to pinpoint bubble ships at ranges eclipsing 300 miles. Its seismic wave weapon had an effective range of 3,300 feet and anything and anyone within a bubble ship it targeted would be shattered to pieces or crushed. Every once in a while the *World-of-the-Line* returned to the Bubble World, carrying with it its booty of space recovered from the explorers.

>> It was the devastating blows struck by the *World-of-the-Line* that finally pushed the explorer movement to the brink. It seemed as if the age of exploration was about to come to a sudden end.

>> During the entirety of the War of the Strata, the explorers always found themselves outmatched. Perhaps most importantly, they were prevented from building or forming a ship longer than five miles. Any ship larger than that would be quickly detected by the seismoscopes installed on the *World-of-the-Line* and the walls of the Bubble World. Once they were spotted, destruction would be swiftly at hand. And so, if exploration was to continue in earnest, it became imperative to destroy the *World-of-the-Line*.

>> After extensive planning and preparation, the Explorer Alliance encircled and attacked toward the *World-of-the-Line* with over a hundred warships. Not one of the explorers' ships was longer than three miles on its own. The battle ensued a thousand miles outside the Bubble World and so became known as the Battle of the Thousand Miles.

>> The Alliance first assembled 20 ships, combining them to form a 20-mile-long ship 1000 miles outside the Bubble World, daring the *World-of-the-Line* to attack. The *World* took the bait, rushing in for the kill in its tunnel configuration. Just as it was speeding toward its prey, the Alliance sprung its ambush. More than a hundred ships dug forward, simultaneously attacking the flanks of the *World-of-the-Line* from all directions. The mighty 90-mile ship was

split into 50 sections. Each of these sections, however, could carry on the fight as a powerful warship in its own right. Soon, more than 200 ships from both sides were engaged in fierce battle, tunneling through the rock in a brutal and chaotic melee. Warships were constantly combining and separating, eventually appearing to blur into an amorphous cloud of vessels and violence. In the final phase of the battle, the 150-mile battlefield had become honeycombed beyond recognition by loosened rock and empty space left by destroyed ships. The Battle of the Thousand Miles had created an intricate three-dimensional maze 2,250 miles beneath our planet's surface.

>> The jarring rumble of vicious close quarters combat reverberated all throughout this bizarre battlefield for what seemed eternities. So far from the core of the planet, gravity already produced very noticeable effects – effects that the explorers were far more familiar with than the government forces were. In this great maze battle, it was these weak forces that slowly decided the battle in favor of the Explorer Alliance. In the end, their victory was decisive.

# CHAPTER 8

# Under the Ocean

**>> A**fter the battle, the Explorer Alliance gathered all the space left over by the battle into a single sphere 60 miles in diameter. In this new space the Alliance declared its independence from the Bubble World. Despite this declaration, the Explorer Alliance continued to coordinate its efforts with the explorer movement in the Bubble World from afar. A constant stream of explorer ships left the core to join the Alliance, bringing considerable amounts of space with them. In this way the territory of the Explorer Alliance was continuously expanded, in effect allowing them to turn their territory into a fully stocked and equipped forward-operating base. The World Government, exhausted by the long years of war, found itself unable to stop any of this. In the end, they were left with no other option than to acknowledge the legitimacy of the explorer movement.

>> As the explorers pierced higher altitudes, they came to dig through ever more porous rock. This was not the only benefit these heights offered; the strengthening gravity also made dealing with the excavated debris that much easier and this newly discovered environment led to success after success. In the eighth year after the end of the war, the *Helix* became the first ship to cross the remaining 2,250 miles, completing the 5,000-mile journey from the planet's center, 3,250 miles from the edge of the Bubble World.

“Wow! That's all the way to the surface! It must have been so exciting for you to see the great plains and real mountains!” Fan exclaimed, fully caught up in the visitors' story.

>> There was nothing to be excited about; the *Helix* reached the seabed.

Fan looked up at the alien sphere in shocked silence.

>> When it happened, the images from the seismic communicator began to shake and in a flash, ended altogether. Communication had been lost. A bubble ship tunneling through the rock beneath it could only catch one strange sound on its seismoscopes; a noise that in air would have produced a *peeling* sound. It was the sound of tons upon tons of water bursting into the vacuum of the *Helix*. Neither the machine life forms nor the technology of the Bubble World had ever been designed to come into contact with water. The powerful electric current produced by short-circuiting life and equipment almost instantly vaporized everything the water embraced. In the rushing waves, the crew and technology of the *Helix* exploded like a bomb.

>> Following this event, the Alliance sent more than a dozen bubble ships to fan out in many directions, but all met a similar fate when they reached that apparently impenetrable height. Not one crew was able to vindicate their sacrifice by sending back information that would have led us to understand that mysterious peeling sound. Twice a strange crystalline waveform could be seen on the monitors, but we were completely incapable of comprehending its nature. Bubble ships following these missions attempted to scan what lay above with their seismoscopes found that their instruments showed only mangled data; the returning seismic waves indicated that what lay above was neither space nor rock.

>> These discoveries shook the Open Universe Theory to its core and academic circles began discussing the possibility of a new model. This new model stipulated that

the universe was bound to a 5,000-mile radius. They came to the conclusion that the lost explorer ships had come into contact with the edge of the universe and had been sucked into oblivion.

>> The explorer movement was faced with its greatest test yet. Before the *Helix* incident, the space taken by lost explorer ships had always remained, if only in theory, recoverable. Now, however, our people were faced with the edge of the universe. The space it eagerly devoured appeared to be lost forever. Considering this, even the most steadfast explorers were shaken. Remember that in our world, deep within layers of rock, space – once lost – could never be renewed. With this in mind, the Alliance decided to send a final group of five bubble ships. As they reached an altitude of 3,000 miles, these ships proceeded with extreme caution. If they were to suffer the same fate as the previous missions, it would mean the end of the explorer movement.

>> Two bubble ships were lost. A third ship, the *Stone Cerebrum,* however, made ground-breaking progress. At an altitude of 3,000 miles, the *Stone Cerebrum* was slowly digging upward, every foot of rock tunneled with the utmost caution. When the ship reached the seabed, the ocean's waters did not gush through the entire ship and so did not instantly collapse the vessel, as had happened in all previous attempts. Instead, the seawater spurted through a small crack, forced into a powerful but minute stream by the immense pressure above. The *Stone Cerebrum* had been designed with a beam width of 825 feet. By the standards of the explorer ships, this was considered large, yet it turned out to be an unbelievable stroke of luck. Because of the ship's size, the rising seawater took nearly an hour before it was able to fill the entire space of the ship. Before coming into contact with the bursting water, the ship's seismoscope had recorded the morphology of the ocean above and much data and images had been successfully transmitted back to

the Alliance. It was on that day that the People of the Core saw a liquid for the first time.

>> It is quite imaginable that there had been liquids in the Bubble World in ancient times, but it would have been nothing but searing magma. Once the violent geology of our planet's formation had finally come to rest, this magma must have completely solidified. In our planet's core, nothing remained but solid matter and empty space.

>> Even so, our scientists had long since predicted the theoretical possibility of liquids, but no one really believed that this legendary substance should actually exist in the universe. Now however, in those transmitted images, they clearly saw it with their own eyes. and what they saw left all in shock: Shocked at the white, bursting jet, shocked at the slow rise of the water's surface, and shocked at seeing that demonic substance warp itself into any form, clinging to every surface in complete defiance of all laws of nature. They saw it ooze into even the tiniest cracks and they witnessed how it seemed to change the very nature of rock, darkening it with but a touch, even as it seemed to make it shimmer like metal. However, what fascinated them most was that while most things disappeared into this strange substance, some shattered remains of the crew and machinery actually came to float on its surface! There was nothing that seemed to distinguish those things that floated from those that sank. The People of the Core gave this strange liquid substance a name; they called it ‘amorphous rock’.

>> From that point on, the explorers could again celebrate a long string of successes. First, engineers of the Explorer Alliance designed a so-called drain-pipe. In essence it was a 650-foot-long, hollow, drilling pole. After it had been drilled through the final layers of rock, the drill bit of this pole could be opened like a flap valve, drawing the ocean's

waters down the pipe. Another valve was attached to the bottom of the drain-pipe.

>> A bubble ship rose to an altitude of 3,000 miles . Then it began drilling the drip-pipe through the final layers into the seabed. Nothing could have been easier; drilling was, after all, a technology with which the People of the Core were abundantly familiar. There was another piece to the puzzle, however, and that required technology of which we had never even conceived: sealing.

>>As the Bubble World had been completely devoid of liquids or gases, sealing technology had never been necessary, or even imaginable, to the People of the Core. As a result, the valve at the bottom of the drainpipe was far from watertight. Before it was even opened, it had already let water leak out and into the ship. This accident, however, proved to be very fortunate indeed; had the valve ever been opened fully, the power of the onrushing water would have been much greater than the spray through the rock crack encountered by the *Stone Cerebrum*. It would have burst forth in a concentrated beam of water, powerful enough to cut through everything in its path like a laser. Now instead, the water seeped through the porous valve at a much more controllable drip. You can imagine just how fascinating it was for the crew of the bubble ship to see that thin stream of water bursting forth before their very eyes. To them this liquid was completely unknown territory, much as electricity had been to early humanity.

>> After carefully filling a metal container with the strange liquid, the bubble ship again retreated to the lower layers, leaving the drainpipe buried in the rocks. As the ship descended, the explorers took the greatest precautions they could imagine, keeping their strange sample as still and safe as possible in its container. Carefully observing it, they soon made their first new discovery: The amorphous rock was actually transparent! When they had first seen the seawater shoot through the cracked rock, it had of course been

heavily laden with sediment and mud. The People of the Core had accepted this as the amorphous rock's natural state. Following this discovery, the ship continued to descend, and as it did, the temperature aboard began to rise.

>> It was with horrified shock and a deep fear that the explorers suddenly came face to face with the most horrible realization yet: The amorphous rock was alive! Stirring, its surface had begun to roil with anger, its terrifying form now covered with countless bursting bubbles. But this monster's surging life force seemed to consume its very being, its body dissolving into a ghostly white shadow. Once all the amorphous rock in the container had transformed into this new phantasmal state, the explorers began to feel a strange sensation grip their bodies. Within moments the sparks of shorting circuits erupted from within, ending their lives in agonizing fireworks.

>> Seismic waves transmitted this terrible spectacle live to the Explorer Alliance, right up until the monitors, too, fell silent. A quickly dispatched relief ship suffered the same fate. As soon as it made contact with the doomed vessels, its crew also erupted into horrible sparks, dying in pain. It seemed as if the amorphous rock had become a specter of death, looming over all of space. The scientists, however, noticed that the second series of short-circuits was nowhere as violent as the first spectacular displays of death. This led them to a conclusion: As the area of space increased, the density of that amorphous specter of death decreased.

>> It took many lives and countless horrible deaths, but in the end, the People of the Core finally discovered another state of being they had never encountered before: Gas.

# CHAPTER 9

# To the Stars

**>> T**hese momentous discoveries finally moved even the World Government and they reunited with their old enemies, the Explorer Alliance. The Bubble World now also committed its resources to the cause, heralding a period of intense exploration marked by rapid progress. The final breakthrough was within reach.

>> Even though we came to an ever greater understanding of water vapor, we still lacked the sealing technology that would have allowed the core's scientists to protect our people and machinery from harm. Nonetheless, we had come to learn that that at an altitude above 2800 miles, the amorphous rock remained dead and inert, unable to boil. To study the strange new states, the World Government and the Explorer Alliance constructed a laboratory at an altitude of 2900 miles. They equipped this facility with a permanent drainpipe. Here experts began to study the amorphous rock in earnest.

“Only then could you begin to undertake the work of Archimedes,” Fan chimed in.

>> You are quite correct, but you should not forget that our earliest forbearers had already done the work of Faraday.

>> As a byproduct of their work in the Laboratory for Amorphous Rock Research, our scientists came to discover water pressure and buoyancy. They also managed to

develop and perfect the sealant technology necessary to deal with liquids. Now we finally understood that sealing the amorphous rock would be an incredibly simple undertaking, much simpler in fact than drilling through layers of rock. All that would be required was a sufficiently sealed and pressure-resistant vessel. Without excavators, this ship would be able to rise at speeds that seemed almost incomprehensible to the People of the Core.

“You built a Bubble World rocket,” Fan noted with a smile.

>> More of a torpedo, really. This torpedo was a metallic, pressure-resistant, egg-shaped container with no drive or propeller whatsoever. It was designed for a crew of one. We shall call this pioneer ‘Gagarin’. The torpedo's launch pad was set up in a spacious hall excavated at an altitude of 3000 miles. One hour before the launch, Gagarin entered the torpedo and the entire vessel was hermetically sealed. After all instruments and life-support systems had been checked and determined to be functional, an automatic excavator began digging its way through the mere 30 feet of rock separating the launch hall from the seabed above. With an almighty roar, the ceiling collapsed under the pressure of the amorphous rock. The torpedo was immediately and completely submerged in a sea of liquid. As the chaos began to subside, Gagarin could finally catch a glimpse of the outside world through his transparent steel-rock porthole. With a start, he realized that the launch pad's two searchlights were casting beams of light through the amorphous rock. In the Bubble World without air, light could not scatter and emit beams. This was the first time any of us had ever seen light this way. Just then seismic waves communicated the launch order and Gagarin pulled the release lever.

>> The anchor hinges holding to the bottom of the torpedo to the rock sprung open and the torpedo slowly began to rise from the seabed. Engulfed by the amorphous rock, it soon began to accelerate, floating upward.

>> Given the pressure at seabed level, it was very easy for our scientists to calculate that roughly six miles of amorphous rock covered the ocean's floor. If nothing unexpected happened, the torpedo would float to the surface in roughly 15 minutes. What it would encounter there, no one could know.

>> The torpedo shot up in perfect tranquility. Through his porthole, Gagarin could see nothing but bottomless darkness. Only the occasional glimpse of dust zipping past in the lights outside his porthole gave him any indication of how rapidly he was ascending.

>> All too soon panic began to well in Gagarin's heart. He had lived all his life in a solid world. Now, as he entered a space filled with amorphous rock for the first time, a feeling of utterly helpless emptiness threatened to drown the very core of his being. Fifteen minutes seemed to stretch into infinity as Gagarin did his best to focus on the 100,000 years of exploration that had led to this moment …

>> And just as his spirit was about to break, his torpedo broke the surface of our planet's ocean.

>> The inertia of the ascent shot the torpedo a good 30 feet above the waters' surface, before it came crashing back down toward the sea. Looking through his porthole as he fell, Gagarin could see the boundless amorphous rock, stretching into forever, shimmering with strange sparkles. But he had no time to see where the light was coming from; the torpedo heavily hit the ocean with a great splash, sending amorphous rock splattering in all directions.

>> The torpedo came to a rest, floating on the ocean's surface like a boat, gently rocking with the waves.

>> Gagarin carefully opened the torpedo's hatch and slowly raised himself out of the vessel. Immediately he felt the gust of the ocean breeze and, after a few perplexed moments, came to realize that it was gas. Trembles of fear shook his body as he recalled a flow of water vapor he had once seen through a steel-rock pipe in the laboratory. Who

could have ever foreseen that there could be this much gas anywhere in the universe? Gagarin soon understood that this gas was very different from the gas produced by boiling amorphous rock. Unlike the latter, it could not cause his body to short-circuit.

>> In his memoirs he later wrote the following description of these events:

*>> I felt the gentle touch of a giant, invisible hand brush by my body. It seemed to have reached down from a vast, boundless, and completely unknown place; and that place was now before me, transforming me into something wholly new.*

>> Gagarin lifted his head and then and there he finally embraced the reward of 100,000 years of our civilization's exploration: He saw the magnificent, sparkling wonder of the starlit sky.

# CHAPTER 10

## Of The Universality of Mountains

“It really wasn't easy for you. You had to explore for so many years, just to reach our starting point,” Fan exclaimed in admiration.

>> That is the reason why you should consider yourself a very lucky civilization.

Just then, the size of the ice crystal clouds formed by the escaping atmosphere dramatically increased. The heavens shone with sparkling light, a brilliant rainbow wreathe blooming as the alien vessel's glow scattered in the ice. Below, the titanic cyclonic well continued its rumbling turns. It made Fan think of an insanely massive machine pulverizing the planet bit by thundering bit. Here on top of the mountain, however, everything had become completely still. Even the tiny ripples had disappeared from the summit's surface. The ocean was mirror still. Again, Feng Fan was reminded of the mountain lakes of North Tibet …

With a jolt, he forced his mind back to reality.

“Why did you come here?” he asked the sphere above.

>> We are just passing by and we wanted to see if there was intelligent life here with which we could have a chat. We talk to whoever first climbs this mountain.

“Where there's a mountain, there will always be someone to climb it,” Fan intoned, nodding.

>> Indeed, it is the nature of intelligent life to climb mountains. They all want to stand on ever higher ground to

gaze ever farther into the distance. It is a drive completely divorced from the demands of survival. Had you, for example, been only concerned with staying alive, you would have fled from this mountain as fast and far as you could. Instead, you chose to come and climb it. The reason evolution bestows all intelligent life with a desire to climb higher is far more profound than more base needs, even though we still do not understand its real purpose. Mountains are universal and we are all standing at the feet of mountains.

“I am on to top of the mountain,” Feng Fan interjected. He would not stand for anyone, not even aliens, challenging the glory of having climbed the world's tallest mountain.

>> You are standing at the foot of the mountain. We are all always at the foot. The speed of light is the foot of a mountain; the three dimensions of space are a foot of a mountain. You are imprisoned in the deep gorge of light-speed and three-dimensional space. Does it not feel ... cramped?

“We were born this way. It is what we are familiar with,” Fan replied, clearly in thought.

>> Then the things that I will tell you next may be very unfamiliar. Look at the universe now. What do you feel?”

“It is vast, limitless; that kind of thing,” Fan answered.

>> Does it feel cramped to you?

“How could it? The universe stretches out endlessly before my eyes; scientists can even peer as far as twenty billion light years into space,” Fan explained.

>> Then I shall tell you: It is no more than a bubble world 20 billion light years in radius.

Fan had no words.

>> Our universe is an empty bubble; a bubble in something more solid.

“How could that possibly be? Would this larger solid not immediately collapse in under its own gravity?” Fan asked, bewildered.

>> No; at least not yet. Our bubble is still expanding in this super-universal solid. Gravitational collapse is only an issue for a bounded solid space. If, however, the surrounding solid area is in fact limitless, then gravitational collapse would be a non-issue. This of course is no more than a guess. Who could know whether this solid super-universe has its own limits?

>> There is so much space for speculation. For example, one could consider that on its immense scale, gravity is offset by some other force, just like electromagnetism is largely offset by the nuclear forces on the microscopic scale. We are not aware of such a force, but when we were inside the Bubble World, we remained unaware of gravity. From the data we have gathered, we can see that the form of the universe's bubble is much like your scientists have surmised; it is just that you do not know what lies beyond yet.

“What is this solid? Is it…?” Fan hesitated for a moment. “Rock?” he finally asked.

>> We do not know, but we will discover that in 50,000 years when we reach our destination.

“Where exactly are you going?” Fan asked.

>> The edge of the universe. Our bubble ship is called *Needle's Point*. Do you remember the name?

“I remember,” Fan answered. “That was the ship that first discovered the law of decreasing density in the Bubble World.”

>> Right. We do not know what we will find.

“Does the super-universe have other bubbles in it?” Fan inquired.

>> You are already thinking very far ahead, indeed.

“How could I not?” Fan responded.

>> Think of the many small bubbles inside a very big rock. They are there, but they are very hard to find. Even so, we will go and look for them.

“You truly are amazing.” Fan smiled, holding a deep admiration for the adventurous aliens.

>> Very well, our little chat was most delightful, but we must make haste; 50,000 years is a very long time and we are burning daylight. It was a pleasure meeting you; and remember, mountains are universal.

The sheer density of the ice crystal clouds already made the last few words hard to read, blurred behind the clouds. And with those last words, the giant sphere, too, began to slowly dim, its form fading smaller and smaller in the heavens. Soon it had shrunk to a mere dot, just another star in an endless sky. It left much faster than it had arrived and within moments it had disappeared altogether across the Western horizon.

Everything between heaven and ocean was returned to deep black. Ice crystal clouds and the cyclonic well were swallowed by the darkness, leaving only a trace of swirling black chaos, barely visible in the skies above. Feng Fan could hear the roar of the encircling tempest rapidly diminish. Soon, it was no more than a soft whimper, and before long, even that had died. All that remained was the sound of the waves.

Feng Fan suddenly became aware of the sensation of falling. Looking around he could see the ocean slowly begin to change. The perfectly round summit of the water mountain had begun to flatten like a giant parasol being stretched ever farther open. He knew that the water mountain was dissolving, and that he was plummeting a good 30,000 feet. After only minutes the water that he was floating on stopped falling, having reached sea level; and he felt it. The inertia of his fall carried him down, deep below the surface.

Luckily he did not sink too far this time and so was quickly floating up to the surface.

As he surfaced, he realized that the water mountain had completely disappeared into the ocean, leaving not even the

slightest trace, appearing just as if it had never been. The cyclone, too, had spun itself out of existence, even though he could still feel the hurricane force winds batter him as they whipped up large waves. Soon, the ocean's surface would be calm again.

As the ice crystal clouds scattered, the magnificent starry heavens again came to span the sky.

Feng Fan looked up at the stars, thinking of that distant world so very, very far away – so remote that even the light of that day must have reeled from exhaustion before reaching Earth. There, in that ocean long ago, Gagarin of the Bubble World had raised his head to the stars as Fan did now; and through the vast barrenness of space and the desolation of time, he felt a deep bond of kinship unite their spirits.

In a sudden a burst of nausea, Feng Fan felt himself retch. He could tell from the taste that it was blood. Miles above sea level, on the summit of the water mountain he had suffered mountain sickness. A pulmonary edema was hemorrhaging. Immediately he realized the severity of the situation. The sudden increase of gravity had left him too exhausted to move. Only his life jacket was keeping him afloat. He had no inkling as to the fate of the *Bluewater*, but he could be almost certain that there could be no boats within at least half a mile.

When he was atop the summit, Feng Fan had felt his life fulfilled. Up there he could have died in peace. Now suddenly, there was no one on the planet who could have been more afraid to die than he was. He had climbed to the rocky roof of our planet and now he had also climbed the highest watery peak the world had ever known.

What kind of mountain was left for him to climb?

He would have to survive; he had to find out. The primal fear of the Himalayan blizzard returned. Once, this fear had made him cut the rope connecting him to his companions and his lover. He had sealed their fate and left them dead to

the world. Now he knew that he had done the right thing. If there had been anything left for him to betray to save his life, he would have betrayed it.

He had to live. There was a universe of mountains out there.

# Of Ants and Dinosaurs

# PREFACE

It was the dawn of a Late Cretaceous day some 65 million years ago – when exactly, no one could have known. It was a perfectly ordinary of day; just a day on Earth, passing in pristine tranquility.

In that distant past, the Earth looked very different than it does today; its lands were in unfamiliar shapes, spread across different continents. On two of these continents, Gondwana and Laurasia, dinosaurs were widespread. Many hundreds of millions of years ago, Gondwana had been the Earth's only continent. Now, it had almost split in two, but even so it remained the size of our age's Africa and South America put together. Having split from Gondwana, Laurasia was the continent that in the millions of years to come would form North America and most of Eurasia.

On this day, existence for all life on Earth on all continents meant the struggle to survive. In this dark world, none knew where they had come from, nor did they care where they were going. As the Sun slowly rose to the zenith of the Cretaceous sky, diminishing the shadows cast by the cycads' large leaves in its wake, no living thing on Earth had a worry deeper than what that day's lunch would be.

For its part, a tyrannosaurus had found its midday meal. Hunting the central reaches of Gondwana, the dinosaur had found its way into a sunlit clearing in the middle of a primeval cycad forest. The tyrannosaur's lunch was a freshly caught lizard, plump and tasty. Using its great talons, it tore the struggling creature into halves with a mighty rip. Then, with a swift twist of the neck, the tyrannosaurus threw the tail end of the lizard up in the air and straight into its gaping

maw. Chewing with relish, the dinosaur was completely satisfied with this world and its place in it.

A yard or so from the tyrannosaur's left food stood a small ant city. Most of this city actually lay underground, providing a home for more than a thousand ants. This year's dry season had been very long, making life in the city more difficult with every passing day. By noon that day, the ants had already been suffering two days of hunger.

After the tyrannosaurus had finished its meal, it took two steps back. Deeply content, it lay down for a midday nap. As it settled, the impact of the dinosaur's massive body caused the ant city to shake with the force of a powerful earthquake. Rushing to the surface, the ants saw the dinosaur's body lying in the distance like a towering range of mountains. Moments later another quake struck as that mountain range unexpectedly began rolling to and fro across the earth. As it rolled, the tyrannosaurus arched one of its massive claws toward its maw, vigorously attempting to poke the gaps between its teeth. The ants quickly understood why this dinosaur was not falling asleep: There was meat stuck between its teeth, obviously bothering it.

The mayor of the ant city had a sudden flash of inspiration. Climbing to the top of a small blade of grass, it emitted a stream of pheromone words to the ants below. The chemical signals spread far and wide. Every ant that smelled it immediately understood the mayor's idea and passed the message on, spreading its own pheromones. Antennae waving, the ant colony erupted into a tide of excitement. Following after their mayor, the ants made their way toward the tyrannosaurus. They formed several black marching streamlets, living flows from city to dinosaur.

Ten minutes later, the ants followed their mayor's lead, climbing up toward the dinosaur's humongous claws. The tyrannosaurus soon spotted the ants clambering up its forearm. Raising the other claw, it moved to brush them off its body. Its arm was like a vast bank of dark clouds,

suddenly covering the sky and blocking out the midday sun. In the blink of an eye, the ants on the great plain of its forearm were covered by darkness. In shock, the ants stared up at the giant hand in the sky above, frenziedly waving their feelers. The mayor, however, climbed on, up the dinosaur's arm, over its claw, and right toward its huge mouth. The other ants timidly followed their mayor's example.

For a few seconds the tyrannosaurus stared at them in blank confusion, and then it seemed to understand the ants' intention. Considering it for a moment, the dinosaur lowered its raised arm. In a flash the clouds covering the great plain of the forearm vanished from the sunlit sky. Now, the Tyrannosaur opened its jaws and lifted a claw as far as it could to its incredibly massive teeth, forming a bridge for the ants, right into its maw. For a second, the ants hesitated. In the end, it was again the mayor who first marched up into the unknown; the others followed her.

The ants had soon made their way to the tip of the claw. Standing on that smooth, cruelly pointed cone, they gazed upon the dinosaur's huge maw with deep awe. Before them lay a dark world; dim, as if covered by the blackest thunderclouds. Out of that unknowable darkness the strong, moist scent of gore blasted toward them with a great thunderous roar. As the ants' eyes adjusted to the darkness, they were able to make out a positively black shape in those murky depths. That shape was constantly moving and shifting. The ants stared at it for a long time before they finally realized that it was the dinosaur's massive throat and that the great thunder emanated from the tyrannosaur's belly. Shaken, the ants on the claw tip looked back one more time and then, one by one, descended onto the teeth. They climbed down those smooth white summits into the wide gaps between the dinosaur's fangs. With all their might, the ants began to tear at the lodged lizard-meat with their powerful pincers.

By then, the tyrannosaurus had already lifted its claw up as best it could to expose its top row of teeth. An unbroken stream of ants continued to climb along its arm, over its claw and to its teeth. There they began to devour the meat. For the nimble ants it mattered little if they were on the top or bottom row of cruel fangs. More than a thousand ants busied themselves, working in the many gaps between the dinosaur's teeth, and soon all the meat was picked clean.

The irritation in its mouth was gone, but the tyrannosaurus had not yet evolved far enough to say “Thank you”. Instead it let out a pleased sigh. The sigh's unexpected tempest blasted through the rows of its teeth, carrying every last ant with it. Like black dust, the ants fell through the air and to the ground. Light as they were, the drop did them no harm and they all landed safe and sound about a yard from the dinosaur's head. Pleased, the satiated ants made their way back to their small city. As they marched home, the tyrannosaurus, happy that it had been freed from its discomfort, rolled one more time into the cooling shade of the trees. There it dozed off into a cozy sleep.

The Earth continued to turn in peace. In silence the Sun slid off to the Western horizon, slowly drawing out the cycads' shadows. Quietly, butterflies and other small insects took wing between the trees; and in the far distance, the waves of the primeval ocean continued their endless beat against the shores of Gondwana …

No one could have known that in this moment of pure tranquility, the path of Earth's history had been changed forever.

# CHAPTER 1

# The Information Age

**T**ime flew as 50,000 years rushed past and became history.

The symbiotic relationship of dinosaurs and ants continued. It grew and strengthened with every passing year and so these two species came to establish a Cretaceous civilization. This new society spanned the ages: From Stone Age to Bronze Age, from Iron Age to the age of steam, and then on to the age of electricity, and into the Nuclear Age, and finally to reach the modern Information Age.

Massive dinosaur cities had sprung up on every continent, their epic skyscrapers reaching six miles and more into the sky. Seen from the top of one of these mighty structures, the world looked much like it does to us now from an airliner's window. From up there, the clouds almost seemed to hug the earth.

The sky was always clear for the dinosaurs living in higher parts of the skyscrapers and so, when a thick sea of clouds shrouded the earth below, they had to call the doorman below to figure out whether or not they should take an umbrella to work. The dinosaurs' umbrellas were huge by necessity, easily the size of one of our party tents.

Their cars were just as massive, as big as our houses. Wherever they drove, the earth would shake. They also had airplanes the size of our supertankers. Wherever they flew,

the sky would rock with thunder and the Earth below would darken with their giant shadows as they passed overhead. The dinosaurs even ventured into space, sending hundreds of satellites and spaceships into orbit. These spacecraft were, of course, just as massive as the dinosaurs themselves, large enough even to be visible from the earth below.

An immense and extremely complex network of computers linked the various parts of the dinosaur world. Of course, everything about these machines was huge as well; on their keyboards, for example, every key was as big as one of our computer monitors and their monitor screens themselves were as wide as our walls.

As the dinosaur world entered the Information Age, so too did the ant world, even if the two species came to use vastly divergent technology and very different sources of power. Unlike the dinosaurs, the ants did not use oil or coal, instead making use of wind power and solar energy. The tiny ant cities were densely packed with countless wind turbines, each much like a human pinwheel in shape and size, and all surfaces in these cities were covered in a black material. This was a coating made of solar cells. Another critical technology of the ant world was bio-engineered muscle fibers. To us, these “muscles” would have looked like coarse electric cables, but when fed with a nutritional solution, they could rhythmically expand and contract, generating power. All of the ants' cars and airplanes were powered by these muscle fibers.

Like the dinosaurs, the ants also had computers, but their computers were no larger than a grain of rice. And size was not the only way in which they differed from the dinosaurs' machines; they also worked completely without microchips. Instead of circuitry, the ants' computers performed all their calculations with complex, organic chemical reactions. Furthermore, these computers were without screens, instead using pheromones to output information. Only the

ants could make out these minute and complex mixtures of smells, “reading” them as data, language, and even images. The ants’ minute computers were connected to an immense network, linked-in not by glass-fiber cables or electromagnetic waves, but through pheromones. It was with these chemical scents that the ant computers communicated with each other.

The ant society of those days was very different from the ant societies we know today. In fact, it was rather similar to our human civilization. Completely unlike modern ants, the ants of the Cretaceous age were “born” by bio-engineering. The ant queens, on the other hand – so very important to ant reproduction in later eras – barely played a role in their society and held none of their later status.

The ant and dinosaur world formed a symbiotic relationship. With their awkward limbs, the dinosaurs relied on the ants' fine motor abilities. Countless ants worked in every dinosaur factory, manufacturing the smaller components, operating precision equipment and instruments, doing maintenance and repair work, as well as filling other roles for which the dinosaurs were completely unsuited. The ants also played a critical role in another vital sector of dinosaur society: All dinosaur surgery was performed by ant doctors. These doctors would physically enter the dinosaur's giant organs and operate on them from the inside using a wide variety of sophisticated medical equipment, including microscopic laser scalpels and even tiny submarines that allowed them to dredge the dinosaur's veins.

In the history of the ant world, the empire of Gondwana came to unite the dispersed ant tribes of all the continents, forming the great Ant Coalition which governed all of Earth's ants.

In sharp contrast to the ant world, the once-united Dinosaur Empire broke into two parts when the dinosaurs of Laurasia declared their independence, founding a new

nation, the Laurasian Republic. Divided, both great dinosaur nations continued to expand their respective territories. After more than a thousand years of conquest, the Gondwanan Empire also occupied the lands that would become India, the Antarctica, and Australia. The Laurasian Republic for its part expanded its territory in the lands that would become Asia and Europe. The nations were not only divided by territory; they also differed somewhat in heritage. The Gondwanan Empire was primarily descended from tyrannosauruses, while the Laurasian Republic was primarily descended from tarbosauruses.

In the long history of these two nations' conquests they fought an unending series of wars. In the last 200 years, however, ever since the advent of the Nuclear Age, their wars had ceased. This was entirely the result of the nuclear deterrent. Both nations had accumulated large stockpiles of nuclear weapons and if war was ever to break out between them, these bombs would transform the Earth into a lifeless, nuclear wasteland. The fear of mutual nuclear destruction held the Cretaceous in a terrifying peace, balanced on the knife's edge.

As time passed, dinosaur society rapidly expanded across the face of the Earth. Their population exploded, overcrowding all of Earth's lands, even as the strains of environmental pollution and looming nuclear war reached their tipping point. A rift began to grow between the world of the dinosaurs and that of the ants, and the dark clouds of conflict it released covered all of Cretaceous civilization like an ominous shadow.

This year's dinosaur and ant summit meeting had just come to a close. The core issue discussed had been the ant world's demand of the dinosaur world to make drastic changes. The ants insisted that the dinosaurs dismantle all their nuclear weapons, protect the environment, and control their population growth. If their demands were not met, the

entire Cretaceous world would be faced with a general strike by the ants.

# CHAPTER 2

## The Strike of the Ants

In the capital of the Gondwanan Empire, Emperor Baltzara lay on a huge sofa in the Great Blue Hall of his towering imperial palace. He was awkwardly scratching his left eye with his claw, occasionally exhaling an agonized groan. Several dozen dinosaurs were in attendance. Present were the Minister of State, Dabor; the Defense Minister, Marshal Loragar; the Science Minister, Professor Nimican; and the Health Minister, Doctor Veyky.

Raising himself from his seat with a slight bow, Doctor Veyky addressed the Emperor. “Your Imperial Highness, your left eye has become inflamed and is in urgent need of surgery, yet we currently cannot find any ant doctors to perform the surgery. The best we can do is to keep it under control with antibiotics. But, Your Highness, if this continues, you may lose all sight in the eye.”

“Blasted!” the Emperor spat in response, gnashing his teeth. “Is there no hospital left on Earth where ant doctors still work?” he angrily asked his Health Minister.

Veyky shook his huge head. “Indeed, Your Highness, many patients in need of surgery cannot be treated. The situation has already led to social unrest.

“We will likely see much more chaos before long,” the Emperor said, turning to his Minister of State.

With a slight bow, Dabor stood to attention. “Of course, Your Imperial Highness. As of today, two-thirds of our

factories have already stopped production and some cities are already suffering from blackouts. The situation is no better in the Laurasian Republic.”

“The dinosaur-operated machines and production lines have also stopped?” the Emperor inquired.

“Indeed, Your Highness,” Dabor answered. “For example, in manufacturing such as the automotive industry, when they run out of precision parts, it becomes impossible to assemble the finished products if all they have is the large components that we dinosaurs can produce. They then have no other option but to completely stop production. In other sectors, like the chemical and energy industries, the strike of the ants has caused more measured repercussions, but even their equipment failures will become increasingly frequent. We have no means to perform the necessary maintenance work. and one plant after the other will be paralyzed because of it.”

In a fit of fury, the Emperor roared, “Wretches!” His voice exploding like thunder. “And the Dinosaur Ant Summit has only just concluded.” Taking on a regal posture, he decreed, “We command that you immediately begin a program of emergency training for dinosaur workers in all of the Empire. Step by step, we will make them fit to operate the precision equipment formerly operated by the ants.”

“Your Imperial Highness, with all due respect, what you command cannot be accomplished,” Dabor said, lowering his head.

“Nothing is impossible for the Great Gondwanan Empire!” the Emperor declared, raising his gigantic head high. “In our Empire's grand history, the Gondwanan dinosaurs have faced much greater perils than this! How many bloody battles have we waged and won against all odds? How many fires that burned across continents have we extinguished? How many magma flows erupting from the Earth after continental shifts have we survived?” The Emperor let his bellowed questions hang in the air.

“But, Your Highness, this is different ...” Dabor spoke up, but apparently without the courage to continue.

“How is it different?” The Emperor continued his roar: “If we just put our minds and backs into it and study hard, dinosaurs will soon have nimble enough pairs of hands for the tasks! Our world cannot and will not be blackmailed by those little bugs!”

“If I may please give Your Highness a demonstration to illustrate how dire our circumstances are,” the Minister of State said. Opening his claws, he let two red electric wires drop on the sofa. “Your Royal Highness,” he continued, “I humbly ask your attempt to perform the most basic task of machine maintenance: Join these two wires.”

The claws of Emperor Baltzara's awkward hands were each almost two feet in length and wide as a cup. In his humongous eyes, these two small wires, no more than a tenth of an inch thick, seemed no bigger than a hair. The Emperor squatted on his sofa, fixing his gaze on the wires as he began his attempt to pick them up between pinched talons, but his giant conical claws, smooth and large like artillery shells, where not up to the task. Try as he might, in the end the wires would always slip between their tips. Stripping and joining the wires was completely out of the question. With a great sigh, the Emperor impatiently brushed the wires off the sofa and onto the floor.

“Please consider, Your Highness,” Dabor counseled, “that even if Your Highness should ultimately train to the point of acquiring the ability to connect wires, doing maintenance work would still remain an impossibility. Our bulky fingers are just not suited to work in precision machinery that ants squeeze into.”

“Oh,” Science Minister Nimican heaved a deep sigh, before lamenting, “eight hundred years ago, the late Emperor had already realized the danger that our reliance on the ants' skills posed. He initiated a grand effort – researching new technologies and machinery – to rid us of

this dependency. Please forgive my presumptuousness, but in the two centuries under Your Highnesses' rule, these efforts have all but ceased. We have lain ourselves on the comfortable bed of the ants' labor, all but forgetting the danger."

"We are not lying on anyone's bed!" the Emperor shouted angrily, raising both claws. "In fact, the danger that the late Emperor was so aware of has also haunted my nightmares more often than I care to remember." The Emperor thrust a brute claw at Nimican's chest. "But you of all should know why the late Emperor's effort to rid us of our dependence on the ants failed and why they were abandoned; it was no different in the Laurasian Republic!"

"Of course, Your Highness," the Minister of State nodded his head. Pointing at the wires on the floor, he turned to Nimican. "Professor, you must surely know that for a dinosaur to successfully join those wires, they would have to be around five inches in diameter! And just think, if we were to make them that thick, it would be impossible to imagine a cell phone with sapling-sized wires – or a computer, for that matter. Along the same lines, if we really wanted dinosaurs to operate and maintain our machines, half of them would have to be made at least a hundred times larger than they are now; and if we did that, they would also consume a hundred times more energy and resources. There is no way that our economy could sustain such a development!"

The Science Minister acknowledged the point with a nod of the head. "You are right. And even more troubling is the fact that some components simply cannot be enlarged. For example, in optical and electromagnetic communication equipment, the components needed to modulate and control the wavelengths can by no means be any larger than their current microscopic size. And how can we even imagine computers and networks without microscopic parts? Things are similar when it comes to industrial production

and research in the fields of molecular biology and genetic engineering.”

The Health Minister chimed in. “It is no different for many of our treatments. Without the ants, dinosaur surgeries are unimaginable.”

“Evolution has naturally selected the alliance of dinosaurs and ants and its implications are indeed profound. Without this alliance, civilization on Earth is fundamentally impossible. There is no way that we can tolerate the ants destroying this alliance,” the Science Minister concluded.

“And what shall we do about it now?” the Emperor demanded, spreading his claws and looking at each in turn.

The Minister of Defense, Marshal Loragar, finally broke his silence. “Your Imperial Highness, there is no doubt that the Ant Coalition has many advantages on their side, but we have our own strengths. The cities of the ant world are no bigger than the toys of our children. We can simply piss them away! The Empire should make use of this power.”

The Emperor nodded, and turning to the Marshal, said, “Good! Order the General Staff Headquarters to prepare a plan of action. Let us destroy a few ant cities to give them a warning!”

“Marshal!” the Minister of State grabbed hold of Loragar just as he was about to leave. “It is critical that we coordinate this action with the Laurasians.”

“Yes!” the Emperor nodded again. “Let us act in unison with them, lest Dadurmy play the good guy and draw the Ant Coalition to his side.”

# CHAPTER 3

# The Last War

**“A**fter three of our cities have been destroyed, and to avoid further loss of life, the Ant Coalition has suspended its strike action and resumed its work in the dinosaur world,” Kachica, the High Archoness of the Ant Coalition, addressed the delegates of the parliament from the speaker's podium. “The choice we now face is absolutely clear: Either the ants destroy the dinosaurs or all of Earth's civilizations will be destroyed!”

“I agree with the Archoness' motion,” Senator Belapi said, waving her feelers from her seat. “Current trends show that Earth's biosphere is heading for one of two fates: Either it will be turned into a cesspool of pollution by the dinosaur's intensive industry or a nuclear war between the Gondwanans and Laurasians will destroy all of Earth!”

Their words drew a massive uproar of pheromones from the gathered parliament. “Yes! Now is the time for a final decision!”, “Destroy the dinosaurs, save civilization!”, “Let's go!”, and “Act now!” rang out.

“Please, everyone, let us keep our calm!” The Chief Scientist of the Ant Coalition, Professor Joyah, waved her feelers to quell the uproar. “Recall that the symbiotic relationship of ants and dinosaurs has lasted for more than two millennia. In all those years, the alliance of dinosaurs and ants has been the backbone of our world's civilizations; it is what supports our own civilization. If this alliance should

fall and dinosaurs are destroyed, ask yourselves if our society could really continue to exist on its own. You know it is very easy to see the concrete benefits that the ants bring to the ant dinosaur alliance. What the dinosaurs bring to the table beyond basic material goods, however, is far more immaterial; it is their ideas and scientific knowledge – and that is the core of the issue for us ants. We may make remarkable engineers, but we will never be scientists! The raw physiology of our brains ensures that we will never possess two of the dinosaurs' traits: Curiosity and imagination."

Senator Belapi shook her head in disagreement. "Creativity and imagination? Humbug, Professor. Do you really consider those traits to be good things? It is precisely because of them that the dinosaurs are such neurotic beings and it's what makes their moods so volatile and unpredictable. They end up wasting their lives daydreaming as they indulge their silly fantasies."

"But, Senator, it is that unpredictability and those fantasies that inspire them and makes their creativity possible. It's what allows them to consider theories that explore the most profound laws of the universe, and that is the basis of all scientific progress," Professor Joyah interjected.

"Right, right," Kachica impatiently interrupted the Chief Scientist. "Now is not the time for academic discussions. Professor, the ant world is facing one dilemma and one dilemma only: To destroy the dinosaurs or to suffer destruction alongside them?"

Joyah did not reply.

Kachica turned to Rulley, nodding her head.

Marshal Rulley approached the speaker's podium. "I would like to show everyone something, something that did not rely on our dinosaur teachers and required almost no scientific innovation."

At the Marshal's signal, two ants brought in two thin, white flakes that looked much like two simple scraps of paper. Rulley explained what the delegates were seeing. “These are some of ant-kinds most ancient weapons – thunder grains – but they are a new model. Our military engineers manufactured these thunder grain-flakes precisely for their use in this final war.” With the wave of an antenna, another four ants approached carrying two small electric wires, the kind of wire commonly used in the dinosaurs' machines. One wire was red, the other green. The ants spanned the two wires into a frame, and then took the small, white flakes and attached them to the middle of each wire. They firmly wound them around the wire until they looked just like a piece of white adhesive tape. Then something miraculous happened: Those two white pieces of tape changed color, taking the hue of the wire they were attached to, one turning red and the other green. Soon, the once-white flakes seemed to have completely merged with their wire, making them all but invisible.

As this happened, Kachica announced, “This is the Coalition's newest weapon: Stealth Thunder Grains. Once they have been brought into position, the dinosaurs will have no way of detecting them!”

Two minutes later, the thunder grains exploded with two crisp cracks, neatly severing the two wires.

As they exploded, Kachica began detailing the plan. “When the time comes, the Coalition will have an army of one-hundred-million ants at the ready. One part of this army will be composed of ants currently working in the dinosaur world, right under their noses. The other part is infiltrating the dinosaur world as we speak. This great army will affix two-hundred-million Stealth Thunder Grains to the wiring of the dinosaurs' machines! We have called this campaign 'Operation Linebreaker'.”

“Wow, what a magnificent plan!” Senator Bilubu shouted in approval, eliciting an echo of sincere pheromone praise

from the gathered delegates.

Kachica again took the stage and intoned, “Even as Operation Linebreaker is under way, another equally magnificent operation will be put into action! The Coalition will dispatch another army of twenty million ants that will penetrate into the skulls of five million dinosaurs and attach thunder grains to the major blood vessels of their brains. These five million dinosaurs have been selected from the elite of the billions of dinosaurs living on Earth. They include their top leadership and scientists, as well as key technical personnel and operators. Eliminating these dinosaurs will decapitate the dinosaur world. We named this campaign 'Operation Mindbreaker'.

“The most beautiful thing about this plan is the simultaneous blows against the dinosaur world!” Kachica continued her presentation. “The two-hundred-million thunder grains we will have deployed in the machines of the dinosaur world and the five million we will have attached to the brains of the dinosaurs will all explode at exactly the same time! There will be less than a second separating any explosion from the next! This will prevent any sector of the dinosaur world coming to the rescue and squash the possibility of the dinosaurs successfully substituting key positions. All of the dinosaur world will be like a huge vessel whose bottom is torn to shreds in the middle of the ocean. It will sink very swiftly indeed! Then, we will be the Earth's true rulers.”

“High Archoness, Madam Kachica, will you tell us when this great moment will be?” Belapi asked, desperately struggling to contain her excitement.

“All thunder grains will explode at midnight one month from today,” Kachica answered.

All the gathered ants erupted in cheers.

Only Professor Joyah shook her feelers in desperation, attempting to quiet the ruckus of ants. When the cheers did

not subside, she shouted at the top of her pheromones. Only then did they calm down and turn to face her.

“Enough! Have you all gone mad?” she yelled. “The dinosaur world is an extremely complex and incredibly vast system. If this system should suddenly be toppled by our fell blow, it will lead to consequences we can scarcely imagine.”

“Professor, other than the destruction of the dinosaur world and the final victory of the Ant Coalition, can you tell us what other consequences you envision?” Kachica asked with more than a hint of derision.

“I told you, we can scarcely imagine what will happen!” Joyah shouted in frustration.

“There you go again, Joyah the alarmist. Madam, I am afraid we are all tired of your games,” Belapi said as the other delegates expressed their disapproval of the Chief Scientist's complaints.

Rulley walked over to Joyah and with a front claw gave her a pat on the thorax. The Marshal was a very sober ant and one of the very few who had not erupted into cheers. “Professor, I understand your worries. In fact, we shared them as we planned the operations. I was most concerned about the dinosaurs' nuclear weapons going out of control. But there is no reason to worry; it is true that all nuclear weapon systems of the dinosaur world are controlled by dinosaurs and even though they normally only permit a few ants to perform maintenance work under close scrutiny, infiltrating them will still be a breeze for our special forces. We will deploy more than twice the usual amount of thunder grains in the nuclear weapon systems. When it is all done, the nuclear weapons will be paralyzed, just like all other systems. There is no chance of a catastrophe.”

Joyah sighed as she replied. “Marshal, the situation is much more complex than that. The key question is this: Do we really understand the dinosaur world?”

For a moment, this question gave all ants pause.

Finally, Kachica turned to Joyah. “Professor, ants pervade every corner of the dinosaur world and it has been that way for thousands of years! How can you possibly ask such a ridiculous question?”

Joyah slowly shook her feelers. “When all is said and done, ants and dinosaurs remain two very different species that live in two completely separate worlds. Intuition tells me that there are great secrets of the dinosaur world that we ants cannot even guess at.”

“If there is nothing you can actually point to, you might as well just let it rest,” Belapi chided.

Joyah would not be silenced. “It is for this reason that I ask that you establish a surveillance system. My specific plan is as follows: Whenever you attach a firecracker to a dinosaur’s brain, you should also install a listening device on their cochlea. I will lead a department that will monitor and analyze the information these devices gather. With a little luck, we may soon learn about some things that we had no idea even existed.”

# CHAPTER 4

# Thunder Grains

The Communication Tower was the heart of Boulder City's information network. Its mission was to process and pass on all the information flowing between the capital and the rest of the nation. There were over a hundred such network centers scattered throughout Gondwana, forming the trunk of the Empire's massive information network.

A small detachment of ants had already made their way into one of the servers of the information center. The squad was made up of more than a hundred ants, and five hours ago it had infiltrated the Communication Tower by means of a water pipe. From there they had made their way into the server room through a small crack in the floor. Finally they had used a fan grill to gain access to the inside of the server itself. The massive architecture and the size of the machines offered the ants unimpeded access without fail.

Hearing dinosaurs approach, the ants quickly hid under the motherboard. The field of micro-circuitry that could have been a football field in one of their cities seemed to offer easy shelter. Then they heard the hatch to the server rack open. From a small hole in the motherboard, they could see that a giant magnifying glass had come to cover the entire world above them. Through the glass' curvature they could see the giant eye of a dinosaur engineer, enlarged to even more terrifying proportions. The ants clung where they hung, terror-stricken.

In the end, however, it appeared that the dinosaur had failed to spot them. Once they felt safe again, the ants immediately went about deploying dozens of thunder grains. These small and thin flakes quickly and seamlessly took on the color of the wires they were attached to, making them all but impossible to spot. In this manner, about a dozen thin thunder grains were attached to wires of varying thickness and a wide range of colors. Some flakes were also attached to the circuit boards themselves. The Stealth Thunder Grains used for this purpose possessed an even more advanced ability, allowing them to take on different colors on different parts of their surface; soon, they perfectly matched the circuit board below them. Their mimicry was flawless, making them even harder to recognize than those attached to the wires. In fact, when the time came, these specialized thunder grains would not explode. Instead, they would drip a few splashes of acids, burning into the circuit board and melting it to the point of complete failure.

Once the hatch was closed again, the entire world of the server had been plunged back into black, leaving a sole green power indicator to light the darkness. It was like a soft emerald moon, hanging in the sky. The quiet hum of the cooling fan and the light clicking of the hard disk were the only sounds in the eerie tranquility of this strange world.

Soon, squads of ants had installed thunder grains in every server of the network center. In the vast world beyond the center, on all of Earth's lands, there were hundreds of millions of ants doing the same deed in countless machines.

That night, Baltzara, the Emperor of the Gondwanan Empire, suffered a nightmare. In his nightmare he saw a dense black mass of ants crawl toward his nose, clambering into his body. Then they came back out his mouth, forming an endless, horrible black column. And as they emerged, each ant clasped something in its pincers. It was his

intestines, cut to tiny pieces. Each ant casually discarded its piece of his innards, only to once again push into his nose; they had become a ceaseless circle ….

There was a grain of truth in the Emperor's nightmare. As he dreamed, there really was a pair of ants climbing into his nose. During the day, these two soldier ants had infiltrated the Emperor's sleeping chambers and hidden under his pillow, biding their time.

Now in his nose, they faced a gale whistling in and out of his nostrils as he slept. Holding only to the nostril hairs that grew like a chaotic jungle, the experienced ants proceeded forward, cleverly avoiding triggering a sneeze. They soon made it into the Emperor's nasal cavity and from there, as they had done so many times before in the countless surgeries they had participated in, they entered into the space behind the eyeball.

The ants followed the path of the translucent optical nerve, straight into the brain. At times a thin membrane would come between them and their progress, but the two ants would simply bite a small hole into these obstacles. The holes were tiny, far too small for the great dinosaur to feel. Doing this, the two reached the cerebrum suspended quietly in the brain fluid's darkness. It appeared like a strange life form all of its own. The ants studied it carefully, quickly finding the large blood vessels of the brain; these were the main conduits for the blood that pumped to the Emperor's cerebrum. One of the ants flicked on a microscopic lamp, illuminating the vessels. The other ant retrieved a few yellow thunder grains and attached them to the blood vessels' transparent walls. The two ants then quickly withdrew from the brain, making their way along a dark, moist, and winding passage. Climbing down a slanting slope they soon reached the ear. Climbing in the weak light filtering through the translucent eardrum, they came upon the cochlea. Here the two ants began to install the listening device.

Emperor Baltzara’s nightmare continued. In his dreams, his intestines had been completely dissected and extracted, leaving him an empty husk. Ever more ants were pushing into him, his body abused as their ant hill …

When the Emperor woke, covered in cold sweat, those two ants had long completed their work and silently climbed out of his nose. They had scaled down his bed and withdrawn through the floor of the sleeping chamber. Emperor Baltzara heavily rolled himself over and back into his nightmare-plagued sleep.

# CHAPTER 5

# Leviathan and Luna

In the High Command of the Ant Coalition, High Archoness Kachica and the Coalition's Commander-in-Chief, Marshal Rulley, were in the midst of orchestrating the downfall of the dinosaur world. Behind them stood two large screens displaying the progress of Operation Linebreaker and Operation Mindbreaker.

“It appears that everything is going according to plan,” Rulley said, turning to Kachica.

Kachica was about to respond when Joyah entered the command center. The High Archoness now instead turned to the Coalition's Chief Scientist, greeting her. “Ah, Professor Joyah, I did not see you all of last week! I assume you have been busy analyzing the information gathered by our listening devices. But what with the grim look? Is there some terrible secret you have come to share with us?”

Joyah nodded a feeler. “Indeed. I must immediately speak with both of you.”

“As you can see, we are very busy; please make it short,” Kachica noted tersely.

Producing a recorder, Joyah said, “I would like both of you to listen to a recording. It was made at the bilateral summit between the Gondwanan Empire and the Laurasian Republic that convened yesterday. We were listening in on a meeting between Baltzara and Dadurmy.”

Clearly impatient, Kachica interrupted. “What secrets could that summit possibly hold? We all know that the nuclear arms reduction talks between the two countries collapsed. Nuclear war between Gondwana and Laurasia is imminent. All any of this does is prove that the course we have chosen is the right one; we must destroy the dinosaur world before they start a nuclear war.”

Joyah was unimpressed. “You just summarized the press release, but I want you to hear the particulars of a secret meeting that took place at the summit. In it, they reveal something we have previously not heard about.”

The recording began to play, and after a short silence, they heard:

Dadurmy: “Your Highness Baltzara, do you know the real reason why the ants yielded so readily? It is almost certain that their return to work in the dinosaur world is nothing more than a delaying tactic. They are almost certainly putting a plot against the dinosaur world into action as we speak.”

Baltzara: “President Dadurmy, do you really think me stupid enough to not realize the obvious? Compared to Laurasia going over to an anti-timer for 'Luna', the threat posed by the ants – even the threat posed by your nuclear weapons – is hardly worth my time.”

Dadurmy: “Right, right; compared with the danger posed by the ants and the risks of nuclear war, 'Luna' and 'Leviathan' are obviously the greater threat to Earth. We should first talk about the issue at hand: Putting the blame on the Luna is hardly fair; the Leviathan started its anti-timer first –”

“Stop, stop, stop,” Kachica said, waving her feelers. “Professor, I have no idea what I just heard.”

Joyah paused the recording and turned to the High Archoness. “This recording raises two very important

questions: What are the Luna and the Leviathan they mentioned? And what is the anti-timer?”

“Professor, the conversations of the dinosaur leadership is often laden with the most outlandish codes. Why ever are you so excited about this conversation?” Kachica asked unperturbed.

Joyah was only too happy to answer. “We can clearly hear that these two things are highly dangerous, capable constituting a threat to the entire world.”

Kachica shook a feeler. “That does not make any logical sense. Professor, anything that could constitute a threat to the Earth would by necessity have to be housed in a very large facility, and if such a facility existed, the Ant Coalition would certainly know about it.”

Joyah nodded. “High Archoness, I absolutely agree: No large facility on Earth could escape the ants' attention, but facilities of a more modest scope, relatively small in size, could. All that would be required is that such a facility to not require ant maintenance for its regular operation. For example, an autonomous ICBM could remain on standby, ready to launch for a very long time indeed without any ant involvement. It could be that Luna and Leviathan are those kinds of devices.”

Kachica remained unconvinced. “If they are, there is no cause for worry. Such small-scale facilities could never constitute a threat to Earth. Like I just said, consider that they would need thousands upon thousands of even the most powerful nuclear weapons to destroy the Earth.”

For a few seconds Joyah remained silent, and then she leaned in, crossing her feelers with Kachica's. With their eyes almost touching, she said, “That is the crux, High Archoness. Are nuclear weapons really the most powerful weapons?”

Kachica was confused. “Professor, that's just common sense!”

Joyah withdrew her head. “Of course, it is common sense,” she said, nodding her feelers. “And that precisely is the fatal flaw in ant thinking. Our thoughts are limited to common sense, even as the dinosaurs stare into the unknown.”

Kachica shook her head. “And that unknown is nothing but pure scientific speculation, completely detached from reality.”

“Then let me please remind you of something that is connected to reality: Do you remember the new sun that suddenly appeared in the night sky three years ago?” Joyah asked.

Of course Kachica and Rulley remembered. That unbelievable event had left a deep impression on all of them. That cold winter night, a new sun had suddenly appeared in the sky over the Southern Hemisphere. In a flash, night on Earth had become bright as day. The light of that sun had been incredibly intense, blinding all that looked straight into it. After about 20 seconds that sun had suddenly disappeared. Even so, its heat had turned a bitterly cold northern winter night into a sweltering hot summer day and the flash thaw of the winter snows had flooded many cities. At the time, the event had shocked ant society right through the carapace, but when they had asked the dinosaurs what had happened, their scientists had failed to give them any conclusive explanation. The ants' lack of curiosity meant that the matter was soon forgotten.

“At the time, the only definite observation our monitoring stations were able to make was this: That new sun appeared in our solar system about one astronomical unit away from Earth,” Joyah reminded them.

Kachica was not to be convinced. “Professor, this is still completely disconnected from reality; even if we presume that that kind of energy does exist, you still have no proof whatsoever that the dinosaurs have brought it to Earth. And,

the reality is that it most likely never existed in the first place.”

“I used to feel the same way, but,” Joyah paused, “I ask you to please continue listening to the recording,” she said as she restarted the recorder.

Baltzara: “We are playing a very dangerous game, more dangerous, in fact, than can be tolerated. Laurasia should immediately stop the Luna's anti-timer or, at the very least, change it over to a regular timer. Should you do so, then Gondwana will do the same.”

Dadurmy: “Only if Gondwana is willing to stop the Leviathan's anti-timer first. If you do so, Laurasia will follow suit.”

Baltzara: “It was Laurasia that first activated the Luna's anti-timer!”

Dadurmy: “It does not matter, Your Highness; before that, on that December fourth, three years prior, had the Gondwanan spaceships not done what they did, then there never would have been a Luna or a Leviathan. That terrible demon would have long-followed its comet-path out of the solar system. Earth would never have come to be involved in any of it.”

Baltzara: “That was solely to meet the requirements of scientific research …”

Dadurmy: “Enough! Now you are just repeating shameless lies! It is the Gondwanan Empire that has pushed the Earth to the brink of the abyss. You crooks have no right to make any demands of the Laurasians!”

Baltzara: “So it appears that the Laurasian Republic has no intentions of taking the first step?”

Dadurmy: “And what about the Gondwanan Empire?”

Baltzara: “Well, it appears that neither of us cares about the destruction of Earth.”

Dadurmy: “If you do not care, we do not care.”

Baltzara: “Ha, ha, ha, very good, very good. We dinosaurs have always been a species that does not care.”

Joyah stopped the playback and turned to Kachica and Rulley. “I think you two will have noticed the date mentioned in that meeting.”

“December fourth, three years ago,” Rulley recalled. “That is the very day the new sun appeared.”

“It is. All of this is connected to it. I do not know how you feel about what you have heard, but my pincers and abdomen are shaking.”

“We have absolutely no objection to you doing all you can to clarify the matter,” Kachica replied.

Joyah could only sigh. “Easier said than done. The best way to clarify this mystery would be to pry into the dinosaurs' military network, but our ant computers are completely incompatible with the ones used in that system. So, even though we can easily infiltrate the hardware of the dinosaurs' computers, to date we have yet to manage hacking into their software. That leaves us with our current clumsy means of eavesdropping to gather information. I wish it were otherwise, especially since, at our current rate, I do not believe that the short time we have will be sufficient to uncover the mystery.”

Kachica considered this before responding. “Very well, Professor; we will provide you with the necessary means to conduct an investigation. However, this matter will have no impact on our present total war against the dinosaurs. Right now, the only thing that shakes my carapace is the thought of allowing the Dinosaur Empire to continue its existence. I believe that you are living an illusion, an illusion that will in the end be detrimental to our Coalition's grand designs.”

Having nothing left to say, Joyah turned about-face.

A day later she disappeared.

# CHAPTER 6

# The Destruction of the Dinosaur World

**T**wo soldier ants stealthily crept under the crack of the palace gate and out of the Imperial Palace of Gondwana. They were the last of the 3,000 ants that had been charged with deploying the thunder grains in the palace's computers and in the skulls of its dinosaurs. After scampering under the crack, they began their climb down the flight of massive stairs. Just as they came upon the precipitous cliff of the first step that plunged straight down, they caught the glimpse of an ant silhouette climbing up.

“Whoa, isn't that Professor Joyah?” the first soldier ant exclaimed in surprise.

“The Coalition's Chief Scientist?” the other asked in return, no less surprised. “You're right! It’s her!”

“How did she get here? Doesn't this look odd?” the first soldier ant asked as Joyah crawled under the crack of the palace gate.

“This is not right. Do you have your communicator?” The other soldier was visibly uneasy. “Quickly report this to the commander!”

Emperor Baltzara was just in the process of presiding over a meeting of his chief advisors when a secretary entered to report. “The Chief Scientist of the Ant Coalition Joyah is urgently requesting an audience with His Majesty.”

“Let her wait. I will look into it after we have finished the meeting,” Baltzara said with a dismissive wave of his claw.

The secretary left, but returned not long afterward. “She says it’s about an extremely important matter. She insists she must see you immediately and she requests that the Minister of State, the Science Minister, and the commander of the Empire's armed forces all be present.”

“The wretch! Does that little bug have no manners? Let her wait or tell her to get lost!” the Emperor growled.

“But she,” the secretary began, his gaze darting from minister to minister before he finally leaned close to the emperor's ear and whispered, “she says that she has defected from the Ant Coalition.”

The Minister of State interrupted. “Joyah is one of the most important representatives of the Ant Coalition's leadership. I have had the impression that her way of thinking is very different from that of other ants. If she comes to us like this, then it is quite possible that the matter really is of critical importance.”

“All right, let her come here then,” Baltzara said, pointing to the large surface of the conference table.

“I come to save Earth,” Joyah stated moments later once she’d taken her stand on the vast, smooth plain of the table. The dinosaurs she addressed looked like towering mountains.

The Emperor and his ministers did not immediately hear her dramatic introduction; a translating system first needed to transform her pheromone words into dinosaur language and send them to a hidden loudspeaker.

“Hm, what high-sounding sentiments. The Earth is doing just fine,” Baltzara coldly replied after hearing her words through the speaker.

“You will very soon realize that it is not so,” Joyah retorted. “But first I would like to ask you to answer one question: What are Luna and Leviathan?”

At once the dinosaurs began to exchange glances in obvious alarm. The towering mountains surrounding Joyah fell into silence. One moment passed, then another. Finally Baltzara spoke, “Why ever should we tell you that?”

“Your Majesty, if they are really what I suspect them to be, I will be able to reveal to you a great secret that will determine the life or death of the dinosaur world. I wager you’ll see how this is a fair trade,” she replied confidently.

“And if they are not what you suspect them to be, what then?” Baltzara asked glumly.

“Then I will not reveal my great secret to you. You can then kill me or keep me imprisoned here for the rest of my life to keep your secret. No matter how it goes, neither you nor I have very little to lose,” Joyah pointed out.

For a few seconds Baltzara pondered the offer in silence. Then he turned with a nod to his Science Minister. “Tell her.”

In the High Command of the Ant Coalition, Marshal Rulley had just put down the telephone. Grim-faced, she turned to High Archoness Kachica and levelly stated, “I have just been informed of Joyah's whereabouts. It appears that our suspicions were well-founded; that louse has betrayed us.”

“What is the status of the breaker operations?” Kachica asked, her pheromones steady even as they reverberated with a sense of intense urgency.

“Operation Linebreaker has been completed to ninety-two percent; Operation Mindbreaker stands at ninety percent,” Rulley immediately answered.

Kachica turned to a large screen displaying a world map. In silence she looked at the twinkle of the brightly-colored continents before finally issuing her grave command: “Let us turn the pages of history. Set the detonation for ten minutes.”

The dinosaur ministers had finished their account and Joyah's head was whirling with shock. For a long moment

she felt like falling over, struck speechless.

“So, Professor, what will it be? Will you keep your promise and reveal your great secret to us?” Baltzara asked with a fanged smile.

“This is absolutely,” Joyah said, feeling as if she’d just awoke from a nightmare, “utterly atrocious! You are monsters, true monsters!” Her voice lost its edge. “But we ants are no better.” She shook her head, focusing again on the magnitude of the issue. “Quick! Immediately contact the High Archoness of the Ant Coalition!”

“You have not answered my question,” Baltzara said.

“Your Majesty, there is no time to explain! They already know that I am here and they can act at any moment. The fate of the dinosaur world hangs in the balance and the end of Earth will follow in the wake of its destruction! Believe me, you need to contact them! Quick!” Joyah insisted.

“Very well.” The dinosaur emperor picked up the telephone.

With anxiety burning like fire, Joyah watched the giant creature punch button after button with its huge, awkward claws. Then she finally heard the muffled ring-tone echoing from the massive handset in Baltzara's claws. A few seconds passed before the ring-tone suddenly ended. Joyah knew that Kachica had picked up her grain-sized handset on the other end of the line.

Then she heard the Archoness’ voice in through the headset. “Hello, who is this?”

Baltzara spoke into the telephone. “Is this High Archoness Kachica? This is Baltzara, right now ...”

At that very moment, Joyah heard a chain of subtle clicking pops ring out all around the Emperor. It was eerily reminiscent of a clockwork's manic whirl. She knew it was the sound of thunder grains exploding in the dinosaurs' skulls; and indeed, all the dinosaurs around the emperor suddenly stiffened, their bodies going rigged almost as one.

The unspeakable reality of the events seemed to freeze the moment in time.

The telephone tumbled from Baltzara's limp claw, heavily falling to the table below with a deafening bang. Then all the dinosaurs came crashing down around the single ant. For many long moments the plain that was the table's surface shook under Joyah's claws. The towering dinosaur mountains had sunk. The horizon now lying clearly before her, Joyah climbed onto the handset's earpiece. In it she could hear Kachica's voice.

“Hello? I am Kachica; is something the matter? Hello?”

The earpiece's diaphragm vibrated with her voice, sending pins and needles up Joyah's legs and through her body. Finding her balance on the diaphragm, she shouted, “High Archoness! It is me, Joyah!” as loud as she could.

But now, unlike before, there was nothing to convert her pheromones to a voice. The imperial palace's translating system had been knocked out by the thunder grains and so there was no way for Kachica to hear her voice on the other end of the line. Joyah said no more. She knew that she had come too late.

All the main hall's lights flickered and died. Outside dusk had fallen. Everything descended into darkness. As Joyah made her way toward the nearest window, the drone of traffic from the distant city vanished with the lights. All that remained was the deathly, black silence outside. Inside, in darkness, laid the rigid forms of the toppled dinosaurs in perfect respite.

As Joyah climbed over the edge of the table, she began to hear a cacophony of voices and noise drift into the conference room. It was the first far off sounds of dinosaur screams and the distant thunder of their panicked movement. Joyah knew that these noises almost certainly emanated from outside the palace. No dinosaur inside would have remained, all slain as the thunder grains exploded inside their skulls.

Now she could hear the muted screams of the city's sirens, howling intermittently before falling silent. Then, as she had made it halfway across the floor moving toward the window, she heard the faint boom of faraway explosions. She finally reached the window. Looking outside, she could see Boulder City stretch out before her. The metropolis was completely covered in murky twilight. In the distance she could see thin pillars of smoke rise against the last faint evening light. Soon these pillars were joined by many more with a new fire burning at the base of every emerging plume. The silhouettes of the cityscape flickered with the blaze of a growing inferno as the high ceiling above began to pulsate with the crimson glow of the raging flames.

# CHAPTER 7

# The Ultimate Deterrent

**“S**uccess!” Marshal Rulley was intently watching the world map flashing in red light. “The dinosaur world has been fully paralyzed. Their information systems have been completely disrupted. All their cities have lost power, all roads are blocked by vehicles disabled with thunder grains, and fires have started everywhere and are rapidly spreading. Operation Mindbreaker has eliminated more than four million dinosaurs in critical positions of leadership. The ruling bodies of the Gondwanan Empire and the Laurasian Republic have ceased to exist. Their brains removed, those two great dinosaur nations have descended into a vegetative coma. Their societies have fallen to total chaos,” she continued, measured excitement in her pheromones.

“This is just the beginning,” Kachica said. “All dinosaur cities will have lost their water supply and their food reverses will quickly be consumed by the ravenous hunger of their population. That is when the dinosaur world will truly face its final moments. Large hordes of dinosaurs will abandon their cities, but they will find themselves without means of conveyances, and even if they find working vehicles, they will face blocked roads. It will be impossible for them to disperse in time. Their immense appetite will result in at least half of all dinosaurs dying of starvation. The remaining dinosaurs, with their cities abandoned, will face a

total technological and societal collapse. The dinosaur world will be forced back to its primitive, agricultural roots."

"What about the nations' nuclear weapons systems?" an ant listening asked.

Rulley, once again utterly calm, answered the question. "It is exactly as we had planned: All of the dinosaurs' nuclear systems, including their ICBMs and their strategic bombers, have been reduced to scrap metal by our massive deployment of thunder grains. There are no reports of unforeseen accidents or cases of nuclear contamination."

"Excellent! This really is a great moment in history. Now we must merely wait for the dinosaur world to destroy itself!" Kachica was clearly euphoric.

The High Command's celebrations were short-lived. Only moments later an ant secretary reported that Joyah had returned, urgently demanding to see Kachica and Rulley.

The Chief Scientist had barely entered the Command Center, her body and mind worn to mere shadows of her former self by exhaustion and worry, when Kachica began her angry rebuke. "Professor, you betrayed the great cause of the Ant Coalition at the eleventh hour. You will be judged very harshly indeed."

"When you have heard all that I have to tell you, you will understand who of us will be judged in the end," Joyah answered coldly.

"Why did you go to see the Gondwanan Emperor?" Rulley inquired, obviously more interested than angry.

"To learn the truth about Luna and Leviathan," Joyah explained.

The Professor's words immediately cooled the ants' jubilant excitement and they all began to focus the countless facets of their compound eyes on Joyah.

Joyah looked around at them, and then asked, "First, who here knows what antimatter is?"

Silence fell among the ants.

After a few moments Kachica spoke. “I know this much: Antimatter is a kind of matter predicted by the dinosaur physicists. Its atomic sub-particles are said to be charged in a way directly opposite to our world's matter. Should antimatter ever come into contact with our regular matter, both would be completely transformed into energy.”

Joyah nodded her feelers. “Now we all know what can be more terrible than a nuclear bomb. At equivalent mass, a matter-antimatter annihilation can produce an explosion several thousand times more powerful than that of a nuclear bomb!”

“But what does that have to do with the mystery of Luna and Leviathan?” Kachica asked, now obviously worried.

“Please listen carefully: Do you remember the sun that suddenly appeared in the night sky of the Southern Hemisphere three years ago?”

Of course everyone present remembered the event.

Joyah knew they would. “That flash was the result of a small celestial body that entered the solar system along a comet's path. That object was a mere twenty miles in diameter, nothing but a small rock floating in the solar system. It was, however, entirely made of antimatter! When it passed through the asteroid belt, it collided with an object. The annihilation of asteroid and antimatter caused a massive explosion; the very flash we saw. At the time, the Laurasians and Gondwanans both launched probes and both came to the same conclusion: That the annihilation had produced many antimatter fragments in all manner of shapes and sizes scattered through space. The dinosaur scientists were quickly able to determine the position of some of these fragments. Doing so was very simple: The particles of the solar wind were annihilated as they struck the antimatter, which gave these pieces of antimatter a very peculiar glow as they drifted through the asteroid belt.

This all happened at the height of the Laurasian and Gondwanan arms race and so the two great dinosaur

nations almost simultaneously came up with a plan born of nothing but sheer insanity: They would gather some fragments of antimatter and bring them back to Earth. Using them, they would create a super weapon far more powerful than any nuclear bomb; the ultimate deterrent against the other side.…”

“Wait, wait, wait, wait,” Kachica interrupted Joyah. “There is an obvious error with your logic: Matter and antimatter annihilate each other when they come into contact; what container could hold it and allow it to be safely returned to Earth?”

“The dinosaur astronomers discovered that most of the body had been composed of antimatter iron,” Joyah continued. “And the pieces of antimatter they located were also made of antimatter iron. Antimatter iron is just like our world's iron and can be affected by electromagnetic fields. That meant that the problem of storage was very solvable. The solution was a container holding a vacuum capable of generating a strong magnetic field. This field could restrain magnetic material placed inside of the container. Using this, the antimatter could be held firmly in the center of the container, preventing it from making contact with the interior walls. The antimatter could therefore be stored, transported, and deployed wherever the dinosaurs desired. At first, this plan started out as pure theory. Actually using such a device to bring antimatter back to Earth would be an incredibly deranged and insanely dangerous endeavor; but dinosaurs are crazy by nature and their desire to rule the world conquered all other concerns, and so they actually went through with it!

“The Gondwanan Empire took this first step toward hell,” she continued. “They designed and manufactured the containment device as a hollow sphere. As it prepared to capture the antimatter fragment, the sphere was split in two, each half affixed to the robotic arms of the spaceship. The spaceship then slowly approached, gathering the small

piece of antimatter between the two hemispheres with the greatest of care. Finally, the fragment was sealed in the center of the sphere. Superconductors began generating the magnetic field that held the fragment in its center. Then, the spaceship flew back to Earth with its terrible cargo. The Gondwanan space vessel returned, carrying a forty-five ton fragment of antimatter into Earth's atmosphere. Had it made contact and been annihilated, ninety tons of pure energy would have been unleashed in the sky. The resulting explosion would have wiped out all life on Earth. Of course, the Laurasian dinosaurs had no desire to be obliterated together with the Gondwanans, and so they could do little but helplessly watch the spaceship land in the ocean.

“What happened next escalated the madness, pushing it to the peak of insanity,” she said, a warning in her tone. “After the Gondwanan spaceship had landed, the sphere containing the antimatter was loaded onto a large cargo vessel. The name of the vessel was the Leviathan and because of it, the dinosaurs came to call the antimatter fragment it carried 'Leviathan' as well. Contrary to all expectation, the ship did not return to Gondwana; instead it set course for Laurasia. When it arrived, it was moored in Laurasia's largest port! The Laurasians dared not impede the progress of the ship of doom. All they could do was watch it make course, powerless to stop it from sailing right into their port. Once the Leviathan had cast anchor, its dinosaur sailors boarded a helicopter and left for Gondwana, abandoning the ship were it lay.

“The Laurasians came to view this strange gift with fearful reverence, not daring to disturb it in any way. They knew that the Gondwanan's could remotely control the sphere and shut off its magnetic field at a moment's notice. If that should ever happen, the antimatter fragment would make contact with the sphere's wall, annihilating both, inescapably eradicating all life on Earth. Even so, it would have been Laurasia that would have been destroyed first, its

lands burnt to ash in the blink of an eye by the deadly sun exploding on its shoreline. It was the Laurasian Republic's darkest day. The Gondwanan Empire now firmly held the reins of all life on Earth. Rampant and without restraint, the Gondwanans made claim after claim to Laurasia's territory and even demanded that the Republic disarm its nuclear arsenal.

“This lopsided state of affairs was not to last long,” Joyah said to her fascinated audience. “A mere month after the Leviathan had set sail, Laurasia responded in kind. Using the same technology, they removed a second fragment of antimatter from the heavens and returned it to Earth. They continued mirroring the Gondwanan's actions: Deploying the container sphere on the cargo ship Luna, they sailed it into Gondwana's largest port.

“In this manner, balance was returned to the dinosaur world. It was the balance of the ultimate deterrent; a balance that pushed all of Earth to the brink of the abyss. To avoid global panic, 'Operation Leviathan' and 'Operation Luna' were carried out under a shroud of absolute secrecy. Even in the dinosaur world only a disappearing minority was aware of the true details of the situation. Neither operation spared any cost to guarantee the reliability and dependability of the equipment. They ensured that everything was built using replaceable modules and that the entire system was small in scope. Because of this, it could be maintained without ant involvement and so the Ant Coalition remained unaware of its existence to this very day.”

Joyah's account left all ants of the High Command in shock, plunging them from the peak of victory down into an abyss of dread and deep distress.

Her antenna quivering, Kachica said, “This is more than madness – it is outright depravity! This ultimate deterrent is nothing but the total destruction of the entire Earth! It would

render all political and military considerations absolutely meaningless; it is complete and utter depravity!”

“Professor, this is the fruit of the very curiosity, imagination, and creativity that you praised so highly,” Marshal Rulley flatly stated, a note of ridicule in her pheromones.

“Let us stick to the issue at claw and return to the unimaginable danger facing the world,” Joyah answered coldly. “We need to talk about the anti-timer that the heads of the dinosaurs' great nations brought up. To prevent a crippling preemptive strike, both dinosaur nations almost simultaneously put the Leviathan and Luna on a new form of standby; they called it 'Anti-timer'. From that point on, the two antimatter devices no longer relied on a remote signal to detonate them. Instead, in a complete reversal, they would receive a signal to stop them from detonating. The spherical containers were put in a perpetual state of counting down to detonation. Only a remote interrupt signal from a signal station located in each respective nation could suspend this countdown and reset it. Once the signal was received, the anti-timer would immediately restart, counting back down to zero as it awaited the next interrupt signal. Each and every one of these signals was personally sent by the Gondwanan Emperor or the Laurasian President. If one nation should suffer a paralyzing first strike, it would be unable to send the interrupt signal; the sphere's countdown would reach zero and the antimatter would annihilate. The containers' standby setup made a first strike tantamount to suicide and the continued presence of the enemy a prerequisite for survival. Of course, it had also significantly raised the global threat level. As if this ultimate deterrent was not enough, the anti-timer took it to a new level of madness, or, in the words of the High Archoness, utter depravity.”

Again, High Command fell deathly quiet.

Kachica was the first to break the silence, her pheromones trembling. “Does that mean that right now the Leviathan and Luna are waiting for the interrupt signal?”

Joyah nodded her feelers. “And perhaps those signals can no longer be sent.”

“Are you implying that we have destroyed the Gondwanan and Laurasian signal stations with our thunder grains?” Rulley asked, showing a rare high level of shock.

“Indeed,” Joyah answered glumly. “Baltzara showed me where the Gondwanan signal station is located. He also told me where their reconnaissance had located the station of the Laurasian Republic; after my return, I compared the information he provided with the database of Operation Linebreaker and I found these small signal stations. Because we did not understand their purpose, we only allotted a few thunder grains to their communication equipment. It was thirty-five grains in the Gondwanan signal station and thirty-six in the Laurasian station. In total, we severed sixty-one wires. Even though that is a relatively small number, it is still enough to completely disable the signal emitters in both of these installations.”

“How long is each countdown?” Rulley inquired.

“Three days, about sixty hours. Both the Gondwanan and the Laurasian countdown begin at around the same time and the interrupt signal is usually sent about twenty-two hours after the countdown started. The current countdown started twenty hours ago. We have two days.”

Rulley considered this grim information. “If we knew the contents of the interrupt signal, we could set up our own transmitter and continuously stop the Leviathan and Luna's countdowns.”

“The problem is that we do not know and we cannot find out!” Joyah’s frustration was evident. “The dinosaurs did not advise me of the signal's contents, but they did tell me that it is a very complex and long password and that it was changed every time it was sent. The password's algorithm is

stored in the computers of the signal stations. I do not think the dinosaurs still know it, as it’s been changed by now.”

“That means that the signal can only be sent by the signal stations,” Kachica noted.

“I think that is the case.” Joyah nodded her feelers.

Kachica quickly considered their options, then said, “We can do it, but we must act as quickly as possible to salvage the situation.”

# CHAPTER 8

## The Battle of the Signal Stations

**T**he station that transmitted the Gondwanan Empire's interrupt signal was located in a badland near the outskirts of Boulder. It was a relatively small installation, equipped with a complex aerial. From the outside, it looked to be no more than a humble weather station. The installation's guards, a mere unit of dinosaurs, led a very relaxed life. Their duty was mostly limited to keeping away the occasional Gondwanan citizen who inadvertently wandered too close to the facility. Not for a moment did they worry about enemy spies or saboteurs. The station did not require extra security; after all, Laurasia was more interested in the security of this facility than Gondwana was itself.

Other than the sentries, only five dinosaurs were responsible for the daily operation of the signal station. These five were an engineer, three operators, and a maintenance technician. Like the guards, they had no idea as to the station's true purpose.

The station's control room was dominated by a large screen displaying a perpetual countdown, always starting at 66 hours and then counting down. The countdown was never allowed to count below 44 hours. Every time it would reach that point – with the sole exception of this fateful morning – the face of Emperor Baltzara would appear on another screen and their monarch would utter a single, short sentence: “I decree that the signal be sent.”

The operator on duty would stand at attention and answer, “As Your Majesty commands!” Then the operator would go over to his terminal, move his mouse cursor over the “Send” button on his screen and click. Once this simple task had been completed, the main screen would display: “Interrupt signal sent – Receiving interrupt success return signal – Countdown reset”.

Then, the screen would return to its display of the countdown, starting a new cycle at “66:00”.

On the other screen, the Emperor would watch intently as these actions were being performed, right until the countdown began anew. Only then would he visibly relax and his image vanish from the screen. The intense stare on the Emperor’s face as he watched the signal being sent betrayed its importance, yet these ordinary dinosaur operators had no way of even imagining that every time they sent the signal they were delaying Earth's death sentence by another day.

This day, their steady routine of two years was interrupted when they noticed that their signal transmitter had broken down. The signal station had been outfitted with the most reliable components and equipped with a wide array of back-up systems, yet this breakdown, however, seemed to affect the entire facility. Even the secondary systems stopped functioning altogether. It seemed almost certain that these problems could not be the result of wear and tear or accidental causes. The engineer and the technician immediately began to look for the source of the problem. They quickly discovered that a few wires had been cut – wires that only ants could reconnect.

The dinosaurs on duty attempted to contact their superiors to request a team of ants to repair the equipment only to discover that the telephone, too, had now failed. Continuing their appraisal of the situation, they found more cut wires. Even as they discovered the damage, the time for the Emperor's call was rapidly approaching. Left with no

choice, the dinosaurs attempted to connect the cables by hand, but their crude claws made the task completely impossible. The five dinosaurs were left with nothing but their own worries and anxieties.

Even though the telephone was disconnected, they firmly believed and hoped that communication would soon be restored and that the Emperor would appear on his screen before the countdown reached 44 hours. For two years the Emperor had appeared on that screen as reliably as the Sun rising in the east. Not seeing him seemed almost entirely unthinkable.

Yet, on that Cretaceous day, the Emperor did not appear. For the first time the countdown ticked down below 44 hours, and it continued to count down in merciless monotony.

Soon they realized that they could no longer count on the ants: It was they who had destroyed the emitter. Dinosaurs fleeing Boulder had passed by the station and brought with them accounts from the capital. It was from these terrified and shaken refugees that the station dinosaurs learned that the ants had destroyed the machines of the Empire with thunder grains, paralyzing the entire dinosaur world.

Despite this grim news, the dinosaurs in the signal station conscientiously remained focused on their duties, continuing to attempt connecting the severed wires, but the task remained impossible. Most of the cut wires were located in parts of the machines too small for the hefty dinosaur claws to even reach; and where they could reach the wires, things did not fare much better. No matter how hard they tried, their unwieldy appendages made any hope of connecting the ends impossible as the wires slipped and slid between the tips of their huge claws, eluding every effort.

“Argh, those accursed ants!” the dinosaur technician swore under his breath as he rubbed his aching eyes.

As he lifted his huge head he saw the engineer transfixed, his frozen eyes ogling at all too real ants! It was a small contingent of about a hundred or so, rapidly advancing over the white surface of the operator's console.

As they approached, the ants' leader shouted, “Hello! We have come to help you repair your equipment! We have come to reconnect the wires! We have come ...”

The dinosaurs unfortunately did not turn on their pheromone translators and thus heard nothing at all; but even if they had, they would not have believed. At that moment their hatred of ants was all-consuming. After a stunned moment, the dinosaurs brought their claws to bear, smashing and skewering the ants on the console.

His teeth clenched in rage, the engineer muttered, “Leave those thunder grains, will you? Destroy our equipment, will you?”

Soon the white top of the console was stained by a black smudge of broken and crushed ant bodies.

“High Archoness, I report that the dinosaurs in the signal station have attacked the repair team! We were completely wiped out on the command console!” a returning member of the repair team almost shouted, sucking air between each burst of pheromones. They were standing in the shadow of a small blade of grass, some 150 feet from the signal station. Almost the entire Ant Coalition High Command was in attendance.

“High Archoness, we must attempt to communicate with the dinosaurs in the signal station and explain our intentions!” Joyah insisted.

“But how can we communicate? They cannot even hear us! They won't turn on their translators!” the exhausted and frightened member of the repair team breathlessly reminded.

“How about the telephone?” an ant suggested.

“We tried earlier,” another replied. “All of the dinosaurs' communication systems have been disabled and have lost all contact with the Ant Coalition's telephone network. There is no way we can get through to them!”

Rulley stepped forward. “Let us think back and consider the ants' skills of old. Remember that in the countless years before the Steam Age, our ancestors communicated with the dinosaurs by arranging formations of ants into letters.”

“How many troops do we have assembled here?” Kachica quickly asked.

“Ten military divisions, a total of about one-hundred-fifty ants,” an officer immediately advised.

“How many letters could we form out of that?” Kachica continued.

“That depends on how big you want them to be. If we want to ensure that the dinosaurs can read them at a good distance, I would say fifty letters at most,” Rulley said, quickly calculating in her head.

“Good,” Kachica said. “Let us form the following sentence: We come to repair your station, it can save the world.”

“The ants are coming back! And this time there are lots of them!” one of the dinosaur sentries shouted.

The dinosaur soldiers stood firm in front of the signal station's gate, watching a square formation of ants march toward them. The sides of the ants' square were about a dozen feet in length, expanding and retracting as the formation approached. From the distance it looked much like a black flag, fluttering in the wind.

“Are they coming to attack us?” a dinosaur soldier wondered.

“It does not appear so; this formation looks very strange to me,” another noted, staring at the advancing ants.

As the ant formation slowly drew closer and closer, a sharp-eyed dinosaur shouted, “What the ... There are words

in there!”

Another haltingly read: “We…Come…To…Repair…Your…Station…It…Can…Save…The…World.”

“I have heard that in ancient times the ants communicated with our ancestors like this, and now we get a chance to see it with our own eyes!” one of the dinosaurs exclaimed in fascination.

“Rubbish!” their lieutenant snapped with a swipe of his claw. “Don't fall for their tricks. Go get basins of boiling water from the water heater.”

The dinosaur soldiers descended into a cacophony of voices: “What are they saying? How is this station supposed to save the world?”, “Whose world? Ours or theirs?”, “This installation's signal is probably incredibly important.” and “Yes, why else would the Emperor himself personally command us to send it every day?”

“Idiots!” the lieutenant scolded. “Do you now trust the ants? It was our naivety that allowed them to destroy our Empire in the first place! They are the most treacherous, most despicable bugs to ever walk the Earth and we will certainly never play the fool for them again! Quick, get that boiling water!”

It did not take long for the dinosaur soldiers to emerge with five large basins of boiling water. Five guards each picked up a basin and quickly advanced on the ant formation that was still desperately attempting to communicate. Together the soldiers splashed the water onto the ants. The burning hot spray splattered across the ground as steam filled the air.

The black words were scattered and more than half of the ants that had formed the message killed within seconds.

“Communication with the dinosaurs remains impossible,” Kachica solemnly said as she watched the plumes of steam rise in the distance. “Now, only one option remains; we

must take the station by force. Then we can repair the equipment and send the interrupt signal ourselves."

"Ants take a dinosaur structure by force?" Rulley stared at Kachica, not sure if she could possibly be serious. "From a military standpoint, I can only call such a plan madness!"

"It can not be helped," Kachica calmly replied. "This is a mad world. The installation is relatively small and highly isolated; it will not receive reinforcements on short notice. If we can gather a large enough concentration of forces, we will be able to capture it!"

"What is that in the distance? It looks like a group of ant super-walkers!" a dinosaur sentry shouted.

Hearing this cry, the lieutenant raised his telescope to scan the wilderness. He quickly spotted a long row of black somethings moving in the distance. Taking a closer look, he confirmed the sentinel's suspicion.

Most of the ants' vehicles were very small; the requirements of some specialized military functions, however, had also lead to the development of comparatively enormous war machines – the super-walkers. These vehicles were about the size of one of a modern day scooter and in the eyes of the ants they must have looked truly colossal, much like giant supertankers would look. As their name suggested, these vehicles had no wheels, instead using six mechanical legs to walk like an ant and allow them to traverse even the most difficult terrain with ease. Every one of these super-walkers could carry hundreds of thousands of ants.

"Fire! Take down those walkers!" the lieutenant commanded.

The sentries used their one light machine gun to open fire on the walkers approaching in the distance. The first volley of bullets sent a line of bursting dirt plumes cutting across the wasteland. Walking the bullets in, the dinosaurs scored a hit on one of the walker's front legs, ripping it in

half. In an awkward stumble, the walker fell over, its remaining five legs continuing to twitch and claw at the air. As it twitched, a hatch opened in the walker's carapace. Numerous black balls immediately began to roll from this opening, each one about the size of a soccer ball except made entirely of ants!

After rolling onto the ground, the balls quickly dispersed like coffee dissolving in water. Another two walkers were hit by the machine gun's bullets and stopped, but still the volleys penetrating the compartments could not kill many ants. Instead, ball after black ball rolled from the downed walkers.

“Drat, if only we had an artillery cannon!” one of the dinosaur soldiers spat in frustration.

“Yeah, some grenades would do the trick as well,” another noted.

“A flamethrower would be best!” a third chimed in.

“Enough of that! Stop your jabbering and get a count of the walkers!” The lieutenant called his troops to order as he lowered his magnifying glass and pointed straight ahead.

“Heavens, there must be at least two hundred of them!” a sentry shouted.

“I would wager that every last walker of the Ant Coalition stationed on Gondwana is coming right at us,” another agreed in shock.

“It means that they have amassed more than one-hundred-million here!” the lieutenant surmised. “It is clear now; the ants want to storm our signal station!”

“Lieutenant!” a sentry shouted, “we must charge them and crush those bug's walkers!”

“No way; our machine guns and rifles don't have enough stopping power against them,” the Lieutenant said, assessing the situation.

“We still have the oil for the generator. Let's charge and burn them!” the sentry now suggested.

The lieutenant shook his massive head. “That would just incinerate a part of them. Our prime objective is to guard this instillation. Listen up soldiers, I have a plan ...”

“High Archoness, General, our reconnaissance air assets have just sent a report: The dinosaurs have begun digging two rings of trenches around the central station,” a High Command staffer reported. “They have redirected a small local stream into the outer trench. They have also rolled out a number of large oil barrels and begun pouring oil into the inner trench!”

“Begin the attack now!” Rulley immediately commanded.

The armies of ants began to move in on the signal station. They were a black mass, almost as if storm clouds were gathering on the signal station, casting gloomy shadows in their wake. To the dinosaur sentries it was like a nightmare unfolding, shaking them to the core of their giant dinosaur hearts.

As the vanguard of the ant swarm reached the far side of the first water-filled trench, it made no effort to stop; instead they climbed straight into the water. The ants marching behind them climbed over their comrades’ bodies, making it a tiny bit farther across the water and the trench. Soon, they formed a thick, black membrane floating on the water and soon began to span the trench.

The dinosaur soldiers had all donned sealed helmets to protect them from ant invasions into their bodies. They now stood on the far side of the trench, scattering the ants in the trench with repeated blows from metal spades and with splashes of boiling water from large basins. But they were largely unsuccessful and soon the ant membrane came to cover the entire width of the trench. The swarm used this membrane like a bridge, surging onward and over it. The dinosaurs now withdrew behind the second trench, lighting

the oil after they had crossed. The station was surrounded by a ring of raging flames

As the ant swarm approached the burning trench they began to pile up upon each other, forming a living dam of ants. This dam grew with every passing second, ultimately and quickly forming a black wall more than six feet in height. Then, the entire wall began to close in on the blazing trench, its living surface twisting and writhing under the intense heat like an immense black python. Scorched by the blaze, the ant wall began to smolder, green tendrils of acrid smoke rising from its front. A tiny avalanche of incinerated ants tumbled from the wall and continued to tumble for many, many horrible moments to follow. As the ants plummeted into the trench's fire, its outer rim began to glow in strange green flames. The ants avalanching from the wall's front were instantly replaced by a new layer of soldiers, leaving the wall itself standing strong and firm at the inferno's edge.

As more and more ants fell to their fiery death, a large group began climbing the wall from its rear. They gathered on its top, forming another group of black balls, again resembling the dimensions of soccer balls. Each of these ant balls contained an entire division of ant troops. The spheres then rolled down the wall's crest, completely disappearing into the blaze below. Only the blink of an eye later, however, most of these balls emerged on the other side, their momentum carrying them through the flames. As they passed through the fire, the outer layer of ants had been scorched to crisp, but even in death these countless warriors had held on to each other, not letting go. Their sacrifice formed a burnt shell around the ball, protecting the ants inside.

Within moments more than a thousand balls of ants had crossed the trench and reached the far shore. Then the spheres' burnt shells split open, releasing the ant swarms

inside. The emerging, dense black mass soon encircled the stairs into the signal station.

The morale of the dinosaur soldiers assigned to guard the station was finally and completely broken. Pushing past their desperate lieutenant, the soldiers burst out through the installation's gate. Running to the rear of the building, they madly rushed toward one of the few spots around the signal station not yet completely covered by ants. Through this opening they fled in panic.

The ants surged into the signal station's ground floor and up the stairs, right into the command center. As armies of ants invaded the inside of the installation, other contingents climbed the structure’s outside walls, pouring in through the windows. In a flurry of tiny legs, the entire lower half of the signal station had been transformed into a writhing black mass.

Six dinosaurs remained in the control center; they were the lieutenant, the engineer, the technician, and the three operators. Frozen in horror, they watched the ants crawl in – under the door, via the windows, and through every crack and crevice. It seemed as if an ocean of ants had come and now its black waters and waves were rushing in to drown everything and everyone in the installation. As they looked out the window, the dinosaurs realized that this ocean was a terrifying reality. As far as the eye could see, the ground was submerged under endless numbers of black ants. The signal station remained as a lonely island, stranded in these treacherous ant waters.

All too soon the flood of ants had swept over most of the control center, leaving only a small circle around the control console free of crawling insects. The six dinosaurs stood squeezed in this circle. Finally the engineer picked up the translator. He had barely turned it on when a voice began talking to him through the machine.

“I am the High Archoness of the Ant Coalition and we do not have the time to explain the details to you, but you

must understand that if this station does not send its signal in the next ten minutes, the world will end.”

The engineer turned, looking at the black mass of ants all around. Following the translator's direction indicator, he finally found three ants standing on the command console. One of those ants was speaking to him.

Shaking his giant head, he told the three ants, “The transmitter is broken.”

“Our technicians have already reconnected the wires and repaired the equipment. Please immediately activate the emitter!” the ant called up to him.

The engineer continued to shake his head. “We have no power.”

“Do you have no backup generators?” An edge crept into the voice coming through the translator.

The lieutenant answered the question. “We do; we have been using them ever since the power grid went down, but we are out of oil. We poured all we had into the trench outside and set it ablaze.” He paused before finally asking the question: “Will the world really end in ten minutes?”

Kachica's answer came through the translator: “If we do not send the signal, it will!”

Looking out the window, she could see that the flames outside had already burned themselves out. It was just like the lieutenant had said; no oil remained in the trench. Turning to Rulley, she inquired, “How much time do we have left on the countdown?”

Looking at his watch, he calmly answered, “We still have five minutes and thirty seconds, High Archoness.”

Joyah turned to both of them, her pheromones dejected. “I just got off the com. All is already lost in Laurasia; the dinosaurs guarding the signal station reacted to the ant assault by blowing it up. We will not be able to send the interrupt signal to the Luna. It will detonate in five minutes.”

Rulley maintained her composure. “It is the same for the Leviathan, High Archoness. It is all over.”

The dinosaurs in the control room did not understand a word of what the three ants of the High Command of the Ant Coalition were saying. Still, the engineer offered, “We can source some oil from the surrounding area. There is a village about three miles from here. If we go quickly we can be back with the fuel in twenty minutes.”

Kachica feebly waved her antenna. “Go, all of you, go. Go wherever you want to go.”

As the six dinosaurs filed through the door, the engineer stopped and turned on the threshold. On the dinosaurs' way out, he repeated the question: “Will the world really end in a few minutes?”

The High Archoness of the Ant Coalition gave him what appeared to be a faint smile. “Engineer, one day everything will end.”

“Oh, I never heard an ant be philosophical before,” the engineer said. He turned and left for good.

Making her way back to the edge of the console, Kachica addressed the mass of ant soldiers gathered below. “Quickly relay my orders to the armed forces: All troops in the vicinity of the signal station should immediately take cover in the basement of the installation. Troops farther afield should proceed to find crevices and holes to shelter their bodies. Furthermore, the government of the Ant Coalition issues this final statement to all its citizens: 'The end of the world has come. Everyone must now ensure their own safety.'”

“High Archoness, Marshal, we too should quickly make our way into the basement!” Joyah urged.

“No. But you must go quickly, Professor. We are responsible for the worst mistake in our civilization's history. We have no right to live,” Kachica replied, her pheromones flat.

“Indeed, Professor,” Rulley added calmly, “although we recognize that the chance is slim, we can only hope that you manage to preserve the embers of civilization.”

Joyah touched her antennas to those of Kachica and Rulley. This was the most ardent expression of respect and affection known in the customs of the ant world. Then she turned and left, disappearing into the flood of ants quickly receding from the control room.

After the troops had left, an eerie calm fell over the control room. Kachica climbed toward the window. Rulley followed her. As the two ants reached the windowsill, they saw a strange scene: Dawn was about to break, the waning crescent of the Moon still hanging in the sky. Suddenly, in the blink of an eye, the angle of the Moon's sickle shifted, and as it moved, its light grew brighter, intensifying until its silvery glow burnt like an arc of bright lightning, blindingly brilliant. Everything on Earth, including the ant swarms scattering across the wasteland below, was cast in stark light clearer than the brightest day.

“What was that? Did the Sun just grow brighter?” Rulley asked, curious.

“No, Marshal. It is the second coming of a new sun. The Moon is glowing with its light. That Sun came to Laurasia and it is burning that continent as we speak,” Kachica stated gravely.

“Then the Gondwanan sun should rise soon,” Rulley noted, almost relaxed.

“If only it would. Come!” Kachica challenged.

Glaring light rose in the west, quickly consuming all. Before being vaporized by the exploding heat, the two ants saw a brilliant sun rapidly rise on the western horizon, its blinding orb swiftly swelling as it ascended. In the end, it filled half the sky, burning all on Earth in the blink of an eye.

The coast from where the antimatter explosion emanated was thousands of miles away and so it took many minutes for the shock wave to reach them. Long before it ever did, all had already ended in fire.

It was the last day of the Cretaceous.

# CHAPTER 9

# The Long Night

**T**he coming winter lasted for 3,000 years.

One noon ever so slightly warmer, two Gondwanan ants chose to climb out of their deep ant hill and onto the surface. The faint Sun glowed dimly in the gray, lifeless sky. The Earth below was covered in densely packed ice and snow, with only the occasional rocky outcrop breaking the endless white, seeming all the more prominent in this indistinct land. In the distance, the far mountains, too, were covered in white.

The first ant turned, sizing up a giant skeleton nearby. Skeletons like this littered the ground, all white, just like the rest of the world. Seen from afar they were hard to make out, but from the ants' vantage, the pale bones stood in stark contrast to the murky skies.

“I heard that they were called dinosaurs,” the first ant said.

The other ant turned, now looking at the skeleton as well. “Did you listen to them speak of the Age of Legend yesterday?”

“I did; they said that many thousands of years ago, ants lived in a glorious age.” The first ant nodded its antenna.

“Yes, they said that back then ants did not live in holes under the earth, but in cities on the surface, and that ants weren't born by the Queen back then. It truly must have been an Age of Legend,” the other ant agreed.

“In the tales, the Age of Legend was brought about by ants and dinosaurs working together. The dinosaurs did not have nimble hands and so the ants did all the fine work for them; the ants did not have flexible minds and so the dinosaurs thought up unbelievable technology,” the first ant continued wistfully.

“In the Age of Legend, ants and dinosaurs created many great machines and they built huge cities. They were like gods,” the other ant added excitedly.

“Do you understand the part of the legends where the world gets destroyed?” the first ant asked.

“Not really. It all seems rather complicated: War broke out in the dinosaur world and then a war broke out between the ants and the dinosaurs.” The other ant paused, doing her best to remember the details. “And then two suns appeared on the Earth.”

The first ant had begun to tremble in the cold wind. “Oh, it would be great if we could have a new sun right about now!”

“You don't understand!” the other ant replied with strong pheromones. “Those two suns were terrible; they burnt everything on Earth to crisp!”

“Then why is it so cold now?” The first ant did not seem convinced.

“That is very complicated. It seems to be like this: After those new suns appeared, the world was incredibly hot for a short while. It is even said that close to the suns, the very Earth itself was melted to magma! Then, however, the dust that the explosion of the new suns had stirred up came to block the light of the old Sun and the entire world cooled, becoming much colder than ever before,” the other ant explained. “And it remains like that. The dinosaurs were big fellows and so they naturally all died in this terrible age. Some of us ants, however, tunneled into the earth and so survived.”

“I have heard that not too long ago ants could read. Now, none of us remain who could study the old books,” the first ant noted.

“We have fallen. If it goes on like this, the ants will soon lose all their knowledge and become nothing but small, cave-dwelling, foraging insects.” the other said melancholically.

“What would be wrong with that? In these hard times, knowing little would seem just as well to me,” the first ant said, shrugging her antenna.

“That’s true,” the other ant said resignedly.

For a few moments all fell to white and gray silence.

“Is it possible that one day, when the Earth is warm again, some other animal will be able to bring about another Age of Legend?” the first ant finally asked.

“Possibly. I would think that such an animal would need both a large enough brain and nimble enough hands,” the other ant mused.

“Right, but it shouldn't be big like the dinosaurs. They ate too much and that made life difficult for everyone,” the first ant said with a nod.

“But they shouldn't be small like we are or their brains won't be big enough,” the other ant said.

“Oh, could such a miraculous creature ever emerge?” the first ant asked in clear disbelief.

The other ant answered the final question somewhat wistfully. “I would think so. Time is endless and what can emerge, I tell you, will some day emerge from its depths.”

# Sun of China

# PREFACE

**A**h Quan took the small bundle from his mother's trembling hands. It contained a pair of sturdy cloth shoes she had made for him, three steamed buns, two sets of heavily patched clothing, and 50 yuan. His father squatted by the side, slowly dragging puffs of smoke from his pipe.

“Quan is leaving us. Would it kill you to give him a smile for the road?” his mother chided

But his father would not be moved from his stoic, sullen silence.

“Don't let him go. Won't you just give him the money to build a house and marry?” Quan's mother continued her admonishment.

“Just go! Here, there, everywhere; they're all going out into the world. We could just as well have raised a litter of puppies!” It almost sounded as if his father was sobbing, but there were no tears. He did not even look up.

Ah Quan did. Before him he saw the village of his birth, the lanes, houses, and fields of his childhood. Everything here was parched. His home was a place of endless drought.

The dryness had made everyone in the village completely reliant on rainwater gathered in cisterns to meet their daily needs. Ah Quan's family was too poor to afford one made of cement and so they had to manage their needs with a simple earthen cistern. This meant that on hot days their water would begin to reek. In past years, heating had made it potable, even if it always remained somewhat bitter and more than a little pungent. This summer, however, despite their best efforts the water from their cistern had given them diarrhea. They had heard from a local army

doctor that poisonous minerals in the ground had dissolved into the water.

Ah Quan lowered his head again, glancing at his unmoving father. He began to walk away and never turned back. He knew that his father would not look up, even now. It was his father's reaction to grief. Ah Quan had seen him squat in silence, as he did now, many times before. Sullenly smoking, his father would remain inert, just as if he himself had become nothing but a lump of earth, one with the yellow soil.

But Ah Quan could still see his father's face; or, perhaps better put, walk on it.

Before him stretched the vastness of Northwest China and everywhere he looked he could see yellow-brown barrenness, broken by the cracks erosion had wrought. And what else was there to the face of an old farmer? It was no different from anything else here: Trees, the soil, houses, people – all were black, yellow, and wrinkled.

Ah Quan could not see the eyes of this giant face stretching to the horizon, but he did feel their presence. Those massive eyes were staring at the sky. When they were young, their gaze had been brimming with desperate longing for rain; now aged, only dull emptiness remained in their stare. In fact, this giant face must have been eternally empty and dull. He could not imagine that this lump of earth had ever been young.

A dry wind blew, covering the small road out of the village in yellow dust. Ah Quan walked this road, taking the first step into his new life.

It was a road that would lead him places he could never have even dreamed of.

# chapter 1

# First Goal in Life: Drink some water that is not bitter; Make some money

**“O**h, so many lights!” Ah Quan gasped in awe as he arrived. Night had already fallen over the large collection of unauthorized collieries and small kilns that made up the mining area.

“Those? Now in the city; that's many lights,” Guoqiang countered. Guoqiang was from Ah Quan's village. He had left many years prior and he had come to pick up Ah Quan when he arrived at the mines.

Ah Quan followed Guoqiang to a worker's shed for the night. As they ate their supper, he realized with surprise and shocked delight that the water was pleasantly sweet! Somewhat bemused at Ah Quan's reaction, Guoqiang told him that a deep well had been dug in the mining area; of course they had access to potable water.

But he also said something else: “Now in the city; that's sweet water!”

When the time came to sleep, Guoqiang handed him a firmly wrapped package to use as a pillow. Opening it to have a look, he saw black plastic tubes. Exploring further he found yellow sticks inside. They looked like soap.

“Explosives,” Guoqiang drowsily explained before rolling on his side and snoring off to sleep.

Ah Quan saw that Guoqiang was using a “pillow” just like the one he had given him. He also noticed a large pile of

them under the bed. A bundle of detonating caps hung above.

Later, Ah Quan learned that there were enough explosives in that shack to wipe out his village lock, stock and barrel! Guoqiang was the explosives technician of the mine.

Working in the mine was very hard and extremely exhausting. Ah Quan mined coal, pushed carts, and mounted pit props. At the end of every day he was dead tired, but grueling labor did not scare him; growing up he had learned to bear many hardships. What did frighten him were the conditions in the pit. It reminded him of digging in a dark anthill. At first it was a waking nightmare, but he soon got used to this, too. They were paid per kilo of coal and he could earn 250 yuan every month. When the going was good, he could even make 300. Ah Quan was very satisfied.

But what satisfied Ah Quan most of all was the water here. At the end of the first day, his body had been completely blackened by the coal and he had gone to the washroom together with the other miners. As he entered he saw people using bowls to scoop water out of a large pool. They then dumped the water over their heads, letting it stream down their bodies. At their feet the off-wash flowed away in black streams.

Ah Quan stared at them, utterly dumbfounded. *Oh, mother*! he shouted in his head, *how can they use water, this sweet water, like that?* It was the sweet, abundant water that made this world of black a place of beauty without equal in Ah Quan's eyes.

Guoqiang, however, badgered him to move on, on to the city. He himself had previously gone there to find work, but charges of stealing from a construction site had led to him being sent back to his registered home as an unsanctioned migrant. Even so, Guoqiang guaranteed, Ah Quan would be

able to earn much more in the city, and furthermore, he would not have to work himself to death, as in the mine.

Ah Quan hesitated, but just as he was weighing what he had been told, Guoqiang had an accident in the pit. That day, Guoqiang was checking on a misfire when it exploded. As he was brought out of the pit, Ah Quan saw that Guoqiang was riddled with rock fragments embedded deep in his body.

As Guoqiang drew his last breath, he turned to his friend. “Ah Qua…” he rasped, “go to the city… there are more lights…”

# chapter 2

## Second Goal in Life: Go to the city with more lights and sweeter water; Make more money

**“H**ere the night is as bright as day!” Ah Quan exclaimed in admiration. What Guoqiang had told him had turned out to be true. There really were many, many more lights in the city.

He was following Erbao, carrying a shoe-shiner’s box on his back. They were on their way to the railway station on the main street of the provincial capital city. Erbao had come to the big city from a neighboring village and he had once worked together with Guoqiang. When Ah Quan first arrived, he had hoped to find him at an address Guoqiang had given him, but with no success. In the end he had had to go to great lengths to meet up with Erbao. When he finally found him, he learned that he no longer worked on construction sites, but instead now shined shoes.

Erbao had just been on his way back home on some business when Ah Quan found him and had been happy to let him accompany him. Erbao was sharing a small apartment with a few colleagues and shortly after they arrived there, Erbao showed Ah Quan the ropes. After that they were off again, with Ah Quan following Erbao, the box on his back.

Ah Quan could not have had less faith in his new employment. He had thought about it on the way. Sure, repairing shoes made sense, but *shining* shoes? Who would

spend two yuan to have their shoes shined? Or even five yuan if they used better shine? People would have to be wrong in the head to even consider it.

Once at the station, however, business arrived before they even had the time to properly set up. When they finished at eleven in the evening, Ah Quan had made 28 yuan! Erbao, on the other hand, looked very unhappy as they made their way home. Grumpily he noted that business had been bad. Ah Quan could only take these words to imply that he had stolen Erbao’s customers from him.

“What's the metal box under that window?” he asked as they walked home, pointing at a building across from them.

“Air-conditioning,” Erbao replied. “It's nice and cool like early spring in there.”

“The city really is great!” Ah Quan exclaimed, wiping the sweat from his face.

“Life is hard here. Making enough for a bowl of rice may be easy enough, but you can forget about marrying and settling down,” Erbao said, pointing at the building with his chin. “An apartment in there easily costs a thousand per square foot!”

Stupefied, Ah Quan had to ask: “What's a square foot?”

Shaking his head, Erbao silently eyed him with disdain.

Ah Quan shared the rent for a simple apartment with about a dozen others. All but one of them had come from the countryside to find work or to ply their petty trades. One of them, however, the one squeezed onto a crammed bunk next to Ah Quan, was different; he was a real city person, even though he did not come from this city. In there, he really was no different from any of them; he ate the same as everyone else, and like the others, he would cool off in the evening wearing nothing but shorts. But every morning he would deck himself out in Western-style clothes and, as he walked out the door, seemed to become a different person.

He reminded Ah Quan of a golden phoenix, flying out of a chicken coop. His name was Lu Hai.

The others did not dislike him. The reason for the tolerance they showed him was something he had brought with him. That something looked like a large umbrella to Ah Quan, although this umbrella was used to reflect light and its interior was intensely reflective. The device could be inverted and placed in the Sun. Set like this, it sported a bracket that could hold a pot of water above its parabola. The bottom of the pot would be heated by the reflected light and the water was quickly brought to a boil. Ah Quan later learned that it was a “solar cooker”. They all used this thing to boil water when preparing their meals and in doing so ended up saving a significant chunk of change. When there was no Sun, however, it was useless.

The so-called solar-cooker's “umbrella” had no ribs. It was just one thin, smooth surface. Ah Quan had stood enrapt in complete confusion when he had first seen Lu Hai close the umbrella. It was plugged into a wall socket by a thin electrical wire. To fold it, Lu Hai pulled this plug, causing it to immediately flop to the ground, sprawling open. In an instant the umbrella transformed into what looked like a silvery width of cloth. Ah Quan carefully picked up the strange material to examine it more closely. It was very supple and glossy and so light that it did not seem to weigh anything at all. On it, his reflection looked downright bizarre, iridescently twisting and turning on a surface that reminded him of the colorful shell of a soap bubble. As he eased his grip, Ah Quan immediately felt it silently slipping through his fingers back to the ground. It looked as if pliant quicksilver was dripping from his hands. When Lu Hai plugged it back into the wall socket, the silvery spread began to languidly unfurl, like some strange metallic lotus bloom. Soon it had returned to its round, inverted umbrella shape. When Ah Quan touched its surface now, it was thin and firm. Giving it a light tap he was able to produce a pleasant, metallic ring.

This surface was now very strong indeed, easily supporting a pot or kettle full of water.

Lu Hai explained it to Ah Quan. “It is a kind of nano-material. The surface is very smooth and clear and therefore highly reflective. It is also very robust and, most importantly, soft and malleable under normal conditions, but rigid when exposed to a weak electrical current.”

Later, Ah Quan learned that the material used in this so-called “nano-mirror-membrane” had been the result of Lu Hai's research. He had applied for a patent and invested all he had to fund it, hoping to bring products made with the nano-mirror-membrane to market. Unfortunately, no one was really interested in his wares, including the portable solar-cooker, and he ended up losing almost everything. Now, he was down to borrowing money from Ah Quan just to pay the rent. But even having fallen so far, he still remained relentlessly upbeat. Every day he would run circles around the city, seeking opportunities for his new material. He told Ah Quan this was the thirteenth city he had passed through on his mission.

Other than his solar-cooker, Lu Hai also carried a small sheet of his nano-mirror-membrane. Normally, he kept it on a nightstand, where it lay like a silver handkerchief. Every morning before heading out for the day, he would switch on a small power unit and the membrane would immediately harden to a thin, highly reflective plate. Lu Hai then proceeded to use it as a mirror as he tidied himself up for the outside world.

One morning, as he was using it to help him comb his hair, he gave Ah Quan a sidelong glance. “You should really pay more attention to your appearance,” he noted. “Just give your face a regular scrubbing and tidy-up your hair once in a while. And then there are your clothes; can't you spend a little on some new outfits?”

Ah Quan took the mirror and gave himself a once over. Having had a look, he smilingly shook his head. As a shoe-

shiner, there really was no point in going to all that trouble.

Leaning toward him, Lu Hai would not be dissuaded. “Modern society is full of opportunities and the sky is flocking with birds of gold. Someday you might reach up and seize one of them. But for that to happen, you must first learn to take yourself seriously.”

Ah Quan turned his head, looking all about, but he could not spot one bird of gold. Shaking his head, he glumly admitted, “That goes right over my head. I don't have much of an education.”

“Do not get me wrong; that is very regrettable, but who knows? In the end, it might turn out to your advantage. This age is great precisely because nothing is certain and miracles can happen to anyone,” Lu Hai mused.

“You,” Ah Quan said, still unable to completely wrap his head around the concept, “went to college, am I right?”

“I have a doctor in solid state physics, but I resigned my professorship,” Lu Hai replied.

Even long after Lu Hai had left, Ah Quan remained in a blank-eyed stupor. Finally, he shook his head. If a person like Lu Hai could run through 13 cities without catching a bird of gold, what chances did he have? He figured the guy was probably being self-deprecating; but he, Ah Quan from the farm country, was pitiable and ridiculous enough all by himself.

That night, while some had already gone to sleep and others were playing a game of poker, Ah Quan and Lu Hai went out. They were off to a small, nearby tearoom to watch some TV. At midnight, the news came on. The screen showed only the anchor speaking; there where no other graphics or footage.

“This afternoon the State Council convened a press conference to formally launch the China Sun project that has been attracting so much worldwide attention,” the newscaster said. “Following the Great Green Wall that is

being planted to arrest the expansion of the Gobi Desert, this will be the next major project that will fundamentally change our country's ecology ...”

Ah Quan had previously heard of the project and he knew that it involved constructing another sun in the sky above China. This sun would be able to bring more rain to the arid areas of the Northwest. It all sounded very fantastical to Ah Quan. He had taken to asking Lu Hai about such things as he heard about them. This time, however, as he turned with his mouth already poised for the question, he saw that it would fall on deaf ears. Lu Hai was staring at the TV, his mouth hanging agape. It looked like the TV had sucked the wits right out of him. Perplexed, Ah Quan waved his hand in front of his friend’s face, but he garnered no reaction. Only a long time after the news had finished did Lu Hai recover his composure.

He mumbled, more to himself than Ah Quan: “Why ever did I not think of the China Sun?”

Ah Quan now stared as blankly as Lu Hai had a moment ago; he could not believe that Lu Hai had been unaware of something that even *he* had known about. Who in China could not have heard of it?

Of course he must have known; perhaps it was something he had not thought of until now. How could the China Sun mean anything to Lu Hai, a vagrant living in a stuffy, rundown apartment?

Lu Hai did nothing to unravel the mystery. “Remember what I told you this morning? Right now a bird of gold came flying right in front of my eyes, and it’s a big one. In fact, it has been circling over my head for a while. Dammit, why didn't I see it?”

Ah Quan just stared at him. There was no trace of comprehension in his eyes.

As Lu Hai stood, he declared, “I will go to Beijing! I'll catch the two o'clock train. You should come with me, Quan, my boy!”

“Go to Beijing? And do what?” Ah Quan asked, even more baffled than he had been a second ago.

“Beijing is so big, what is there that can't be done? Even if you shine shoes there, you'll make much more than you do here!” Lu Hai shouted enthusiastically.

So, that same night, Ah Quan and Lu Hai boarded the almost empty train. All night they sped through the vastness of the Western grasslands, rushing toward the rising sun.

# chapter 3

# Third Goal in Life: Go to a bigger city; See the bigger world; Earn more money.

**W**hen he first saw the capital, Ah Quan realized one thing: Some things one had to see to understand. Imagination sometimes just would not do, and Beijing's nights definitely exceeded anything he could have imagined.

It was so much brighter than his village or the mine had ever been. It was even brighter than the lights of the provincial capital. As the bus he and Lu Hai had taken from the Beijing West Railway Station drove down Chang'An Avenue, he realized that if he had combined those past lights a thousand times over, still they could not rival Beijing's night. Of course, the lights of Beijing were not really a thousand times brighter than those of the provincial capital, but there was something about them, something that none of the cities out West had, could have, even if he had seen all their lights at once.

Ah Quan and Lu Hai checked into a cheap basement guest room for the night. On the morning of the second day they parted ways. Before taking his leave, Lu Hai wished Ah Quan all the best. He also told him that if he should ever run into trouble, all he had to do was find him; he would be happy to help. Lu Hai, however, gave Ah Quan neither telephone number nor address. Of course, he currently had neither.

“How will I find you?” Ah Quan asked.

“Just wait a while. You will soon just have to watch TV or read the paper, then you'll know where I am,” Lu Hai enigmatically answered.

Watching Lu Hai as he disappeared into the distance, Ah Quan shook his head in confusion. He could not make heads or tails of what he had just heard: The man was now penniless. Today he had not even been able to afford the guest room and Ah Quan had paid for breakfast. It had been so bad that he had had to give the landlord his solar-cooker. It had been one of the few things that remained from Lu Hai's life before poverty. Now he was a beggar with nothing but a dream.

After parting ways with Lu Hai, Ah Quan immediately went about looking for a work. At least, that had been his plan, but the shock of the big city soon let him forget all about it. He spent the entire day wandering aimlessly about its streets. It was as if he had walked straight into a fairytale. Getting tired never even occurred to him.

When night fell, he found himself standing in front of a new symbol of the capital. Before him loomed the 1,650-foot tall Unity Building. It had just been completed last year. He let his eyes wander up that cloud-scraping glass cliff. As the rosy evening clouds slowly darkened, the city's ocean of lights came to life. It was a breathtaking play of light and shadow that left Ah Quan's neck sore from craning. Just as he was about to leave, the lights of the building began to light up. The incredible force of this spectacular display took complete hold of Ah Quan and he remained, rooted to the spot, staring upward in wonder.

“You've been staring for a long time now; are you interested in that kind of work?”

Ah Quan turned, looking to see who had addressed him. It was a young man, dressed like anyone in the city. In his

hand, however, he held a yellow hard hat. “What work?” Ah Quan asked in return, confused.

“What were you just looking at then?” the man asked as he pointed up, the hardhat dangling from his hand.

Ah Quan lifted his head again, following the man’s finger. To his surprise, he spotted a few people, all the way up that glass cliff. From where he stood they looked like little more than tiny black dots.

“What are they doing up there?” Ah Quan asked, continuing to carefully observe them. “Are they cleaning the windows?”

The man nodded. “I am the personnel supervisor of the Blue Sky Building Cleaning Company. For the most part, our company is hired out to clean high-rises. Are you interested in that kind of work?”

Ah Quan looked back up. Just watching those little, ant-like, black dots made his head spin with vertigo. “That,” he said, gulping, “is too scary.”

The man would not be dissuaded and started into his pitch. “If you are concerned about your safety, rest assured. Sure, the work looks dangerous and that does make it hard for us to recruit workers. In fact, we are currently rather short-staffed, but our security measures are very thorough and in strict accordance with the regulations. There is absolutely no danger to it. And the work earns higher pay than any similar jobs in this line of work. You could make two-thousand a month and the company will provide for your lunch and will buy accident insurance for you.”

Ah Quan was completely caught off-guard by the wage he had just been offered. Dumbstruck, he stared at the supervisor.

The man completely misunderstood his point. “Fine, I'll cancel your probation period and I'll add another three-hundred. It will be a monthly salary of two-thousand three-hundred then, but I really can't go any higher. The basic wage for this kind of work used to be five-hundred, six-

hundred yuan, plus a daily bonus for every extra window. Now it’s a fixed salary and a good one by comparison.”

So, Ah Quan became a high-rise cleaner. He heard that overseas they were known as “Spider-Men”.

# chapter 4

# Fourth Goal in Life: Become a Beijinger.

**T**ogether with four co-workers, Ah Quan carefully rappelled from the top of the Aerospace Tower. It took them 40 minutes to reach the 83rd floor up to where they had cleaned to yesterday. In the spider-men's line of work, the biggest headache was cleaning slanting walls that met the ground at an angle of less than 90 degrees. The architect responsible for the Aerospace Tower had, in a display of his bizarre creativity, designed the entire building with slanting outer walls. The broad top of the building was supported on the ground by a slender column. That famous architect had said that this upward sloping design reflected the feeling of rising upward. It certainly seemed reasonable and the building had become famous around the world and a symbol for Beijing. That being what it was, the architect and all his ancestors still found their way into rounds of cursing by of all the spider-men of Beijing. For them, cleaning this building was a nightmare. From the ground up to 1,300 feet, the angle was as little as 65 degrees.

Hanging at his work spot, Ah Quan looked up. Above him he could see the enormous, overhanging glass cliff. It looked like it would collapse down on him at any minute. With one hand he unscrewed the cap of his detergent container. With the other hand he held tightly to the handle of his sucker disk. These sucker disks had been specially designed for window cleaners working on slanting walls. Even so, they

were not easy to operate and would often lose their suction, leaving the spider-man swaying next to the wall, held swinging only by their safety rope. These accidents happened often while working on the Aerospace Tower, and every time it did happen, it would frighten the cleaner straight out of his senses. Just yesterday, Ah Quan had seen a fellow lose his suction and swing a good distance out. When he came back in, a strong wind had pushed him right into the wall, shattering a large window. The worker had been left with large gashes on both his forehead and arms. The cost for the expensive, coated, high-quality structural glass plate had set him back an entire year's wages.

Even though Ah Quan had now worked as a spider-man for more than two years by this time, the job remained a very real challenge. Wind speeds of around five miles per hour at ground level meant winds of 20 miles per hour at 300 feet and at above 1,000 feet, where he was now, it was even stronger still. The danger was obvious and since the beginning of the century a number of spider-men had plummeted to the streets below. In winter these winds would cut like a knife. Winds were by far not the only problem they faced. The hydrofluoric acid solution they usually employed when washing was strong enough to blacken their fingernails and cause them to peel off altogether. To protect themselves from the corrosive power of the solution they had to wear layers of water-proof clothing, head to foot. In the summer this was particularly troublesome. As they wiped the coated windows, the Sun would burn on their backs while its glare on the glass would blind them from the front. It made Ah Quan feel like he had been hung above Lu Hai's solar-cooker.

Nonetheless, Ah Quan loved the work. In fact, these years had been the happiest time in his entire life. This certainly had to do with the fact that the spider-men were very highly paid when compared to the other low-skilled

migrant worker jobs available in the capital. More importantly, however, the work gave him a wonderful sense of fulfillment. He particularly enjoyed a part of the work that his colleagues did their best to avoid: Cleaning newly constructed skyscrapers. All of these buildings were at least 650 feet and the tallest reached 1,650 feet. Hanging off the top of these skyscrapers, all of Beijing stretched out below him.

The so-called high-rises of the last century looked almost tiny from up there, even if they stood close by; a bit farther away and they became nothing more than bundles of matchsticks jammed into the ground. Even the Forbidden City at the heart of Beijing looked like something made from golden toy blocks. Up here he could not hear the din of Beijing, yet he could survey the entire city with a single glance. It lay below, silently breathing, the web of roads like veins pumping the vital blood of its colossal life.

At times the skyscraper he was working on would pierce the clouds; the city below could then be dark and drowning in rain while his world would be aglow with splendid sunlight. As the endless ocean of clouds broiled below, Ah Quan would feel as if the powerful winds above passed right through him.

Experience had taught Ah Quan a maxim: Seen from above, things became much clearer. When the big city swallowed him, everything around him seemed frustratingly complex and Beijing turned into an endless maze. But from high up, the entire city was no more than a large anthill full of more than 10 million people, and the world no longer appeared so vast.

When he had been paid for the first time, Ah Quan went to one of the big shopping malls. He rode the elevator up to the third level. There he discovered a strange, baffling world. It was nothing like the bustling, crowded floors below. Instead he found a spacious hall. All that he could see in it

was a few amazingly large low-standing tables. These massive tabletops were one and all covered by groups of tiny buildings standing no taller than a book. The space between the buildings was as green as grass and interspersed with tiny white pavilions and winding walkways. These tiny buildings seemed to be made of ivory and cheese. In fact, they looked quite lovely and together with their green grass they created an exquisite world. In Ah Quan's eyes this truly was a model of heaven on earth.

At first he assumed that they were some kind of toys, but he could see no children on the entire floor. On the contrary, all the people looking at the tables did so with stern gravity. Ah Quan stood by the side of a table for a long while. Spellbound, he studied this heaven. His trance was only broken when a beautiful young lady greeted him with a friendly smile. Finally he began to understand what was being sold here.

Without plan or clear intention, he pointed at one of the buildings and asked how much an apartment on the top floor would cost. The lady told him that it was a three-bedroom apartment and that it cost 1750 yuan per square foot, for a total of 2,650,000 yuan.

The number elicited an audible gasp from Ah Quan, but the lady softened the cold, hard figure with gentle warmth. “You can pay in monthly installments of 8,000 to 10,000 yuan.”

He gingerly dared to ask a pertinent question. “I,” he said, swallowing hard before continuing, “I am not a resident of Beijing. Could I still buy it?”

The young lady smiled softly as she replied. “You're quite the joker. The hukou system of binding you to your registered home was abolished two years ago. And who is to say who is a Beijinger? Doesn't where you live make you a Beijinger?”

After Ah Quan had left the mall, he wandered the streets aimlessly for many hours. As night fell, the multi-colored

lights of Beijing sparkled to life around him. In his hand he held the colorful flier the lady at the mall had given him. Occasionally he would stop to look around; only a few months before he had lived in that simple room in the now so distant West. Back in the provincial capital, even the idea of owning an apartment would have seemed like a fairytale to him. Now, he was still a good means away from owning an apartment in Beijing, but it was no longer a fairytale; it had become a dream, and this dream was just like those exquisite little models. It was something he could actually see, something he could reach out and touch.

Ah Quan's reminiscence was broken by someone rapping against the window he was cleaning. It was an all too common annoyance. For the white collar high-rise workers, the appearance of a window cleaner on their office window was always an ineffable annoyance. It seemed that these people really saw them as their overseas nickname, as a strange clan of giant spiders crawling on their windows. Far more stood between the cleaners and the office dwellers than a mere pane of glass. When the spider-men worked, the people inside would, without any real enmity, loudly complain that they were blocking the Sun and about the other ways in which the cleaners were ruining their day.

The glass of the Aerospace Tower was semi-reflective, making it hard for Ah Quan to make out what was going on inside. He finally discerned a man within the building. To his complete surprise it was Lu Hai!

After they had parted ways, Ah Quan had long been worried about Lu Hai. In his mind, Lu Hai had become a vagrant in a Western suit, hobbling his way through a life of destitution in the big city. Then one late autumn night, just as Ah Quan was silently worrying whether Lu Hai had anything to wear for the winter, he suddenly saw him on the TV. It was just as he had said it would be.

At the time, the China Sun project had just selected the material for its reflector. The choice had been the most critical technical decision of the entire project. Among the 12 available materials, it was Lu Hai's nano-mirror-membrane that was ultimately selected. Lu Hai was almost instantly transformed from a vagrant scientist into one of the chief scientists of the China Sun project. Overnight he had become world famous. After that, even though he occasionally saw Lu Hai in the media, Ah Quan almost forgot about him; he did not believe that there was any connection left between them now.

When Ah Quan arrived in his spacious office later, Lu Hai did not look much different than he had two years ago. In fact, he still wore the Western suit. Ah Quan now saw that the suit he had previously considered so extravagantly expensive was, in truth, very much second-rate.

Ah Quan was soon telling him about his life since they had parted. He finished with a smile. “It looks like we both have been doing rather well in Beijing.”

“Rather well indeed!” Lu Hai nodded enthusiastically. “As a matter of fact, that morning when I told you about the times and opportunities, I was – in truth – at the verge of surrendering in despair. I told you what *I* wanted to hear, but these times really are full of opportunity.”

Ah Quan nodded as well. “Birds of gold are everywhere.” As he spoke, he sized up the office around him. It was brimming with the most modern technology. Most striking was a piece of very unusual decoration. The entire ceiling of the office was enveloped by a hologram of the night sky. It made being in the room much like standing in a courtyard under a brilliant, starry night sky. Suspended in this night sky hung a curved, silver mirror. It looked much like Lu Hai's solar-cooker, but Ah Quan knew that it had to be dozens of times larger than all of Beijing. A round lamp hung in a corner of the ceiling, emitting dazzling yellow light. Like the mirror, this round lamp floated in the sky without any visible

means of suspension. The curved mirror reflected this lamp's light onto a globe, creating a circle of illumination on its surface. The lamp slowly floated across the ceiling and as it moved, the mirror tracked its path, capturing and reflecting the lamp's light onto the globe, no matter where it went. The starlit sky, the mirror, the lamp, its light, the globe, and circle of illumination all formed an abstract and enigmatic whole.

“Is that the China Sun?” Ah Quan asked in awe, pointing at the mirror.

Lu Hai nodded. “It is an 11,500-square-mile mirror that can reflect sunlight. It will be in a geosynchronous orbit more than 22,000 miles above the Earth. From Earth it will look like a second Sun.”

“I really do not understand; how will another sun in the sky bring more rain?” Ah Quan asked, confused.

Lu Hai did his best to explain. “The artificial sun will influence the weather in a number of ways. For example, by changing the thermal equilibrium of the air it can influence the atmospheric circulation, increase ocean evaporation, or shift weather fronts. But that does not really explain it. In fact, the orbital reflector is just one part of the China Sun project. Another part is a complex atmospheric model. This model will be run on a large number of super computers and it will be able to accurately simulate changes in an area's atmosphere. It will then be able to find the precise point at which the heat from the artificial sun will be able to exert the most influence. We will thereby be able to produce quite dramatic effects, enough to completely change the weather of a target area …” He paused. “It is an amazingly complex project and somewhat outside of my area of expertise. In fact, I do not fully understand it myself.”

Ah Quan decided to ask a question to which Lu Hai would certainly know the answer. He also knew that it was almost certainly a very silly question, but he drummed up all his

courage and asked it nonetheless. “Something that large hanging in the sky, why doesn't it fall?”

A long silence followed the question. Lu Hai just stood there as the seconds passed. Finally, he glanced at his watch and then slapped Ah Quan on the shoulder. “Let's go. I want to treat you to dinner, and while we eat, I will explain to you why the China Sun cannot fall.”

But it did not turn out to be quite as simple as Lu Hai had expected. He soon realized that he would have to start with the very first basics. While Ah Quan did know that they lived on a spherical planet, his thinking was still heavily influenced by the traditional Chinese model of a dome sky above a square earth. It took Lu Hai a great deal of effort to make him truly understand and accept that our world is but a small rock, floating through an infinite void.

Even though Ah Quan came not a step closer that evening to understanding the specifics of why the China Sun would not fall, his very universe had begun to change in the depths of his mind. His understanding of the cosmos had entered the geocentric era of the Ptolemaic system.

On the second evening, Lu Hai took Ah Quan to a street vendor. Over dinner he was able to pull him into a Copernican world. The next two evenings Ah Quan learned of Newtonian physics and he came to gain a very basic comprehension of gravitational attraction. The next day, Lu Hai, with the help of the globe in his office, propelled Ah Quan into the Space Age. A public holiday followed and finally Ah Quan, in the face of that globe, came to understand the meaning of a geosynchronous orbit, and then he finally understood why the China Sun could not fall.

On that day, Lu Hai took Ah Quan on a tour of the China Sun Control Center. The center was equipped with a massive monitor that revealed a panorama of the China Sun in mid-construction. As of now, it was still about a dozen separate, thin pieces of silver-like material, floating through the blackness of space in geosynchronous orbit. Spacecraft

flitted among these plates like tiny mosquitoes, but what shook Ah Quan most was to be found on another monitor altogether. It was a picture of Earth, seen from 22,000 miles above. From that elevation continents looked like Kraft paper floating on the oceans. Mountain ranges seemed to be no more than the crinkles and creases in that paper, while the clouds looked to be no more than cotton candy spread over it.

Lu Hai joined Ah Quan in front of the monitor. He showed him both the area of his home village and Beijing. Ah Quan stood dumbfounded for many long minutes, before finally musing aloud. “I am certain that people think about things very differently up there ...”

Three months later, primary construction of the China Sun had been completed. On the eve of the Chinese National Holiday, the reflector was turned toward the night Earth, its gigantic light spot aimed straight at the capital region. That night Ah Quan gathered together with hundreds of thousands in Tiananmen Square to watch this magnificent sunrise: In the western night sky a gleaming star suddenly lit up and rapidly began to brighten. Around this star a ring of blue began to spread in the sky. As the China Sun bloomed to its full strength, half the sky was bathed in blue. At its edges the clear blue was gradually bleeding into yellow, reddish-orange and deep purple, just as if a circular rainbow was spanning into existence around that circle of blue. The people would come to call this phenomenon the “Sunglow Wreathe”.

By the time Ah Quan finally returned home it was already four o'clock. As he lay down on his cramped bunk, the China Sun was still shining through his window, illuminating the real estate ads tacked to the wall above his pillow.

Ah Quan tore them all down.

In the celestial light of the China Sun, the ideal they represented, the ideal that had so incessantly excited him in

the past years, just seemed suddenly inane and trivial.

Two months later, the director of the cleaning company came to find Ah Quan. He told him that Director General Lu wanted to see him in the China Sun Control Center. Ah Quan had not seen Lu Hai since he had finished his work on the Aerospace Tower.

“Your sun is truly magnificent!” he cheered when he met Lu Hai in his office at the Aerospace Tower. Ah Quan's praise came straight from the heart.

“It is everyone’s sun! And in some ways, especially yours; at the moment it cannot be seen here because it is bringing snow to your parent's village!” Lu Hai told him, smiling broadly.

Ah Quan nodded. “My parents sent me a letter and they told me that they really are having a lot of snow this winter!”

“However, the China Sun has encountered a major problem,” Lu Hai said, pointing to a screen behind him. On it Ah Quan could see two images of the light spot. “These two pictures were taken at the same location, two months apart. Can you spot the difference?” he asked as Ah Quan began examining the images.

“The left is somewhat brighter,” he said after short scrutiny.

“You see, one can make out the reduction in reflectivity with the naked eye after just two months,” Lu Hai said, nodding.

“How can that be? Is that large mirror collecting dust?” Ah Quan asked.

“There is no dust in space, but there is the solar wind and that brings a stream of particles being blown from the Sun. With time, it will cause changes on the reflective surface of the China Sun. Already the mirror surface has been covered by a very fine film of solar mist and that has reduced the Sun's reflectivity. In a year, it will look as if the reflective

surface has been covered in vapor. Then, the China Sun will become a China Moon, no longer capable of carrying out its mission," Lu Hai explained.

"Didn't you take that into consideration?" Ah Quan queried, somewhat incredulous.

"Of course we thought of it," Lu Hai paused, looking straight at him. "We still need to talk about you: Do you want to change jobs?" he finally asked.

"Change jobs? What can I do?" Ah Quan returned the question with a good deal of confusion.

"You can continue doing high altitude cleaning work, but you will work here," Lu Hai answered enigmatically.

Ah Quan looked about, completely unsure what to make of Lu Hai's offer. "Isn't your building freshly cleaned? Do you still want to hire a specialized high altitude cleaner for it?"

"No; at least, not for cleaning buildings. It's about cleaning the China Sun," Lu Hai finally said, unraveling the mystery of his request.

# CHAPTER 5

## Fifth Goal in Life: Fly to the China Sun and clean it.

It was the first meeting of the leaders of the China Sun Project Operations Department in regards to the cleaning of the reflector. Lu Hai introduced everyone to Ah Quan and explained his job to them. He had barely finished when someone asked about Ah Quan's academic vita. In response, Ah Quan honestly told them that he had attended primary school and that for only three years.

“But I am literate and can read without problems,” Ah Quan told the gathered department leaders.

A burst of laughter immediately erupted.

“Director General Lu, is this some kind of joke?” someone shouted angrily.

Lu Hai's response was calm and measured. “This is no joke. A team of thirty cleaners would take half a year to clear the entire China Sun; that is assuming that they were to work around the clock, without break. So in fact, we will need at least sixty to ninety cleaners working in shifts. If the Chinese Aerospace Labor Protection laws are passed, we will probably need even more people to comply with its shift regulations; maybe as many as a hundred-twenty or even a hundred-fifty. We can hardly hire a hundred-fifty astronauts with doctorates and three-thousand jet fighter flight hours for the job, can we?”

“Isn't there a huge, excluded middle here? Higher education has become quite widespread in the city these days, so why send an illiterate into space?” a skeptic immediately protested.

“I am not illiterate!” Ah Quan snapped back at the man, but his adversary paid him no heed and continued, pointedly focused only on Lu Hai.

“This is utterly unworthy of this great project!” he claimed.

The other attendees nodded in approval.

Lu Hai also nodded. “I expected that you would react in this way. Other than this cleaner, everyone here has a doctorate. So fine; let us see the quality of your cleaning work! Please follow me.”

More than a dozen baffled and uncomprehending attendees followed Lu Hai out of the meeting room. He led them to an elevator. Three types of elevator had been installed in this building, being fast, medium and slow. Lu Hai took them into a fast elevator. With breathtaking speed they shot up, straight to the top of the building.

As they ascended, someone excitedly said, “This is my first time in this elevator. It feels just like riding a rocket!”

As the elevator arrived, Lu Hai looked at all of them and intoned, “We have just entered geosynchronous orbit. We will all now experience what it is like to clean the China Sun.”

Every single one of them looked at him in amazement.

After disembarking, they nonetheless all followed Lu Hai up the tight metal stairs. Finally, they reached a small gate and went through it on to the open roof of the building. They walked straight into glaring sunlight and strong winds, but the blue sky above seemed a little clearer than usual. The group of highly qualified university graduates looked all around, absorbing the panorama of Beijing that stretched out around them. Only then did they notice that there was already a small group on the roof, waiting for them. Ah Quan

gasped in surprise as he realized that it was his company's director and his spider-man colleagues!

“Now, everyone will be given the chance to experience Ah Quan's work,” Lu Hai said, his voice loud and authoritative.

As he finished, the spider-men walked up, one to every attendee, and fixed each one with a safety harness. Then they led them to the edge of the roof and carefully helped them onto the small seat boards, the same kind that the spider-men used to hang off the side of buildings. The boards were slowly lowered, and then left suspended, about 200 feet from the top of the building. As the attendees descended down the glass wall, loud screams of unadulterated terror began to rise from among their ranks.

“Ladies and gentlemen, let us proceed with our meeting's agenda!” Lu Hai shouted down at the attendees, bending over the side of the building.

“You bastard! Quick, pull us up!!” came the fear-tinged yells in response.

“All you have to do is clean one pane of glass, then you can come back up!” Lu Hai declared.

They could not do it.

All that the people below managed to do was to hold on for their dear lives, clinging to their safety harnesses or the ropes holding their boards. They did not dare budge, not even willing to release a single hand to pick up one of the mops or to open a detergent bucket. Every day, these aerospace officials worked on blueprints and documents that dealt with objects thousands of miles off the ground; but here, experiencing a mere quarter-mile firsthand, they were all scared witless.

Lu Hai, who had been crouching at the edge of the buildings, stood up and walked to a spot where an Air Force colonel was hanging below. Of the more than a dozen attendees of the meeting, he was the only one who had maintained his cool. In fact, he had started to clean the

glass with steady and controlled movements. What surprised Ah Quan most, however, was that he was working with both his hands, leaving him without a hold on the harness, and even though his board was caught in strong winds, he did not allow it to sway. Only veteran spider-men could do what he was accomplishing on his first attempt. Ah Quan's surprise quickly turned to comprehension when he recognized the man; more than 10 years ago he had been an astronaut on one of the Shenzhou missions.

“Colonel Zhang, frankly speaking, would you say that the work before you is easier than a space walk in orbit?” Lu Hai asked the man.

“In terms of the requisite physical ability and skill, I would say it is very similar,” the former astronaut replied.

“Well said!” Lu Hai expounded: “Studies at the Aerospace Training Center have shown that in the context of ergonomics, cleaning high-rises and cleaning a reflective surface in space are, for the most part, identical. Both are dangerous tasks that require the worker to constantly maintain his balance; the work on both is repetitive and monotonous, yet very physically demanding. Both also require the worker to be constantly alert, as even the slightest oversight can lead to an accident. For an astronaut such accidents can lead to him drifting off-course, losing an instrument or materials, or even to a malfunction of his life-support system. For spider-men, they can end with them colliding with the glass, dropping their tools or detergent, or even to them slipping out of a faulty safety harness. When we consider the required finesse, the physical requirements and, in particular, the psychological requirements, then we can say that spider-men are fully qualified to work as mirror cleaners.”

The former astronaut lifted his head and with a nod said, “It reminds me of that old truism: For an oil merchant to pour oil into a can through the square hole of a coin requires the same degree of excellence as it takes for a general to hit

a bulls-eye with an arrow. The only difference is the person doing it.”

Lu Hai continued in agreement. “Columbus discovered America and Cook discovered Australia, but the opportunities these new worlds offered were seized by ordinary people. Those pioneers came from the lowest rungs of European society. The opportunities space offers are no different. In our nation's five-year plan, near-Earth space has been designated a second West; a new frontier now that the industrial development of China's Western regions has been completed. For the aerospace industry, this means that the age of exploration has already come to an end. The time when space travel was an adventure for a few elites is over. Sending common people into orbit will be our first step in the industrial development of space.”

“Good! Fine! You have the right to it! Now quickly, pull us up!” The other people below shouted themselves hoarse.

Back at the elevator, the director of the cleaning company leaned in close and whispered to Lu Hai. “Director General Lu, you really got into it back there, but isn't your argument a bit too highbrow? But of course you didn't want to address the crux of the matter in front of Ah Quan and the guys.”

“Huh?” Lu Hai uttered in curiosity, turning to the director.

“Everyone knows that the China Sun project is run as a quasi-commercial operation. We all know that a gap in the funding almost led to its cancellation halfway into the project, and also that your reserves to cover the operating costs are now running low. In the commercial aerospace industry, the annual salary of a regular astronaut is more than a few million. My lads can save you a hundred million or more every year,” the director noted.

Lu Hai was now smiling enigmatically. “Do you really think that a paltry hundred million would be worth the risk? As of today, I have lowered the standards of education required of our mirror cleaners to a bare minimum. I did so

very purposefully – to set a precedent. I will now be able to hire ordinary university graduates for other jobs in orbit required for the operation of the China Sun. In this way we will be able to save much more than a few tens of millions. It is like you said, we really do not have large reserves and this allows us to solve that intractable problem."

"When I was young, going to space was such a romantic endeavor. I can clearly remember when Kennedy invited Deng Xiaoping to the Johnson Space Center I called an American astronaut a god. Now," the director said with a bitter smile, shaking his head as he slapped Lu Hai's shoulder, "well, now I think of things in your terms."

Lu Hai turned to look at that group of young spider-men and with a loud voice told the director, "But, sir, the salary I can offer them is eight to ten times what you pay!"

The next day, 60 spider-men, including Ah Quan, were transferred to the National Aerospace Training Center in Shijingshan. One and all they were young men who had migrated to the capital, looking for work. They had come from the farthest corners of China's vast rural hinterland. Now new lands awaited them.

# CHAPTER 6

# Mirror Farmers

**X**ichang Base: With a loud rumble, great clouds of white smoke billowed from the engines of the space shuttle *Horizon* as it ascended into the blue sky. Aboard the shuttle were Ah Quan and 14 other mirror cleaners. After three months of training on the ground, they had been selected from among the 60 spider-men to be the first group to be sent into space. There they would take the lead in putting what they had learned into practice.

To Ah Quan, the strain of the G-forces seemed far less terrible than people always made them out to be. In fact, he even felt somewhat comforted by them. They reminded him of his childhood and being held tightly in the loving embrace of his mother.

The sky in the porthole to his upper right slowly began to turn from blue to black. Just then the faint pop of exploding bolts reverberated from outside the ship. It was the sound of the boosters detaching. Immediately the deafening roar of the engine became a soft drone. By now, the sky had turned a deep shade of purple and a short while later it finally blackened altogether. Ah Quan could now see stars through the porthole. They did not twinkle, but shined in perfect clarity.

The drone of the engine ceased and absolute silence fell inside the spaceship. The seats stopped vibrating as all force pushing them into their backrests vanished. The

spider-men had entered micro-gravity. Ah Quan immediately recalled the weightlessness training they had undergone in a huge tank of water; it really did feel like floating in water.

But Ah Quan could not yet release his seatbelt. The engine had droned back to life and the force of its acceleration pushed them all back into their chairs. What followed was a very long series of course alterations. The starry sky and the oceans rose across the tiny porthole in turns. One moment the cabin was flooded with the golden light of the Sun, while the next it was filled with the blue reflection of Earth. Seen through the small window, the curvature of the planet was growing ever more pronounced and even more of Earth's oceans and continents came into view.

In total, it took six hours to establish a full geosynchronous orbit. The rolling of stars and Earth slowly began to blend into one continuous vista, lulling Ah Quan into an unexpected sleep. But he was soon ripped back into wakefulness by their commander's voice blaring over the intercom. He told them that their flight had reached its destination.

One by one his companions floated from their seats, pressing themselves to the portholes to catch a glimpse of what lay outside. Ah Quan, too, released his seatbelt. Using a swimming movement he awkwardly floated to the porthole closest to him. It was the first time he saw the entirety of Earth with his own eyes. The majority of his fellow workers, however, were pressed to portholes on the other side of the cabin. Ah Quan quickly pushed himself off the bulkhead to join them, but he was too fast. Shooting to the other side of the cabin, he arrived head-first. A good knock against the bulkhead later, he too made it to a porthole. He discovered that the *Horizon* was already right under the China Sun. Its huge reflector had come to dominate most of the starlit sky and their space shuttle

seemed like nothing more than a tiny gnat flying below a huge silver dome.

As the *Horizon* continued its approach, Ah Quan was slowly able to take in the sheer magnitude of the reflector; already its huge surface filled the entire view of the window, any trace of its curvature having all but vanished. It almost seemed as if they were flying toward a silver plain, stretching forever beyond the horizon.

As they came ever closer, the reflection of the *Horizon* began to appear on the silvery surface. They could now also see long seams stretching across this world of silver. They reminded Ah Quan of the graticule of latitude and longitude lines found on a map. These seams were the only things that gave them any sense of the speed at which they were traveling.

Gradually, the lines below them lost their parallelity, now visibly converging toward a center. Suddenly this convergence began to exponentially accelerate; it was just as if the *Horizon* was flying straight toward a “pole” of this giant “map”. And soon that *pole* came into view. It was a small black dot at which the lines below met. As the space shuttle began its descent toward this dot, Ah Quan realized with amazement that this small black dot was in fact a gigantic tower standing on the silver land below. He recognized it as the control center of the China Sun, a hermetically sealed cylinder standing at its very center.

For the next three months it would be their only home in the vast cold of space.

Their life as space-spider-men had begun. Every day – it took the China Sun 24 hours to complete one orbit around the Earth – they would ride machines onto the mirror surface to clean it. These machines reminded them of the two-wheeled, walk-behind tractors they had used on the field. They drove them up and down the vast expanse of the reflector, just as if they were tilling this silver land. The

Western media caught on to this and ended up coining a rather more poetic name for them: “Mirror Farmers”.

The world these “farmers” inhabited was a very strange one. Below them stretched a silver plain, and even though the reflector's curvature meant that this plain slowly rose in all directions, it was so large that it appeared as flat as a pancake. Above, the Earth and the Sun always remained; the Sun appeared to be much smaller than the Earth, giving the impression that it was Earth's brightly glowing satellite. They could also see a bright circle of light move across the Earth. Shining on Earth's night side, it was an incredibly striking sight. This was the area illuminated by the light they reflected. The reflector could adjust its shape to change the size of this circle. When the distant slope of this silver land was relatively steep, the circle of light would be small and bright. When the slope was gentler, the light would be dimmer and its area larger.

No matter what the slant of the slope, the work of the mirror cleaners was always extremely arduous, and soon they realized that cleaning the reflector was far more tedious and exhausting than scrubbing skyscraper windows on Earth had ever been. Every day they would return to the control center utterly spent. Often they were too exhausted to even take off their spacesuits. On top of this, as the next part of the cleaning crew arrived, the control center grew rather crowded; they soon were living like sailors on a submarine. Nonetheless, they always counted their blessings when they made it back to the central tower.

The farthest one could get from the station on the reflector was about 60 miles. Often, those working at the outer rim of the mirror could not make it back “home” and instead were forced to “camp out” for the “night”. This meant liquid food from their spacesuits, followed by sleeping while suspended in space.

Along with the many discomforts, the work was also fraught with danger. Never before in the history of human

space flight had spacewalks been attempted by so many. When “camping out”, the slightest fault with one's spacesuit could lead to death. Added to this were the dangers of micro-meteorites, space junk, and sun storms. Among the control center engineers the living and working conditions had lead to massive undercurrents of resentment; the Mirror Farmers, on the other hand, long accustomed to hardships, simply and silently adapted to their new circumstances.

On their fifth day in outer space, Ah Quan called his family back home. At the time he was working more than 30 miles from the control center. From there he could see his home, directly under the China Sun's circle of light.

Ah Quan's father sounded somewhat incredulous as he spoke. “Quan, my boy, are you really on that sun over our heads? It is shining above us right now. The night is bright as day!”

Ah Quan happily replied, “I am, Father, I am right above you.”

Ah Quan's mother took the phone. “Quan, is it hot up there?”

“The heat is hot and the cold, cold. When we cast a shadow up here, everything outside it is hotter than ten summer days and everything inside the shadow is colder than ten winter nights,” came Ah Quan's reply.

His mother turned to his father and noted, “I can see our Quan! There, a small black dot on the sun!”

Ah Quan knew that it was impossible, but he could not hold back his tears. Sobbing ever so slightly, he said, “Father, Mother, I can see you. Where you are I can see two black spots on Asia! Bundle up tomorrow; I can see a cold front moving in toward you from the north.”

Three months after that call, the second shift arrived and Ah Quan's team was allowed back to Earth for a three-month vacation. They had barely landed before each and

every one of them went out and bought a high-powered telescope.

The three months had soon passed and they returned to the China Sun. Back on the giant reflector, they now used their breaks to watch the Earth through their telescopes. Of course they mostly turned their objectives toward their homelands, but at more than 20,000 miles, not even their telescopes allowed them to make out the villages from which they had set out. One of them used a thick marker to write a crude and simple poem on the reflector:

Up on this silver land I stare and yearn, but my home can barely be seen,
In the village, mother looks to the China Sun on high.
To her, its glaring wheel is as the image of her son's eye,
And under its gaze's wandering turn, the yellow earth is draped in green

The Mirror Farmers did remarkable work and they were gradually given more and more responsibilities far beyond the scope of their cleaning work. First they took on the task of repairing damage done by meteorite impacts. After a while they were given even more complicated work: monitoring and reinforcing over-stressed areas.

As the China Sun orbited, it constantly changed its angle. These changes were accomplished by 3,000 engines spread across the back of the mirror. The extremely thin surface of the reflector itself was connected to the whole structure by means of large, slender beams. As the reflector changed its angle or shape, areas of the reflector could be stressed beyond their capacity. When this occurred, they would have to promptly correct the engines' output or reinforce the location. Left unchecked, the excess stress could tear the mirror surface. Finding and reinforcing the stressed areas required a high degree of proficiency and a great deal of experience, making this part of their work highly technical.

Other than during re-angulation and shape adjustments, these stress points most frequently developed during so-called “orbital haircuts”. The official name of this operation was: Light pressure and solar wind-induced error compensation maneuver. In fact, light pressure and solar wind exerted a significant force on the massive surface of the reflector. Roughly six pounds of pressure pushed against every square mile of the mirror surface, constantly shifting the trajectory of the reflector. Their earthbound control center constantly monitored these changes, at all times comparing the altered tract to its intended orbit on a large screen. On this screen it looked as if long, wavy hairs were ever growing from the intended orbit, hence the odd name for the operation.

During orbital haircuts, the reflector accelerated much more rapidly than it ever did to adjust its angle or change its shape. For the Mirror Farmers this meant critical work. They would fly above the mirror, carefully observing the surface for any unusual changes. Whenever they spotted any, they would urgently take action with the necessary emergency reinforcements. Each and every time it happened they accomplished the task with flying colors. As a result their salary was increased considerably; but who benefited most from this development was the person directly in charge of the China Sun project, Lu Hai. He did not even have to hire ordinary university graduates.

Nonetheless, the Mirror Farmers all understood that they would be the first and last group of workers in space – those who had never even made it past primary education. All who followed them were at the very least university graduates. Still, they managed to complete the mission Lu Hai had quietly given them: They had conclusively proven that the ability to adapt to harsh environments was more critical to labor in space than intelligence and creativity, and that was something ordinary people were perfectly capable of doing.

Space did, however, change the Mirror Farmers' mindset and mentality. They were without peers, each and every day standing on ground 22,000 miles above the Earth. They could take in the entire world in a glance. For them the "global village" was not a metaphor; it was a tangible reality.

As the first laborers in space, the Mirror Farmers became a global sensation. Soon, however, the industrial development of low-Earth orbit began in earnest. A series of large projects were completed, including large solar power stations that beamed microwave energy down to Earth, micro-gravity processing plants, and many others. Construction even began on an orbital city housing 100,000. With these projects, vast amounts of workers surged into space. All of these workers were ordinary folk and so the world soon forgot about the Mirror Farmers.

Several years passed. Ah Quan had bought an apartment in Beijing, married, and become a father. He spent half of every year with his family and the other half in space. Ah Quan loved his work. Making his rounds on that silver land thousands of miles above the Earth filled his heart with a sense of transcendent tranquility. He felt as if he had found the perfect life. He saw his future stretch out before him, just like the calm and smooth silver plane under his feet.

It was not to be. Something happened that shattered his serenity and forever changed his mind's course. That something was his encounter with Stephen Hawking.

No one would have expected that Professor Hawking would live past a hundred. It really was a medical miracle, but it was also a testament to the strength of his mind and spirit. After the first low-Earth orbit micro-gravity rehabilitation facility had been completed, he became its first patient. However, the G-forces of the launch had nearly killed him and so a return to Earth became unthinkable;

after all, he would have been subjected to similar forces on his descent. Unless a functioning space elevator or anti-gravity capsules were to be invented he would have to stay in space. In fact, his doctor had recommended that he spend the rest of his life in orbit, as the micro-gravity environment would suit his body perfectly.

At first Professor Hawking had not been very interested in the China Sun project, and perhaps more importantly, he had no interest in enduring the acceleration forces that traveling from low-Earth orbit to geosynchronous orbit would inflict on his body, even though they were of course much less severe than what he had had to endure on his way into space. Professor Hawking did, however, become interested in a survey of micro anisotropies in the cosmic background radiation that was to be conducted on the China Sun. The observation station for this probe was to be set up on the rear side of the China Sun. The large reflector would block all sources of interference from both Earth and Sun.

After the probe had been completed, the observation station and the small group of researchers that worked on it were disbanded. Professor Hawking decided not to leave, indicating that he quite liked it there and that he intended to stay for a while longer. Something about the China Sun had caught his attention. On Earth the media produced all kinds of wild speculations, but only Ah Quan knew the real reason.

What the Professor enjoyed most about daily life on the China Sun was his strolls across the mirror surface. To the great confusion of most, he would simply float along the underside of the reflector for several hours every day. Ah Quan, who by now had become an extremely experienced space walker, was assigned to accompany the Professor on his excursions. Hawking had at this point already become as renowned as Einstein and so Ah Quan had of course heard of him. That said, his first meeting with Professor Hawking in the control center had been quite the shock; Ah Quan had never imagined that a person paralyzed to such an extent

could have gone on to such great achievements; even though he did not exactly understand what this great scientist had accomplished. On their walks, however, he never even noticed Professor Hawking's paralysis. It was probably his experience operating an electric wheelchair that allowed him to control the miniature engine of his spacesuit as well as anyone.

The communication between Professor Hawking and Ah Quan proved a bit more difficult. On the one hand, the Professor did have an implant that allowed him to control a speech box via his brain waves, making communication significantly easier for him than it had been. On the other hand, his words still had to be translated into Chinese in real time so that Ah Quan could understand them. To avoid disturbing the Professor's thought processes, and as per the instructions of his superiors, Ah Quan never initiated a conversation.

Professor Hawking, however, very much liked talking to him. He first asked Ah Quan about his background and life; then he reminisced on his own younger years. He told Ah Quan about the cold and gloomy great halls of his childhood years in St. Albans High School for Girls; about Wagner's music ringing through the icy and lofty rooms of his family home in the winter; about the caravan left on the Osmington Mills pasture, and the trips to the beach with his sister Mary. He also recalled walking with his father along the Ivinghoe Beacon in the Chiltern Hills.

Ah Quan marveled at the centenarian's memory, but even more amazing was that they had found a common language. The Professor greatly enjoyed listening to Ah Quan’s accounts of life in his home village and one time, when they reached the edge of the reflector, he asked Ah Quan to point out his homeland to him.

After a long while, their conversations inevitably turned to science. At first Ah Quan was convinced that this would end these unique exchanges, but nothing could have been

further from the truth. The Professor was able to convey the most profound aspects of physics and cosmology in a language that anyone could easily follow. For the Professor these new conversations seemed very relaxing. He told Ah Quan about the Big Bang, black holes, and quantum gravity. As soon as he returned to the station, Ah Quan began chewing through those thin books the Professor had written, asking the station's engineers and scientists whenever something was not clear to him. To his surprise he came to understand a good deal of it.

“Do you know why I like it here?” Professor Hawking asked during one of their excursions to the very edge of the reflector. They were floating close enough to the end of the mirror surface to see the Earth below. “This large mirror separates us from the Earth below. It allows me to forget the banalities of life. Here I can focus my entire being on the universe,” he explained.

In reply, Ah Quan noted, “The world below is very complicated, but seen at this distance, the universe is so simple; just a few stars scattered across space.”

“You are right, my boy, it truly does seem that way,” the Professor agreed.

The reflector's underside was much like its top. It, too, was a mirror surface. The only real difference was the many small black towers of the engines that adjusted the reflector's angle and shape. On their daily walks, the Professor and Ah Quan slowly floated across this surface. Staying close to the ground, they often flew all the way from the control center to the reflector's edge. Without moonlight, the mirror's underside was pitch black, its silver surface only reflecting the faint starlight. Compared to the topside, the horizon was always close here and they could make out the curvature of the reflector. As the grid of black support beams passed below their feet, illuminated only by the stars, it seemed to Ah Quan as if they were floating over the surface of some tiny, tranquil planet.

Whenever a re-angulation or change of shape was initiated, the engines on the rear of the reflector fired and this small planet's surface was aglow with the flames of countless pillars of fire; it only made this wondrous place more beautiful. Always, the Milky Way shone splendidly above this small world.

It was in this realm that Ah Quan first made contact with the universe's deepest mysteries. Here he understood that all of the starry sky that he could see was but a speck of the dust in the unimaginable vastness of the universe, and that this entire universe was no more than the embers of a magnificent, more than 10-billion-year-old, explosion.

Many years ago, when he had climbed to the top of a high-rise as a spider-man for the first time, Ah Quan had seen all of Beijing, and when he arrived on the China Sun, he had seen all of Earth. Now, for the third time in his life, Ah Quan was facing a moment of such majesty: He was standing on the roof of the universe and from there he could see things he had never even dreamed about; even though he as yet knew little of them, these far away worlds exerted an irresistible attraction upon him.

One day back at the station, Ah Quan asked an engineer about something that was troubling him. “In the sixties of the last century, humanity arrived on the moon. Why ever did we withdraw then? We still have not made it to Mars; we have not even returned to the Moon.”

The engineer was happy to explain. “Humans are practical animals; what was driven by idealism and faith in the middle of the last century could never last long.”

Ah Quan remained perplexed. “But are idealism and faith not good things?”

The engineer continued his elaboration. “I am not saying they are bad things, just that economic interests are better. If, starting in the sixties, humanity had spared no expense and fully engaged in the uneconomical venture of space travel, Earth would probably be much poorer now. You, I,

and other ordinary people like us would never have made it into space, even if we have made it no further than low-Earth orbit. Friend, don't take Hawking's poison; he deals in things that we ordinary people should not toy with!”

The conversation changed Ah Quan. He continued to work as hard as he always worked and on the surface his life remained as tranquil as ever, but it was also clear that he had begun to think about deeper things.

Time flew by and soon 20 years had passed. Looking on with the clarity of their 22,000 mile perch, Ah Quan and his colleagues had seen the world change in these two decades. They had seen the Great Green Wall take shape and become a verdant belt traversing the entirety of Northwestern China; they had watched the yellow desert slowly be covered in green as rain and snow fell on their once-arid homelands and the dry riverbeds again flowed with clear waters.

The China Sun deserved credit for all of this, taking a critical role in the massive project of changing the climate in Northwestern China. In those years the China Sun was also occasionally called upon to perform unusual duties. Once it was used to melt the snows of the Kilimanjaro to ease a drought in Africa; another time it turned the site of the Olympics into a city that truly never sleeps.

But new technology had come along, and by comparison it had made the China Sun's methods of weather manipulation seem very clumsy and fraught with side-effects. The China Sun had completed its mission.

The National Ministry of Space Industry held a grand ceremony to honor the first group of laborers in space. Not only were they to be honored for their 20 years of arduous and outstanding work, but even more so for the extraordinary accomplishment of 60 young men going to work in space with nothing beyond primary education. Their work in space had signaled to the world that the doors of

space development had been thrown wide open to everyone. In fact, economists unanimously agreed that the start of their work had been the true beginning of the industrial development of space.

The ceremony received widespread attention from the news media, not only for the reasons described, but also because the Mirror Farmers' story had taken on a legendary quality in the hearts of the masses; also, it was a great opportunity to engage the masses' nostalgia.

When the ceremony was convened, those simple, hardworking, and honest young men had all already aged past the better half of their thirties. Nonetheless, they were all still clearly recognizable when they appeared on the holographic television sets of the world. Over the years most of them had achieved some form of higher education, a few even becoming full-fledged space engineers. In the eyes of the public, however, they remained that same bunch of migrant workers from the countryside.

Ah Quan was selected to speak as their representative before the camera. “With the completion of the electromagnetic delivery system, we have made the cost of entering orbit the equivalent of a flight across the Pacific,” he said. “Space travel has become commonplace, even ordinary. Few in the younger generations will understand what going to space meant for an ordinary person twenty years ago; the excitement and passion it evoked in those who were given the opportunity. We were those lucky ones.

“We were the most ordinary of people and it goes without saying that the only reason we were blessed with this remarkable experience is the China Sun. In the last twenty years, it has become our second home. In our hearts, it is very much like a small Earth. At first, we saw the joints of the reflector's surface as the graticule lines of the northern hemisphere. We would mark our position by expressing it in cartographic coordinates. As we became familiar with the mirror surface, we gradually came to map the oceans and

continents to it. We would say, 'I am in Beijing' or 'Now I am over Moscow'; and each of us knew the analogous position of our home village. We always scrubbed that area the hardest.”

Ah Quan paused, letting his gaze drift into reminiscence. It was a brief moment and soon he again focused on the camera. “We worked hard on that small, silver Earth, doing our duty as best as we ever could. In those years, five mirror cleaners gave their life to the China Sun. Some could not make it to shelter when a solar magnetic storm erupted; others were hit by meteorites and space-junk.

Now, this silver land on which we lived and worked is about to disappear and we lack the words to describe what that feels like.” He let silence fall.

The voice of the Minister for Space Industry, Lu Hai, picked up the thread. “We all understand what you must feel, but I am gratified to be able to tell everyone: The China Sun will not disappear! I think you all understand that there is no way that the last century's solutions will do for such a large object. We cannot let it burn-up in the atmosphere, but there is another way to find it a final resting place and it will be a very elegant solution: We will cease the orbital-haircuts and stop re-adjusting its angle. The solar wind and light pressure will allow China Sun to achieve escape velocity and in the end it will, fittingly, become a satellite of the Sun. Many years from now, interstellar ships will be able to visit the China Sun's distant resting place. Then we will likely make it into a museum and we will be able to return to that plane of silver and there we will recall those unforgettable years.”

A sudden excitement took hold of Ah Quan and he loudly addressed Lu Hai. “Minister, do you really believe that day will come? Will there really be interstellar ships?”

Lu Hai was dumbstruck. For a long while he simply stared at Ah Quan, at a loss for words.

Ah Quan was very differently afflicted. “In the middle of the last century, when Armstrong left the first footprint on the Moon, almost all of humanity believed that we would land on Mars in the next decade or two. Now, eighty-six years later, we have not returned to the Moon, let alone Mars, and the reason for this is very simple: It would lose our money.

“Last century, since the end of the Cold War, economic criteria have come to rule our day-to-day life, and humanity, ruled by these criteria, has reached great heights. Now we have ended wars and poverty and we have restored our planet's ecology. The Earth has truly become a paradise,” he said earnestly. “This has led us to put ever more trust in the efficiency of the economic principle. It has become paramount, permeating our very DNA. In every aspect and element, human society has become an economic society. Nothing that yields less than what is invested in it will ever even be considered. Developing the Moon makes no economic sense and large-scale manned exploration of space would be considered an economic crime. And as for interstellar flight, that would be seen as outright psychotic. Now humanity knows only investment, production, and reaping their fruits!”

Lu Hai nodded in agreement. “In this century, the development of space is still limited to near-Earth space; that is true. It is that way for many profound reasons that range far beyond the scope of today's event.”

Ah Quan spoke up again. “No, they are firmly within its scope. Right here we have an opportunity. All we need to do is invest a little money and we will be able to travel from near-Earth space into remote reaches of the cosmos. Just as the Sun's light pressure can push the China Sun out of Earth's orbit, so can it also push it to far more distant places.”

Lu Hai shook his head with a smile. “Oh, you mean to turn the China Sun into a solar sail-ship. That would

certainly work in theory; the main body of the reflector is very thin and light and its surface area is considerable. If light pressure would accelerate it for long enough, it could, in theory, become the fastest spaceship humanity has ever launched. However, that is pure theory. The reality is that a ship with only a sail can only make it only so far; it would need sailors. An unmanned sailing vessel will do nothing but spin around on the ocean without ever reaching a harbor. Remember how well Stevenson described this very thing in *Treasure Island*? You must consider that returning from a journey powered by light pressure requires the precise and highly complex control of the reflector's angle. That is the reason why the China Sun was designed and operated from Earth's orbit. Without human control, it will follow an aimless course, blindly flying along, and that flight will not take it far."

"Yes, but sailors can fly it. I will be its pilot," Ah Quan calmly responded.

At this time, the ratings showed that viewership of the program had risen sharply. The eyes of the entire world were fixed on these proceedings.

Lu Hai again shook his head. "But you alone cannot control the China Sun. Its angular controls require at least –"

"At least eleven others," Ah Quan interrupted him. "Taking into account the other factors of interstellar travel, at least fifteen to twenty in total. I believe I will be able to find that many volunteers."

Lu Hai smiled, clearly at a loss. "I really could not have imagined that our conversation today would take this turn."

"Minister Lu, twenty years ago, you helped turn my life in new directions more than once," Ah Quan replied.

"But I would never, ever have imagined that your directions would take you so far, much further than I have even considered," Lu Hai sighed, emotions running deep in him. "Well, your idea is very interesting. Let us continue the discussion! Ah," he said as realization dawned across his

face, “what a pity! Your idea is not feasible: The most sensible destination for the China Sun is Mars, but you have not considered something very important; the China Sun cannot land on Mars. If you want to land, it will be a huge expenditure, making this plan lose its economic viability. If you do not want to land, nothing would distinguish your mission from that of an unmanned probe, and what would be the sense in it?”

Ah Quan's calm was unbroken. “The China Sun will not go to Mars.”

Lu Hai gave him a baffled look. “Then where will it go? Jupiter?”

“It will not go to Jupiter. It will go to places much farther,” Ah Quan declared.

“Much farther? To Neptune? To Pluto …?” Lu Hai's trail of thought abruptly stopped. Dumbstruck, he stared at Ah Quan a long while. “Heavens, you do not mean to say …”

“You are right. The China Sun will leave the solar system and become an interstellar vessel!” Ah Quan stated, nodding firmly.

Now the entire world joined Lu Hai in his stunned stupor.

He nodded mechanically as he stared straight ahead. “Well, if you are not joking, then give me a moment to make a quick estimate…” he said, closing his eyes as he began to calculate in his head. “Right, as far as I reckon, using the Sun's light pressure, the China Sun will be able to accelerate to about one-tenth of light-speed. Taking into account the time this acceleration will require, it could arrive at Proxima Centauri in about forty-five years.

“You could then use the light pressure of Proxima Centauri to decelerate,” he continued, thinking it through in more detail, “and after completing a survey of the Alpha Centauri system, you could accelerate in the opposite direction, arriving back in the solar system after a hundred years or so. It all sounds like a magnificent plan, but in

practical terms it will be an unrealizable dream," he concluded.

Ah Quan shook his head ever so slightly. "You are again mistaken; the China Sun will not decelerate after reaching Proxima Centauri. We will fly past at a speed of almost twenty-thousand miles per second, using its light pressure for further acceleration. From the Alpha Centauri system we will fly on to Sirius; and if the opportunity presents itself, we will continue to leap-frog on from there, on to a third star and then a fourth and so on."

"And what is the purpose for all this?" Lu Hai shouted, breaking all protocol as his annoyance started to show.

"All we ask of Earth is to install a highly reliable but small-scale self-sustaining eco-system and –"

"You will use this system to keep twenty people alive for more than a century?" Lu Hai again interrupted, an edge of irritation growing in his voice.

"Let me finish," Ah Quan noted calmly before continuing from where he had been cut-off. "And a cryogenics life-support system. We will remain in stasis for most of our journey, only activating the ecosystem as we approach Proxima Centauri. Using present day technology, we will be able to travel through the cosmos for a thousand years. Obviously, the cost for these two systems will not be negligible, but it will cost less than one-thousandth of a manned interstellar mission started from the drawing board."

"A dime would be too much; the world cannot assist twenty people in committing suicide," Lu Hai countered firmly.

"It is not suicide, but exploration. Perhaps we will not even make it past the asteroid belt right before us; perhaps we will make it to Sirius and beyond. But if we do not try, how will we know?"

"But unlike exploration, you will most certainly never return," Lu Hai reiterated.

Ah Quan nodded. “That is true; we will not return. Some may be satisfied with a wife, kids, and a picket fence, never so much as glancing beyond their small world; others will give their very lives for even a glimpse of something no human has ever seen. I have been both; and it falls to me to choose the manner of my life, and that includes a life on a mirror, drifting through space many light years away.”

“But there is one final issue: A thousand or more years in the future, as you fly past stars at speeds of tens of thousands of miles per second, will it really mean anything at all when you send out weak signals to Earth that will only be received dozens of years, if not centuries, later?” Lu Hai asked in a cautionary manner.

Ah Quan smiled at all the world and said, “As the China Sun leaves the solar system, humanity will look up from its current state of numbing bliss and it will again see the stars; it will make us recall the dream of traveling the cosmos and rekindle our passion for interstellar exploration.”

# CHAPTER 7

## Sixth Goal in Life: Sail the sea of stars; Draw humanity's gaze back toward the deeps of space

Lu Hai stood on top of the Aerospace Tower, gazing toward the rapidly moving China Sun in the heavens. Its light cast countless racing shadows from the capital's skyscrapers, making the entire city look as if it were spinning in the wake of the China Sun's passage.

This was the China Sun's last orbit.

It had already achieved escape velocity. It was now leaving Earth's gravitational field, heading toward an orbit around the Sun. Humanity's first manned interstellar flight had begun its journey. Twenty were aboard this flight. Along with Ah Quan, the other 19 had been selected from among more than a million volunteers. They included three other Mirror Farmers that had worked together with Ah Quan for many years. Before even setting out, the China Sun had reached its goal: Humanity's enthusiasm for interstellar exploration had been renewed.

Lu Hai felt himself transported back to that sweltering summer night in that Western city 23 years ago, when he and that boy from the arid countryside had boarded the night train to Beijing.

As a farewell, the China Sun directed its beam toward the big cities of the world, giving the people of Earth a last chance to see its light. As a final gesture, the China Sun

shone its light upon the West of China, directly illuminating Ah Quan's tiny home hamlet.

On that small road out of town, Ah Quan's parents stood together with the village folk, looking toward the China Sun in the east.

“Ah Quan, so you want to travel to distant places?” Ah Quan's father shouted into the communications link that had been set up just for the occasion, courtesy of the Aerospace Tower administrators.

Ah Quan answered him from the sky. “Yes, Father. I fear that I will not return home.”

“Are you going very far away?” his mother asked.

“Very far, Mother,” Ah Quan answered.

“Farther than the Moon?” his father asked.

For a few seconds Ah Quan's only reply was his silence. Then he said, with a voice much lower than before, “Yes, Father, farther than the Moon.”

Ah Quan's parents felt no particular pain at their son's departure; after all Quan would do great things at these places that lay beyond the Moon! What was more, in these times of wonder, they would always be able to speak to him, even when they would be worlds apart. And as they would be able to see him in their small TV, what difference did it make that they would not be able to speak to him face-to-face? It did not occur to them that there would be an ever longer delay; that his answers to their concerned questions would take ever longer to arrive. At first they would only be a few seconds, but that time would grow longer and longer. In a year’s time, every question would have to wait hours for a response.

Finally, their son would disappear altogether. They would be told that he had gone to sleep and that this sleep would last more than four decades.

Later still, Ah Quan's parents, having completed their hard, but ultimately very satisfying life of tilling that once poor and barren but now fertile land, would have one last

wish: That some distant day in the future, when their son finally returned, he would see an even more beautiful home.

As the China Sun left Earth's orbit, it gradually dimmed in the eastern sky and with its light, the halo of blue sky diminished. Finally, it was just another star, dissolving into the night sky. As dawn arrived, the glow of the morning Sun had already completely swallowed its light.

The morning light also shone on that road next to the village. Now white poplars flanked its sides and a small river, the road's equal in size, flowed nearby. Twenty-four years ago to the day, in the glow of dawn, the son of a Northwestern peasant, full of hazy hopes, had slowly disappeared in the distance on this very road.

The bright light of day had long reached Beijing, but Lu Hai was still standing on top the Aerospace Tower, looking to where the China Sun had disappeared. It had embarked on its long journey of no return. The China Sun would first pass the orbit of Venus, getting as close as possible to the Sun. This would maximize both the push of the light pressure and stretch of the China Sun's acceleration. It would engage in a series of complicated changes of trajectory to accomplish this, much like an ocean-going vessel tacking into the wind.

In 70 days it would pass the orbit of Mars. In 160 days it would sweep past Jupiter. Two years later, it would leave the orbit of Pluto and become a true interstellar ship, with all of its crew already deep in cryo-sleep. Then, after 45 years, it would pass Alpha Centauri, its astronauts awakening for a brief while. A century after the China Sun first had set out, the Earth would receive news of its exploration of Alpha Centauri.

The China Sun would already be flying toward Sirius, having accelerated around Alpha Centauri's three suns, its speed having reached 15 percent of light-speed. Another 60 years later, a century after setting out from Earth, it would reach Sirius. After sweeping past the binary system of Sirius

A and B the China Sun would reach one-fifth of the speed of light, heading ever deeper into the starry sky.

Given the limits of the cryogenic suspension system, the China Sun would be able to reach Epsilon Eridani, and perhaps – although the chances were very slim – even 79 Ceti; both of these star systems very likely harbored planets.

No one could know how far the China Sun would fly and what strange and wonderful worlds Ah Quan and his crew would behold. Perhaps one day they would send a message to Earth, calling them to new worlds. Even if they did, any response would take thousands of years to arrive.

But no matter what would happen, Ah Quan would always hold to his parents living in a country called China. He would hold to that small village in the dry West of that country.

And he would hold to the small road of that village, the road on which his journey began.

# The Wages of Humanity

**“B**usiness is business; nothing more, nothing less.” It was the code that Mr. Smoothbore lived by.

This time, however, things had turned out to be somewhat more complicated.

The problems had started at the onset; even the setup for the contract had been all wrong. The client wanted to meet him in person. In his line of business, that was a very unusual request indeed. It had been three years, but Mr. Smoothbore could still clearly hear his instructor telling them that their relationship with a client should be no different than the relationship of their own forehead and the back of their skull: Never should the two meet. Naturally, this approach to their business was in the interest of both parties.

The location the client had chosen for their meeting had done nothing to alleviate Mr. Smoothbore’s bewilderment; it was the opulent Grand Presidential Hall of the most exclusive five-star hotel in the entire city. Of all venues imaginable, it was probably the least appropriate to conduct their kind of business. Going by what the other side had already told him, Mr. Smoothbore knew that the contract would involve processing three pieces of work. That part of it did not trouble him at all; he never did mind going the extra mile.

The doorman opened the large, gilded doors of the Grand Presidential Hall. Before entering, Mr. Smoothbore inconspicuously reached inside his jacket, gently loosening the safety at the holster under his left armpit. It was hardly necessary; no one would do anything too unexpected in a place like this.

The large hall before him was truly magnificent, a reality of its own that seemed completely removed from the world

outside. The sumptuous chandeliers hanging from the ceiling were the suns of this world, shining down on the vast plains of scarlet carpet below. Glancing across the vast hall, Mr. Smoothbore saw them. It should have been one, but he was faced with thirteen. Mr. Smoothbore had not seen it coming and it did not please him. His instructor had told him that the relationship with his clients should be as one has with a lover: Having more than one is fine, but you should only meet with one at a time.

They were standing in a corner of the Grand Hall, gathered in front of two French windows. In the gap between the windows' heavy curtains he could see the sky above. Mr. Smoothbore knew exactly what they were looking at: Our Elders' spaceship was again moving to the Southern Hemisphere, coming into clear view as it passed overhead. Three years ago, the Gods had departed Earth, fortifying humanity to the shock of meeting extraterrestrial civilizations with their monumental visit from the depths of space. When the Gods had arrived, the 20,000 ships of their fleet had covered the sky; our Elders had come to Earth in but a single spaceship and that spaceship looked even less alien than the Gods' bizarre vessels. The ship now in the sky above was, in effect, no more than a giant rod with rounded ends, somewhat like a ridiculously oversized medicine capsule.

Seeing Mr. Smoothbore enter, the 13 left the windows and walked toward the large, round table at the center of the Grand Hall. Mr. Smoothbore recognized some among them and instantly part of the grandeur of the magnificent hall faded. In their presence it looked almost shabby. The most conspicuous of the group was Zhu Hanyang, a software magnate whose Orient 3000 Operating System was replacing the outdated Microsoft Windows system all across the globe. The others were almost his equal, themselves residents of the top 50 of the Fortune 500. These people's annual income was easily comparable to the GDP of entire

nations. Apparently, Mr. Smoothbore had stumbled upon a Fortune Global Forum in miniature.

These people were nothing like the Honored Brother Crosscut. It seemed obvious why; Crosscut had struck it rich overnight, whereas the 13 before him were dynasts. They were the nobility of this age and they had fully internalized their wealth. It was similar in concept to the diamond ring on Mr. Zhu's hand; thin and exquisite, it almost disappeared between his slender fingers, only occasionally glinting with warm light. Its worth, however, was probably easily the equivalent of dozens of the gleaming, walnut-sized, golden baubles that adorned the fingers of the Honored Brother Crosscut.

It hardly mattered. These 13 nobles by wealth were gathered here to hire a professional hit-man to kill, and kill not one, but three. And according to his contact, this would only be the first batch.

As a matter of fact, Mr. Smoothbore paid the diamond ring no real attention. What he did look at was the three photos in Mr. Zhu's hands. The snapshots clearly showed the work for processing.

Mr. Zhu leaned across the table and slid the photos toward him. Examining them more closely, Mr. Smoothbore could not help but feel a slight tingling of frustration. His instructor had once told him that he should always be familiar with those who might become work in the arena in which he plied his trade. At least in this city, he had done just that. Nonetheless, he was completely unable to place the three faces on the photos before him. All of them had been taken with a telephoto lens and the faces showing looked positively disheveled; they did not even appear to belong to the same species as the nobility sitting before him. Mr. Smoothbore noticed that one among them was a woman, still very young and relatively tidy, that is, when compared to the other two. At least her hair was meticulously kept, even though it was covered in dust. What

really stood out, however, were her eyes. Mr. Smoothbore always carefully studied people's eyes; it was the habit of everyone in his line of business. Normally, he saw one of two expressions – eyes full of anxious desire in some or eyes that had gone dull in others. The pair of eyes in the photo, however, shone with the rare light of tranquility. Mr. Smoothbore's heart was ever so slightly moved, but the feeling vanished in a blink, disappearing without him ever becoming aware of its rise, like a thin mist blown away by the wind.

“This is the business we, the Committee for the Liquidation of Wealth, entrust to you. All our standing members are gathered here. I serve as the committee's chair,” Mr. Zhu said to open their conversation.

*Committee for the Liquidation of Wealth? What a strange name*, Mr. Smoothbore thought. Obviously it was made up of the wealthiest powerbrokers, but beyond that he was completely in the dark. Even so, he didn’t ponder the meaning of their name any further, well aware that it would probably be impossible to figure it out without further information.

“Their locations are noted on the back of the pictures, but be aware that they have no fixed addresses. We can only provide an approximate area, so you will need to find them. That, however, should not prove difficult. The money has already been wired to your account. First, verify its receipt,” Mr. Zhu instructed, dispassionate to the point of sounding mechanical.

Looking up at him, Mr. Smoothbore found the expression in the man's eyes to be anything but noble; his belonged to the dull and empty ones. Somewhat to Mr. Smoothbore's surprise, there was not even a trace of desire left in Mr. Zhu's eyes.

Mr. Smoothbore retrieved his cell phone and checked his account. Counting the long string of zeros after the number, he coldly answered, “First, not so much; just pay according

to my bid. Second, pay half in advance and half on completion.”

“Done,” Mr. Zhu stated disapprovingly.

Mr. Smoothbore's fingers flew over his cell phone. “Sir, you can verify that I have returned the excess funds. We, too, have our professional standards.”

“In fact, we now often engage in this kind of business and we value your work ethic and sense of honor,” Xu Xueping noted with a touching smile. She was the president of the Remote Sourcing Group. Remote Sourcing had been born out of the aftermath of the full liberalization of the city's electricity market, becoming Asia's largest power company.

“This is the first batch. Please do it cleanly,” the offshore oil tycoon Xue Tong said from across the table. It was more of a declaration than a request.

“Rapid cooling or delayed cooling?” Mr. Smoothbore asked, and then immediately added, “I can explain, if need be.”

“We understand,” Mr. Zhu replied flatly, “and it does not matter. Do as you will.”

“What form of verification? Video or physical?” Mr. Smoothbore continued down his list of options.

“Neither is necessary. When you are done, we will verify it ourselves.” Mr. Zhu’s tone betrayed no hint of emotion.

“Will that be all?” Mr. Smoothbore finished.

“Yes, you can go now,” Mr. Zhu said by way of dismissing him.

Mr. Smoothbore left the hotel. Looking up at the narrow sky rising above the skyscraper canyon, he watched the slow passage of our Elders' ship. The spaceship was massive and flew at a tremendous speed. Apparently, it was in the process of reducing its orbital altitude. The ship's sleek surface was covered with brilliant, endlessly changing patterns that had an almost hypnotic affect on anyone who

stared for too long. The spaceship's surface was actually completely featureless, covered only by the perfectly reflective surface. The patterns those ground-bound observers saw were nothing other than the reflection of the Earth passing below. In Mr. Smoothbore's mind the ship was as purest silver, a thing of beauty in his eyes. He liked silver very much. It was so unlike gold, which he did not really care for, which he viewed as so calm and cold.

Three years ago before they left, the Gods had told humanity that that they had created a total of six Earths. Now, only four remained, all within 200 light-years of each other. The Gods had urged humanity to spare no effort in its technological development: It was incumbent on us to eliminate our three brothers before they eliminated us, had been the mantra.

But the notice had come too late.

They had come from one of those far away Earths – the First Earth. Not long after the Gods had left the solar system, their spaceship had entered Earth's orbit. The civilization of the alien First Earthers was twice as old as Earth's own and so humanity had come to call them “Our Elders”.

Mr. Smoothbore retrieved his cell phone and again checked his account. *Honored Brother Crosscut, I now have as much as you. Even so, it still feels lacking,* he thought. *You, on the other hand, I guess you always felt that you already had it all and what was done was nothing, but the desperate attempt to avoid losing it*…

He shook his head, trying to cast the shadow from his mind. This was not the time to think of his Honored Brother Crosscut. That was bad luck.

The Honored Brother Crosscut's name originated from the saw that was never far from his side. This saw was very thin and flexible, but also incredibly sharp. The saw's handle was made of hard sea-willow and was decorated with

beautiful Japanese ukiyo-e carvings. Crosscut used to wear it around his waist, like a strange belt. In his free time he often took the saw off and played a violin bow across its back. By bending its blade and playing across the various widths of the saw's body, the Honored Brother Crosscut could produce notes, even music. The strange tunes he played would hang in the air, their melancholy and dark timbre always reminding Mr. Smoothbore of a ghost's sobs. Mr. Smoothbore had of course heard of the sharp saw's other use, but he had only once seen the Honored Brother Crosscut actually apply it in full.

It had been during a high-stakes game in an old warehouse. One of the senior brothers, a man appropriately called Mr. Half-Brick, had no luck and played worse. Soon, he had lost everything, even his parent's house. With his eyes bloodshot, he had offered both of his arms in an all or nothing bet. The Honored Brother Crosscut had thrown him the dice and with a cruel smile told him that he could not bet his arms; after all, what fun would he be to have around without his hands?

“Bet your legs,” he had told him.

So, Mr. Half-Brick had bet both his legs – and he lost again. Crosscut had stood, unfolded his saw and taken both of Mr. Half-Brick’s legs off at the knees. The strange symphony of sounds of the saw cutting through tendons and parting bone rang clearly in Mr. Smoothbore's ears since that day. Back then, the Honored Brother Crosscut had stood on Mr. Half-Brick's neck to trap the shrieks of agony in his throat, leaving only the rhythmic sound of the saw being pulled back and forth across flesh and through bone. It played a lively tune across the innards of the knee, changing its timbre and tone as it opened the depths of bone and cartilage. Snow-white bone-ends were splashed with scarlet blood to the sound of music, conjuring an abstract image of exquisite beauty. Its strange harmony had shaken Mr. Smoothbore right to his very core. Every last

inch of his body, inside and out, had joined the song of saw and flesh. Damn, *that* was life!

It had been his eighteenth birthday, and he had received the perfect present. After it was done, the Honored Brother Crosscut had wiped his beloved saw and wrapped it back around his waist. Pointing to the trails of blood that had been left behind were Mr. Half-Brick and his two legs had been dragged away, he said, “Tell the young Mr. Brick that I will provide for him from now on.”

Even though Mr. Smoothbore had been young he had been a trusted member of the Honored Brother Crosscut's family as it rose to power and barely a month went by without a bloody job. When Crosscut had finally made his first fortune in the blood-soaked gutter of society, he moved up in the world, rising from a brutal thug to become a respectable criminal, well-shielded behind front-organizations and legitimate investments. In the wake of his rise, the loyal men of his crime family were all given positions as vice-chairman, vice-director general, and titles of the like. Only Mr. Smoothbore was left behind as the Honored Brother Crosscut's bodyguard. But those in the know understood that the level of trust and confidence this appointment implied was no trifling matter. The Honored Brother Crosscut had always been careful; it was a habit probably brought on by the fate of his godfather who himself had already been a very careful man. In the words of the Honored Brother Crosscut, he would have wrapped himself in iron if could have.

Even after many years of peace, Crosscut's godfather had boarded that fateful flight with only two of his most trusted bodyguards. He had taken a seat between them, thinking himself as safe as could be. It was a flight attendant who found the three men after they had landed, wondering why they had not left their seats. At first glance they had looked lost in thought. A second look revealed that their blood had already spilled down a dozen rows. The

three men had been impaled from behind by very slender, wickedly sharp steel needles. These needles had been pushed through their backrests, piercing the bodyguard's hearts with three spikes each. As for the godfather, his body had been skewered by no less than 14 sharp metal needles, leaving him pinned to his seat like a butterfly, meticulously and lovingly prepared for display. They were sure that the 14 had been a message, perhaps hinting at 14 million ill-gotten yuan, or it could have been that his killer had waited 14 years for his vengeance…

As he set out on his journey, it was no different for the Honored Brother Crosscut. His entire world became a forest of secret blades and hidden pitfalls. He had truly put his life in Mr. Smoothbore's hands.

Soon, however, Mr. Smoothbore's position had been threatened by Mr. K. The Russian Mr. K had been a downright fashion statement – a KGB bodyguard. In those days, that had been as good a trophy for the rich as a movie star lover. The people around Crosscut had a good share of trouble pronouncing the unfamiliar sounds of his Russian name and so they just called him Mr. KGB at first. They went to “Mr. K” from there. In truth, Mr. K had never been KGB. Former KGB officers were more often than not glorified desk jockeys and even the ones that had served on the hot frontlines of the Cold War were amateurs in the realm of personal security. Mr. K had been part of the security services of the Central Security Bureau of the Soviet Union and had served on the detail of Andrei Gromkyo, the then Minister of Foreign Affairs who had gained his fame in the West as “Mr. Nyet”. In that roundabout way, Mr. K was the genuine article and true expert when it came to keeping his clients breathing. The Honored Brother Crosscut had hired him on a salary equivalent to a vice-chair of his company. This was no act of vanity on Crosscut's part, but merely a precaution in consideration of his own security.

The moment Mr. K made his appearance it became clear that he was nothing like the other run-of-the-mill bodyguards around the Honored Brother Crosscut. Those bodyguards, who had learned their trade protecting the wealthy and powerful, would dine with their employers and would feel free to butt in when their client was talking shop. When real danger reared its head, they would either charge it like a street thug or leave their client in the dust of their panicked retreat. Mr. K, on the other hand, whether he attended a dinner or negotiations, always remained silent and in the background, his massive frame a literal wall of body, ever ready to block any incoming peril. Even though Mr. K never had the opportunity to protect a client from danger, his professionalism and abilities made it certain beyond doubt that he would perform his duty to perfection. Mr. Smoothbore was somewhat more professional than the other bodyguards and had not developed their bad habits, but he nonetheless felt a world of difference between him and Mr. K. For example, it took him a long time to understand that Mr. K wore sunglasses at all times not to look cool, but to hide where he was looking.

Mr. K learned Chinese quickly enough, but still he would not cavort with Mr. Smoothbore or anyone else in his client's circle. He maintained this distance until one day, when he suddenly asked Mr. Smoothbore into his Spartan room. After Mr. K had poured Mr. Smoothbore and himself a glass of vodka, he told him in halting Chinese, “I want to teach you to speak.”

“Speak?” Mr. Smoothbore had asked.

“Speak a foreign language,” Mr. K had replied.

After that, Mr. Smoothbore had started learning a foreign language from Mr. K. A few days later he realized that he was not being taught Russian, but English. Mr. Smoothbore was quick to pick it up and before too long his English had become decently fluent. Seeing his rapid development, Mr. K had told him, “You are not like the others.”

“It feels like that to me,” Mr. Smoothbore had said with a nod.

“In thirty years of professional experience, I have learned to accurately pick out the rare people with your kind of potential. To be honest, it chilled me when I looked into your eyes for the first time. You know, being cold-blooded for a moment is not all that difficult, but having frozen blood that never warms, now that is the real thing. You could be one of the elite; just don't let yourself get buried amongst the others,” Mr. K had told him.

“What should I do?” Mr. Smoothbore had wanted to know.

“First, go study abroad,” Mr. K had instructed.

The Honored Brother Crosscut had loved the idea the moment he heard of it from Mr. K, going as far as to promise his full backing and funding. In fact, he had wanted to rid himself of Mr. Smoothbore ever since he had hired Mr. K, but had no open positions in the company.

So one winter night, a plane carried the young man who had been orphaned in childhood and who had grown up in the darkest corners of the criminal underworld to strange lands.

Starting his ancient Santana, Mr. Smoothbore made his way to the locations on the back of the photos. His first stop was Blossom Plaza. Finding the person in the photo was hardly an effort; the homeless man on the picture was rummaging through a trashcan just as Mr. Smoothbore arrived. Having completed his forage, the bum made his way to a bench, bulging garbage bags in tow. His pickings had been rich; a large, almost undisturbed takeout box netting him an only once-bitten sausage, a few pieces of mostly intact bread and half a can of Coke. Mr. Smoothbore had expected that the bum would use his hands to wolf down his procurements, but he instead saw the man retrieve a small aluminum spoon from his filthy overcoat. Even though summer had already begun to heat the city,

the man was still wearing layers of thick rags. He then proceeded to slowly eat his dinner, returning what little waste he left to the trashcan he had first retrieved it from.

Mr. Smoothbore studied his surroundings, watching the dark slowly fall over the city. He knew this area like the back of his hand, but now it somehow felt strange. He quickly figured out how this bum managed to maintain his plump shape. The plaza was a common haunt for the city's homeless, but now he could find not a one. Not one bum other than his mark remained. Where had they gone? Had they all been processed?

Mr. Smoothbore headed to the next location. It was a shack, made of corrugated sheets and cardboard boxes, huddled under an overpass at the edge of the city. As Mr. Smoothbore arrived, he noticed pale yellow light shining through its flimsy walls. He carefully approached, prying open a crack in the shack's “door”. Poking his head in, he was stunned by the bright and colorful world within. The inside of the shack was entirely covered in paintings of all shapes and sizes, forming solid walls of art. Following a wisp of smoke, Mr. Smoothbore found the vagrant artist. The man was lying in a broken easel. Long hair hanging over a paint-covered face and wearing an extra large t-shirt that seemed more like a robe on him, he reminded Mr. Smoothbore of a hibernating bear. The painter was smoking a pack of bargain basement cigarettes while his eyes shifted from one work to the next, to Mr. Smoothbore. His gaze overflowed with both wonder and loss, leaving Mr. Smoothbore with the feeling that he must be the first person to enter this private world. He could easily imagine the vagrant painter spending days on end here alone, captured by the narcissistic wonder of his own creation and creations. This kind of failed and penniless artists had been legion in the ‘90s of the last century, but these days they had become a rare sight.

“It’s all right, come in,” the artist said, his eyes still wandering over his paintings. He did not even look at the door as Mr. Smoothbore entered his shack. His tone was as unexpected as everything else about the man; he sounded more like an emperor, opening his palace to an audience. “Do you like my paintings?” he asked as soon as Mr. Smoothbore had come inside.

Mr. Smoothbore looked about, discovering most of the art to be a mere mess of colors; paint splashed on a canvas at random would have looked downright rational in comparison. There were, however, a few realistic paintings in the mix as well. Mr. Smoothbore's gaze was quickly drawn to one among these: It was a picture of parched and splitting soil. There was also a few withered plants rising from the cracks, but they all looked like they had died centuries ago. It left him with the impression of a world forever devoid of water and rain. Lying on the broken earth was a human skull, bleached white and covered in a lattice of cracks. Unexpected green sprouts rose from one cavernous eye socket, vibrant and full of life, intensely distinct from the dead, dry world surrounding them. One sprout was topped with a gentle and beautiful flower. The other eye socket actually contained a human eye, a clear pupil staring up at heaven. Much like the artist's own gaze, it was full of wonder and loss.

“I like that one,” Mr. Smoothbore said, pointing at the painting.

“It is called, 'Barren Land 2',” the artist said. “Do you want to buy it?”

“How much?” Mr. Smoothbore asked.

“How much you got?” came the response.

Mr. Smoothbore took out his wallet and handed the artist all of his hundred yuan notes. The strange man only took two.

“That's all it’s worth. Take it, it’s yours,” he said.

Mr. Smoothbore started the car as he picked up the third photo, studying the location it revealed. A mere moment later he stopped the car's engine. What the photo showed was right next to the overpass: The city's largest landfill. He picked up his binoculars and began scanning the dump through his windshield, looking for his mark amongst the scavengers clambering on the trash.

Three-hundred-thousand fed on the garbage of the city, forming a class of their own, complete with its own divisions and social order. The highest ranking could enter the exclusive residential areas and scavenge amongst the mansions and villas. From the exquisite, almost sculpture-like trash cans they could pick out a daily spoil of new shirts, socks, bed sheets and other items the residents considered disposable. They often even found only slightly scratched, quality leather shoes and belts, as well as barely smoked Havana cigars and premium bars of chocolate missing only a corner…

But to pick the garbage of these neighborhoods necessitated large bribes to the security contractors that only a few could afford. The select few who could pay had become the scavenger nobility. The middleclass of scavenger society gathered in the many waste-transfer stations around the city. These were the points of first collection for the city's trash. The waste found there still contained the most valuable pieces of garbage, such as discarded electronics, metals, intact paper products, abandoned medical equipment and medicines past their due date and the like. The scavengers picked all of it completely clean. These sites were not open to just anyone, however. Every waste-transfer station was under the control of some waste disposal gang-master or another and any scavenger who entered without their authorization was harshly punished; a solid beating and swift kick to the curb for lesser infractions and death for more severe offenders. After passing through the transfer station, the garbage went to

the large landfills outside the city. The waste reaching these sites was largely stripped of its “nutrients”, yet it was what the majority of scavengers subsisted off of. This majority was the lowest rung of scavenger society. It was this kind of people that Mr. Smoothbore was looking at right now.

The scavengers were picking through the waste, looking for what little was left for them, primarily scraps of plastics and cardboard, mostly worthless and hard to retrieve. They were also looking for rotten food in the trash which they could sell to the local farmers as pig feed at 10 yuan to the kilo.

The bright skyline of the metropolis loomed in the near distance, twinkling like an enormous gem in the night. Its shimmer illuminated this stinking mountain of garbage, coating it in a faint, flickering glow. The scavengers themselves were well aware of the extravagant luxuries of the nearby city; they faced them every day as they picked through its trash. Amongst the rotting food they would find the legs of a roast piglet, a barely touched grouper fish, a whole chicken…

Complete, fully cooked Silkie chickens had recently become particularly common, owing to the popularity of White Jade Chicken. This en vogue dish was prepared by opening the belly of a Silkie chicken, filling it with tofu and letting it stew. Even though the chickens, known for their fluffy plumage and tasty black meat, were considered a delicacy, diners in the know would not touch it, eating only the tofu. Much like the reed leaves around a rice dumpling, actually eating the chicken made the patron the laughingstock of the culinary world.

As Mr. Smoothbore watched the landfill, he saw the last truck of the day arrive. As it tilted its dumper, a group of scavengers had already gathered to welcome the avalanche of waste. Soon they disappeared in the rising dust and mass of the garbage mountain. It seemed that these people had evolved into a completely new form of human life,

unaffected by the stench, bacteria and grime of the waste mountain they lived on. Of course, that illusion was only maintained by seeing how they lived, and not how they died. It was much like with the bodies of bugs and rats; ordinary people almost never noticed their remains and so could not have cared less. The truth, however, was that the bodies of scavengers were all too common on this giant landfill. They died quietly on this mountain, soon to be buried in new waste.

In the dim glow cast by distant floodlights at the edge of the dump, the scavengers were no more than blurred, filthy shadows. Even so, it took Mr. Smoothbore only a few short minutes to make out his mark on the mountain. The quick find was less a tribute to Mr. Smoothbore's keen perception than to another reason entirely: It was the same as with the bums in Blossom Plaza – today he could spot far fewer scavengers than usual on the landfill. And again he was left to wonder what might have happened.

As Mr. Smoothbore began studying his mark, he found her to be much the same as the other scavengers around her. She had a thick string tied around her waist and she was carrying a large, rough woven bag and a rake attached to the end of a long pole. On closer inspection, she did look thinner than the others, her slight stature leaving her stuck at the back of the jostle. Rummaging through the garbage at the periphery of the scavenger pack, she had to make do with the waste of the waste.

Mr. Smoothbore lowered his binoculars, pondering what he had seen as he gently rocked his head side to side. The oddest thing in the world had just happened right before his eyes: A city bum, an impoverished, homeless painter, and a woman who lived off garbage; these three people – some of the poorest and weakest in the world – somehow seemed to pose a threat to the richest and most powerful magnates in the world. Not only that: Apparently they were enough of a

problem to make these super-rich hire a hit-man to kill them?

He had placed “Barren Land 2” on his backseat. Now, the one eye of its skull was staring at him in the dark, piercing him like a spike to the back.

A chorus of screams rose from the edge of the trash, refocusing Mr. Smoothbore's attention. The world outside his car was enveloped in a blue light. The glow emanated from the east where a blue sun rapidly rose over the horizon. It was our Elder's ship, moving to the Southern Hemisphere. The spaceship normally emitted no light whatsoever, rising as a small moon in the night sky as it reflected the distant sun's light. Sometimes, however, it suddenly emanated a blue glow, covering the entire world with its light and throwing all of humanity into a state of nameless terror. This time the spaceship's light was brighter than it had ever been, possibly because it was in a lower orbit than usual. The blue sun rose behind the city's skyline, the shadows cast by the distant skyscrapers reaching all the way to the landfill, grasping at it like the black hands of titans. Soon these strange arms retreated as the spaceship continued its rapid ascent into the night sky.

The glow of our Elder's spaceship greatly increased visibility, offering Mr. Smoothbore the opportunity for a better look at the scavenger girl on the dump. He raised his binoculars again to verify his observations and to re-confirm that she was indeed his mark. The girl was squatting, her bag on her knees, an ever so slight note of terror in her upward-turned gaze. Still, her demeanor was dominated by the calm that had already stood out to him on the photo. Again, Mr. Smoothbore's heart stirred, but as before, the feeling passed in a flash. He was well aware that these ripples of emotion were surfacing from somewhere in the depths of his soul and he could not ignore the regret of feeling them fade.

The spaceship streaked across the sky, soon disappearing beyond the western horizon. All that remained of it was a strange blue afterglow, shining in the west. Then everything again faded to the dim light of dusk that seemed to reignite the splendid glow of the distant city.

Mr. Smoothbore's mind returned to the puzzle at hand: Thirteen of the world's most wealthy individuals wanted to kill three of the world's poorest. It was beyond absurd. In fact, it exceeded the powers of his imagination. But before the train of his thoughts could continue down this track, he violently pulled his mind's emergency brake. Slapping the steering wheel in self-directed scorn, Mr. Smoothbore reprimanded himself for violating one of his trade's highest ideals. The headmaster's words floated back into his mind, reminding him of his profession's maxim:

“The gun does not care at whom it is aimed.”

Mr. Smoothbore still had no idea where the institute would be, not even in which country he would study. All he knew was that the plane's first destination was Moscow. Once he landed he was picked up by something that approximated a welcoming committee. The strangers spoke English without any trace of a Russian accent. They had him don a pair of completely blacked-out sunglasses, disguising him as a blind man as they took him on a journey through the dark. He boarded another plane and flew for more than three hours; then he was in a car for a day. Only when that journey was over did he finally arrive at the institute. He had no way of knowing where he was – he may well even have left Russia. What he could tell, was that the institute was located deep in the mountains and that it was surrounded by high walls. Under no circumstances were the students to leave the premises before graduating.

Free of the blacked-out glasses, Mr. Smoothbore soon discovered that the institute’s buildings were divided into two groups: One was made up of gray buildings, completely

lacking in any distinguishing features, while the other group of structures was remarkable in both color and shape. He soon learned that the latter were in fact like giant building blocks that could be reassembled into all manner of configurations, producing an infinite variety of firing ranges. In essence, the whole of the institute was nothing more than a particularly spacious and well-equipped firing range.

The institute’s opening ceremony was the only time all of its students were gathered in one place. There were just over 400 of them. At the ceremony, the institute’s silver-haired headmaster himself addressed his students. He had the air of a classic scholar about him, instantly commanding universal respect and reverence. With a strong and clear voice he introduced those gathered to the journey ahead.

“Students, in the coming four years you will learn the theoretical knowledge and practical skills of our profession,” he told them. “It is a profession that will never be named and one of humanity's oldest, yet it can look forward to an even still brighter future. On the small scale, it can resolve problems for a client that can only be removed by us; on the large scale, it can change the very course of history.

“In the past, a variety of political organizations have offered us significant sums to train guerrilla groups. We always refused. We educate independent specialists; no one else. Independent, that is, of everything but money. From this day on, you should think of yourself as a gun. Your duty is to function as a gun. Realize the beauty of the gun and realize that the gun does not care at whom it is aimed. A holds the gun and uses it to shoot B; B takes the very same gun and uses it to shoot A. It makes no difference to the gun and it carries out both duties with the highest level of excellence. That is the very essence of our professional ethics.”

During the ceremony, Mr. Smoothbore learned the most common terms of his new trade: The assignment itself was

called “processing”, the target of an assignment was called the “work”, and its death was called “cooling”.

The institute trained students in the “L”, “M” and “S” specialties. These three letters were shorthand for long, medium and short range.

The “L” specialty was the most esoteric and its tuition fee was exorbitant. Only a select few were enrolled in the L courses and they did not associate with the students of other specialties. Mr. Smoothbore's instructor also advised them to stay clear of the L specialists. “They are our nobility and they hold the greatest power among us to alter the course of history,” he explained.

The knowledge of the L specialists was wide-ranging and profound and the sniper rifles they employed cost hundreds of thousands of dollars. Fully assembled, these weapons were more than six feet long. The L specialists usually processed their work at ranges of over half a mile and it was said that they could even go as far as two miles out. Working at a mile's range was a complex operation. In the preliminary phase, a series of so-called “wind-chimes” would be set up along the range. These “chimes” were finely crafted, miniature anemometers, capable of providing precise measurements and wirelessly transmitting their readings back to the shooter. The data was displayed on a monitor, revealing the exact wind speeds and directions prevalent along the entire range of the shot.

“M” specialists processed their work at a distance of 50 to 1000 feet. M was the most traditional specialty and boasted the most students. At this range, ordinary guns were the tools of the trade. While the M specialty was the most widely employed, it was also considered prosaic and lacking in mystique.

Mr. Smoothbore was an “S” student, learning to work at ranges closer than 50 feet. The requirements for S weapons were the least stringent. At this range pistols were common, but they could also resort to blades and more obscure

implements to get the job done. Amongst the three specialties, S was without doubt the most dangerous, but it was also the most romantic. The headmaster was a grand master in this specialty and personally taught S courses. His first lesson, however, came as a complete surprise: It was English literature.

“You must first understand the values of the S specialty,” the headmaster solemnly instructed them, carefully watching his students' baffled faces. “In the L and M specialties, the processor and the work never meet. To the very last moment, the work remains completely unaware of its situation and of the fact that they are being processed and cooled. This is, of course, very fortunate for them, but less so for the client. A fair amount of clients require that the work, prior to cooling, be made aware of why and by whom they were marked for processing. We are the ones who tell the work these things. As we do so, we must transcend ourselves and become the client. We must aim to communicate the client's final message to the work in a consummate and dignified manner, allowing the work to feel the greatest possible level of shock and torment before cooling. This is the beauty and romanticism of the S specialty: The absolute terror in the eyes of the work before cooling. It is the greatest sanctification we can possibly derive from our labors. But to achieve this end, we must achieve a considerable command of both the skill of communication and knowledge of literature.”

So Mr. Smoothbore studied literature for a year. He studied Homer's epics, recited Shakespeare and read many other works of classical and contemporary authors. It was somewhat to Mr. Smoothbore's surprise when he realized that this year was probably the most productive of his entire time spent studying abroad. He already knew bits and pieces of all the other things he learned later and eventually he would have mastered the details. A deeper understanding of literature, on the other hand, that was a

singular opportunity. Through literature he rediscovered humanity and came to admire the delicate and complicated nature of the human condition. Before, killing someone was like breaking a crude pot filled with reddish liquid. Now, he was pleasantly surprised to find that what he broke was actually the finest jade. This greatly enhanced the pleasure of the kill.

His next course was human anatomy. The S specialty had an advantage over the other two in that it could control the speed at which the work was cooled during processing. The technical terms for this were “rapid” and “delayed” cooling. Many clients requested that their work receive delayed cooling and that the process be videotaped as a keepsake for their private pleasure. Naturally, this required a great deal of artistic proficiency and experience. The study of human anatomy was indispensable in working toward this goal.

Then, the real courses toward his specialty began.

The people picking garbage on the landfill slowly dispersed, leaving only a few stragglers, his mark among them. Mr. Smoothbore decided then and there to process this work tonight. The conventions of his professions demanded that he not commence action during the initial observation, but there were exceptions if an opportunity like this presented itself.

Mr. Smoothbore maneuvered his car out from under the overpass and along the bumpy road toward the landfill. Stopping the vehicle at the edge of the waste mountain, he studied the only path by which the scavengers could exit the landfill. The road was shrouded in darkness, revealing little beyond weeds indistinctly swaying in the night wind. Mr. Smoothbore chose this spot to wait for his work; it was a fantastic place for processing.

He drew his gun and placed it on the car's dashboard. It was a crude, snub-nose revolver, capable of accepting 7.62

x 25 mm caliber bullets. This ammunition, known as “Black Star”, was widely used in the criminal underworld and was easy to obtain. The weapon had no serial or branding, having been privately manufactured. He had bought the fully functional and in every way practical package for 3000 yuan on the black market in Xishuangbanna in the far south of China. Even though it was undeniably ugly, the gun was well-made, each component precision fit. Its most significant drawback was that the hardest part of the manufacturing process had been left undone: The inside of the gun's barrel was smooth metal, lacking any form of rifling. It wasn’t that Mr. Smoothbore did not have a better, branded weapon. The Honored Brother Crosscut had even provided him with a 32-round Uzi when he first started working as a bodyguard and had later given him a Type 77 pistol for his birthday, but Mr. Smoothbore kept them stuffed away, never once carrying either weapon. He simply enjoyed his snub-nose. Now, it glinted coldly in the distant light of the city, letting his thoughts drift back to his years at the institute.

The day that the specialist training commenced, the headmaster had demanded each student show his or her weapon. Back then he had felt a keen sense of embarrassment as he placed his snub-nose next to all the other exquisite, high quality arms. The headmaster, however, had picked it up and carefully studied the weapon. His voice had been full of sincere admiration as he praised it. “This is a good one.”

“Its barrel isn't even rifled and it won't accept a silencer,” a student had commented scornfully.

“The S specialty requires only a minimum of accuracy and range from a weapon; rifling matters little to us. And a silencer?” the headmaster said. “Why not simply use a small pillow? Boy, do not let yourself be trapped by hackneyed convention. In the hands of a master, this pistol can create

art that none of those expensive toys can dream of achieving.”

The headmaster was right, of course; because of its lack of rifling, the bullets fired by the snub-nose tumbled and spun as they cut through the air, unleashing an entirely unusual, bone-chilling scream. The bullet continued to spin even after hitting the work, cutting through the body like a buzz-saw.

“From now on, we will call you Mr. Smoothbore!” the headmaster had said, handing the gun back to him. “Master it well, boy; it will be just like learning to throw a knife.”

Mr. Smoothbore had understood immediately: A knife master throws the knife by its blade, giving it the most powerful spin and the best chance to strike the target with its tip. The headmaster obviously wanted Mr. Smoothbore to master firing bullets from his snub-nose in just this way! If he managed, he would be able to ensure that his bullets inflicted the deepest and most intense wounds possible. Two years of diligent practice and roughly 30,000 bullets later, Mr. Smoothbore finally perfected the skill. His success was somewhat of a surprise all around; even the institute's best shooting instructors had considered it impossible.

During his studies abroad, Mr. Smoothbore became completely inseparable from his snub-nose revolver. In his fourth year, he came to know a fellow S specialty student by the name of Ms. Flame – probably because to her fiery red hair. The institute being what it was, he of course never learned her nationality, but he could guess that she was from somewhere in Western Europe. There were only a few women in the course and almost all were natural sharpshooters. Ms. Flame's aim, however, was awful and her dagger skills not much better. In fact, at first Mr. Smoothbore had no idea what exactly it was that she had done before coming there. In their first garroting class, however, she pulled a barely visible wire from a delicate ring on one of her fingers. She wrapped this wire around the

neck of the training goat with practiced ease and with a tug, the razor sharp wire neatly decapitated the animal. According to Ms. Flame, the wire was a nano-thread, a super-strong material that in the future might be used to build a space elevator.

Ms. Flame did not really love Mr. Smoothbore; that would have never been possible there anyway. Beside Mr. Smoothbore, she also hung out with a Nordic man from another course, known Mr. Icewolf. She constantly harped on about it, trying to provoke the two men. Her ultimate goal was to prod them into a duel. There was little depth to her machinations; all she really wanted was to break the monotony of their classes. It did not take her long to succeed, however, and Mr. Smoothbore and Mr. Icewolf had challenged each other to a game of Russian roulette. In deepest night, the entire class gathered at the shooting range and rearranged its components to form a decent replica of the Coliseum. The duel was to take place in the center of this arena. The weapon of choice was the snub-nose and Ms. Flame would act as the referee. With an elegant flourish, she inserted one bullet into the empty drum of the revolver. Then, holding the barrel in her slender hands, she gave the chamber a good dozen spins. Finally, she presented the gun to the two of them. Both modestly forfeited their chance to go first. With a smile Ms. Flame handed the snub-nose to Mr. Smoothbore.

Mr. Smoothbore slowly lifted the gun, raising its ice cold barrel straight to his temple. A wave of emptiness and loneliness, stronger and stranger than anything he had ever felt, washed over him. He felt a formless, icy wind rush through the entire world, chilling everything. Only his heart remained, the last point of heat in a cold cosmos. His heart hardened and he pulled the trigger.

Five times. Five times the gun's hammer fell. Five times the chamber turned. At no time did the gun fire. Click, click, click, click, click.

The five-fold sound of metal striking metal was Mr. Icewolf's death knell. Shouts and applause rose from the gathered class. Crying tears of overflowing joy, Ms. Flame told Mr. Smoothbore that she was his.

In the midst of all the laughter and elation, Mr. Icewolf stood. Nodding toward Mr. Smoothbore, he said, “My Asian friend, there's been no better wager, not since the very first Colt was made.” His voice rang with an intense sincerity. He turned to Ms. Flame. “Never mind love; life is just a gamble anyway.”

With that he picked up the snub-nose and raised it to his head. With a muffled explosion, blood and bone-chip flared like an elegant flower, blooming from his skull.

Not long after that, Mr. Smoothbore graduated. Again, he was made to wear darkened glasses as he left this nameless institute and returned to his home. He never again heard of the institute. It was as if it had never existed at all.

Returning to the outside world, Mr. Smoothbore learned of a major event that had changed the world: The Gods had arrived to accept support and provision from the humans they had once cultivated. But to the disappointment of humanity, they left after little more than a year, their 20,000 ships vanishing into the depths of the universe.

Mr. Smoothbore was barely off his plane home when he received his first processing contract.

The Honored Brother Crosscut warmly welcomed him home, arranging a luxurious dinner in his honor. At the dinner, Mr. Smoothbore requested to speak with Crosscut in private.

After the others had left, Mr. Smoothbore solemnly addressed his Honored Brother Crosscut. “I grew up by your side. In my heart of hearts you are more than my honorary elder brother; you are my true father. If you now tell me to work in the profession I have learned, I will do it. Just say the word.”

Crosscut affectionately clasped Mr. Smoothbore's shoulders. “If you want to, go and do it. I can see that you enjoy it and I am sure whatever road you may take, you will have a bright future ahead of you. It does not matter if you stay in the underbelly or become a respectable criminal. I am sure you will make something of yourself.”

“Thank you, I understand,” Mr. Smoothbore replied.

As soon as the last word had left his mouth, he drew his gun and pointed it straight at the belly of the Honored Brother Crosscut. The twisting bullet cut into the stomach at just the right angle, ripping a gaping wound. Leaving the body through the exit wound, it spun its way into the floorboard.

The Honored Brother Crosscut stared at Mr. Smoothbore through the mist beginning to cloud his vision. Shock flashed across his dying eyes, but it was soon followed by the fading light of understanding. Then, dull emptiness. The Honored Brother Crosscut smiled at Mr. Smoothbore, nodding his head in weird jerks. “You have made your way, my boy.”

Blood frothed from the mouth of the Honored Brother Crosscut as he spoke his final words. Then he gently slid to the ground.

The contract Mr. Smoothbore had accepted was for an hour-long, delayed cooling, but without a recording. The client trusted him.

Mr. Smoothbore poured himself a drink as he calmly watched the blood pool around the Honored Brother Crosscut. The dying man on the ground was sluggishly gathering his spilling intestines. No sooner had he pushed them back into his body, than his guts gushed forth again. In slow motion The Honored Brother once again began to gather them up…

He repeated this Sisyphus labor 12 times before he drew his last breath. That was exactly one hour after the gunshot.

Mr. Smoothbore had told the Honored Brother Crosscut the truth when he told him that he was like a father to him. When he was five one rainy night, his father had lost yet another bet and had attempted to make his mother hand over to him every last yuan of their savings. When his mother had resisted, he had beaten her to death. And when the not-yet Mr. Smoothbore had tried to throw himself in front of his mother, his father had broken his nose and an arm as well. After that his father had disappeared into the dark and the rain. Later, Mr. Smoothbore had searched far and wide, looking for his father, but without any luck. Had he found him, he would have enjoyed the slow cooling his father had coming for so long.

After the killing, Mr. Smoothbore heard that Mr. K had transferred his entire salary to the Honored Brother Crosscut's family and returned to Russia. Before leaving, he had said that as he sent Mr. Smoothbore abroad that day, he had known that Crosscut might die at his hands. The Honored Brother Crosscut had lived his life on the razor's edge, but he had never really understood what made a true hit-man.

All the scavengers but one had left the landfill. The one remaining was his mark. She was all but buried in trash, digging ever deeper as she scavenged. He had seen that she lacked strength, leaving her unable to win a good spot when the dump trucks came. The only way she could make up for it was with persistence and hard work. Her long hours made Mr. Smoothbore's vigil at the exit wholly unnecessary. Concealing the snub-nose revolver in his jacket, he left the car and made his way straight toward the landfill and his mark. The garbage gave way under his feet, embracing his shoes in its tepid warmth. It felt as if he was climbing the body of some giant creature. As soon as he was within a dozen feet of his target, he retrieved his weapon.

Just then, the blue light again shot out from the East. Our Elder's spaceship had completed a full orbit and arrived in the Southern Hemisphere, still emitting its powerful glow. The sudden rise of the blue sun drew the gaze of the two standing on the mountain of waste. They stared at the strange star for a moment, then their eyes met. As gazes crossed, something occurred that absolutely should never happen to a professional hit-man: Mr. Smoothbore's gun almost slipped from his hand. The shock had all but forced the weapon from his mind and hand; all he could do was keep himself from crying out: *Pumpkin*...

But Mr. Smoothbore knew that she was not “Pumpkin”. Fourteen years ago, Pumpkin had died in agony before his eyes. Even so, she continued to live in his heart and there she had grown into a young woman. He often saw her in his dreams, already an auntie. The Pumpkin of his dreams looked just like the young woman he saw before him now.

Some years ago the Honored Brother Crosscut had been engaged in an unmentionable trade: He had bought disabled children from the hands of human traffickers, putting them to work as beggars in the city. At the time, the world's compassion had not yet succumbed to fatigue and so the children had reaped a sizable income for Crosscut, greatly aiding in the accumulation of his starting capital.

One time, Mr. Smoothbore had followed the Honored Brother Crosscut as he went to buy a new batch of disabled children from the traffickers. They went to an old warehouse holding five children. Four of them clearly suffered congenital deformities, but one among them seemed like a normal little girl.

That girl was Pumpkin and she was six-years-old. Pumpkin had large, radiant eyes and looked adorable, a stark contrast to the deformed children around her. She was looking at Mr. Smoothbore with those big eyes that he knew would soon be filled with heartbreak; they would be filled

with heartbreak right at that moment if she had known the fate that awaited her.

“That's them,” the trafficker said, pointing at the four deformed children.

“Didn't you say there would be five?” Crosscut asked.

“The container was a bit packed; one of them didn't make it,” the trafficker advised.

“What about that one?” Crosscut had pointed at Pumpkin.

“She's not for sale,” the trafficker said, shaking his head.

“I want her. I'll buy her at the price of the others.” The Honored Brother Crosscut was clearly not in a bargaining mood.

“OK.” The trafficker hesitated. “But she is in fine shape; how are you going to make money with her?”

“You stupid punk, we'll do this. No more games.” Crosscut would not be denied.

As he spoke, Crosscut freed the saw from his waist and cut a large, gaping wound into the little girl's tiny leg. As the saw split the leg open, blood spilled forth, along with Pumpkin's screams.

“Bind it up and stop the bleeding, but don't give her any antibiotics. We want it to fester,” the Honored Brother Crosscut told Mr. Smoothbore.

Mr. Smoothbore dressed the girl’s wounds, but the blood oozed through several layers of gauze. As the red liquid flowed, Pumpkin's face drained of color, turning her a deathly shade of pale. With his back to Crosscut, he gave Pumpkin a round of Erythromycin, SMX, and all the other antibiotics he could get his hands on. But it was no use; Pumpkin's wound became inflamed despite his efforts.

Two days later, the Honored Brother Crosscut sent Pumpkin to the streets to beg. Her adorableness coupled with her weakened state made her an instant hit, well beyond anything Crosscut had expected. In one day she made more than 3000 yuan. After a week, Pumpkin had

never failed to bring in less than 2000 yuan a day. On one occasion a foreign couple even gave her 400 US dollars.

Despite her vast earnings, Pumpkin was given no more than a single box of spoiled takeout to eat. This was not entirely due to Crosscut miserliness; he also wanted to cultivate a starved pallor on the child. All Mr. Smoothbore could do for Pumpkin was feed her in the middle of the night.

One evening as Mr. Smoothbore was visiting Pumpkin at her begging haunt, the little girl pressed her face to his ear and quietly said, “Brother, my leg doesn't hurt anymore.” She was clearly overjoyed. As Mr. Smoothbore recalled the moment, it was only the second time he cried, the first being when his mother had died. He knew why Pumpkin's legs did not hurt. It did not hurt because her nerves had gone necrotic. The entire leg had turned black as Pumpkin ran a high fever that lasted for two days. He simply could no longer heed Crosscut's ban, and he took Pumpkin to the hospital. But it was already too late. The child's blood had been poisoned. The next night she died, consumed by her fever.

From then on, Mr. Smoothbore's blood froze completely and, like Mr. K had said, never warmed again. Killing people became a hobby for him, an addiction as powerful as any drug. He developed a deep liking of smashing the fragile vessel called *human* and he came to see them all as nothing but brightly adorned containers of red liquid, ready to spill. Watching them cool to the world's temperature – that was their truth to him. The warmth of their red liquid was no more than an illusion.

Without ever becoming aware of it, Mr. Smoothbore had burned the shape of the wound on that little leg into his memory. When he later opened Crosscut's belly, he matched its form perfectly.

The scavenger stood. She slowly walked away, slinging the sack, which seemed so very large compared to her, over her back. Mr. Smoothbore's arrival quite obviously had nothing to do with her departure. It seemed utterly impossible that the arrival of this suited-stranger could in any way be related to her. She had, of course, never bothered to look at what the man was holding in his hand. So she just left. Our Elder's spaceship sunk in the western sky. Mr. Smoothbore remained motionless, standing on waste, surrounded by it. He watched the silhouette disappear in the rapidly fading blue twilight.

Mr. Smoothbore put his pistol back in its holster. He replaced the emptiness it left in his hand with his cell phone. Then he called Zhu Hanyang. “I want to meet with you; there is something I need to ask.”

“Tomorrow at nine. Same location,” Mr. Zhu's answered tersely, almost as if he had been expecting the request.

Entering the Grand Presidential Hall, Mr. Smoothbore discovered the entirety of the Committee for the Liquidation of Wealth gathered there, gazing at him intently.

“Please, ask what you have come to ask,” Mr. Zhu directed, picking up a cigar.

“Why do you want me to kill these three?” Mr. Smoothbore inquired.

“You are breaking with the tenets of your profession,” Mr. Zhu noted without batting an eyelash as he took the head off the cigar.

“Yes, and I will be sure to bear the consequences. But I must understand why, else I cannot do this job,” Mr. Smoothbore replied.

Mr. Zhu lit the guillotined cigar with a long match, nodding slowly. “I am left with little recourse but to conclude that you only direct your work against the wealthy. It would appear that you are no real hit-man, but a mere thug, driven by class envy; a raging psychopath who has killed forty-one

in the past three years, staying just one step ahead of a police force pursuing you with all means and measures. Your reputation will tumble down around you."

"Just call the police then." Mr. Smoothbore appeared unperturbed.

"Has your past tangled itself into the job?" Ms. Xu asked.

Mr. Smoothbore could not but admire her keen insight. He did not reply, acknowledging her observation with his silence.

"Is it because of the woman?" she accurately continued.

Mr. Smoothbore's silence only deepened; any answer he could have given would have hardly done the circumstances justice.

"Well then," Mr. Zhu said, leisurely exhaling thick smoke, "this matter is of supreme importance and we will be unable to find a suitable replacement for you on such short notice. Therefore, we will indulge your request and reveal why we have given you this work. It is a truth that will exceed your wildest fantasies. But first we wish to rectify one of your misapprehensions. We are some of wealthiest individuals on the planet, yet we wish to have society's poorest and most vulnerable killed; in your eyes this makes us loathsome monsters."

"I am not interested in black and white," Mr. Smoothbore interjected.

"The facts have failed to bear that out. Well, come with us." Mr. Zhu discarded the barely smoked cigar, turned and walked away.

Mr. Smoothbore left the hotel in the company of the full Committee for the Liquidation of Wealth.

Outside the sky had changed. Every last head on the street strained toward the heavens. Above, our Elder's spaceship was streaking by, low in orbit. Illuminated by rays of the rising sun it shone brightly in the clear blue sky. As the ship passed, it left a trail of countless silvery stars in its

wake. These silvery lights stretched to the horizon in regular intervals. Our Elder's ship itself had also changed. It was visibly shortened and looked like its rear had been snapped off, leaving a ragged break. It was from this end that the silvery stars were being released. A while ago, Mr. Smoothbore had learned on the news that our Elder's spaceship was in fact composed of thousands of smaller ships, all linked to one another to form a seamless whole. Now, this mother ship was obviously breaking into an armada.

“Attention!” Mr. Zhu gestured toward the committee, projecting his powerful voice he announced, “As you can all see, the situation is developing and our time may be running out. We must accelerate our work in response. Each group must immediately attend to its liquidation area and continue yesterday's work.”

As he finished, Mr. Zhu and Ms. Xu got in a truck, motioning for Mr. Smoothbore to join them. Only then did Mr. Smoothbore notice the vehicles waiting outside the hotel. They were not the luxury cars of the super-rich, but a long row of Isuzu utility vehicles.

“So we can haul more,” Ms. Xu explained, seeing the confusion in Mr. Smoothbore's expression. It was only the next surprise in a day full of the unexpected when Mr. Smoothbore saw that the truck's bed was completely covered in rows upon rows of neatly stacked black cases.

Another surprise was that there was no driver in the trucks. Instead, Mr. Zhu himself took the wheel and drove the vehicle onto the main road. Soon, the truck turned onto an avenue, slowing considerably. It only took Mr. Smoothbore a few moments to realize that Mr. Zhu was following a pedestrian, keeping the truck at pace. The man on the sidewalk was clearly homeless. These days, it was not always possible to identify the homeless by the state of their clothes, but one could still make them out with the merest glance. This one could easily be distinguished by the

plastic bag hanging from his waist. Whatever it contained clanged loudly with every step.

Mr. Smoothbore knew that he was about to learn why he had seen so few homeless and scavengers yesterday, but he could not believe that Mr. Zhu and Ms. Xu would dare to kill the man here. They would probably first lure their target into the truck and then take him somewhere they could get rid of him discreetly. Given their status, there was no need for them to dirty their hands with this work; perhaps they were just setting an example for Mr. Smoothbore. In any case, he had no intention of intervening, but he certainly would not help them either; he only cared about the work he had been contracted to process.

The bum seemed to remain oblivious to the fact that the truck had slowed for him, right up until Ms. Xu called out to him.

“Hello!” Ms. Xu waved out of the truck's window. The bum stopped and turned his head to look at her. His face was coated with the thick layer of apathy common to his people. “Do you have a place to stay?” Ms. Xu asked with a smile.

“In summer I can live anywhere,” the bum answered.

“And in winter?” she queried.

“Hot air ducts. Some toilets are heated,” the bum answered impassively.

“How long have you lived like this?” Ms. Xu continued.

“I don't really remember. Once my land requisition compensation ran out I came to the city. I have been like this ever since,” the bum answered without real interest or emotion.

“Do you want a three-bedroom apartment in the city? A home?” Ms. Xu asked without further ado.

The homeless man stared blankly at the wealthy woman before him. There was no trace of comprehension in his eyes.

“Are you literate?” Ms. Xu asked. After the bum nodded, she pointed ahead. “Look over there ...”

'There' was a huge billboard displaying a luscious and verdant green landscape dotted with cream-colored high-rises. It looked like a magical garden.

“That is a real estate advertisement,” Ms. Xu explained the obvious. The bum turned his head toward the billboard, then back to Ms. Xu. He obviously had no idea what she was getting at. “Good. Now take a case from the bed of my truck,” she instructed.

The bum did as he was told, taking one of the small cases from the back of the truck.

Pointing at the black case, she said, “Inside you will find one million yuan. Use five-hundred-thousand to buy yourself an apartment like the one on the billboard and keep the rest for your daily expenditures. If you don't spend it all, you can do what we do and spread some of it among the poor.”

The bum's gaze remained empty as he disinterestedly held the box. He would not be taken for a fool.

“Open it and see for yourself,” Ms. Xu instructed.

With grime-blackened hands, the homeless man awkwardly fumbled with the case's clasps. As it snapped open, the apathy frozen onto his face shattered, and was replaced by raw shock. His eyes and mouth refroze, gaping in wide disbelief.

“Do you have any form of ID?” Mr. Zhu asked, unmoved.

The bum nodded reflexively as he held the case as far away from his body as his arms would allow. It looked as if he was holding a bomb.

“Deposit it in a bank; it will be more convenient that way,” Mr. Zhu explained.

“What do,” the bum stammered, “w-what do you want me to do?”

“Just agree to one condition: The aliens are about to arrive; if they ask you, tell them how much money you have.

That is our sole condition. Can you promise to do this?” Ms. Xu asked.

The bum nodded.

Ms. Xu got out of the truck and bowed deeply to the homeless man. “Thank you.”

“Thank you,” Mr. Zhu concurred from inside the truck.

Of all that had transpired, Mr. Smoothbore was most shocked by the looks on their faces at this very moment; their expressions of gratitude seemed genuine.

They drove off, leaving the newly-born millionaire in the rearview mirror. Not far down the avenue the truck turned a corner and stopped again. Down the road, Mr. Smoothbore could see a group of three migrant day-laborers looking for work. Each of the men was holding a small, triangular spatula. One also held a small cardboard sign which read “Scrapers”. As soon as the truck stopped, the three ran toward the vehicle wanting to know, “You have work for us, Boss?”

Mr. Zhu shook his head. “No. Has business been good?”

“What business? Nowadays, they all use the new spray-on coating that heats when powered. They have no need for scrapers,” came the reply.

“Where do you come from?” Mr. Zhu asked the three.

“Henan,” one of them answered.

“From a village? Is it an impoverished village? How many households are there?” Zhu rattled off the questions.

“It's in the mountains; fifty families. How could we not be poor? If the rain doesn't fall, believe it or not, Boss, we irrigate by kettle, pouring water on each and every seedling,” one of the migrant workers replied.

“That's hardly farming.” Mr. Zhu shook his head and then asked. “Do you have a bank account?”

All three shook their heads.

“So you are also forced to make do with cash. You are bearing quite the burden,” Mr. Zhu again shook his head. “Take a dozen cases or so from the truck.”

“A dozen?” It was the scrapers' only question as they took the cases from the bed of the vehicle and began stacking them on the side of the road. None of them had paid much heed to anything Mr. Zhu had said and they had certainly not stopped to give it thought.

“Twelve, fifteen, it does not really matter; just take them,” Mr. Zhu instructed.

Very soon, 15 cases had been piled up. Mr. Zhu pointed at the stack and said, “Each of these cases contains one million yuan. So fifteen million, all in all. Go back to your home and distribute it among your village.”

One of the migrant workers smiled at Mr. Zhu, clearly appreciating his sense of humor. Another squatted next to the cases, opening one of them. Together with the other two he checked what was inside. Immediately their expression distorted, mirroring that of the homeless man's face a few minutes ago.

“They are quite heavy,” Ms. Xu noted. “Go hire a car and return to Henan. If one among you can drive, buy one. It will be more convenient.”

The three were struck dumb, staring at the two magnates, unsure whether they were facing angels or demons. Habit and instinct took over and one of the workers all but repeated the question the bum had just asked them: “What do you want us to do?”

The answer was also repeated: “Just agree to one condition: The aliens are about to arrive. If they ask you, tell them how much money you have. That is our sole condition. Can you promise to do this?”

The three previously poor nodded.

“Thank you”, “Thank you,” the two super-rich again replied in genuine gratitude, bowing before them. Then they got back into the truck, leaving the three flabbergasted migrants and their stack of cases in the rearview mirror.

“You must be wondering if they will keep all the money for themselves,” Mr. Zhu said as he drove. “At first they

probably will, but they will quickly spread the surplus of money among the poor, like we just did.”

Mr. Smoothbore remained quiet. Faced with this bizarre bout of madness, he felt that silence was his best option. All his faculties were focused on one realization burning bright in his mind: The world was about to change.

“Stop the car!” Ms. Xu suddenly shouted. As the truck stopped, she called out the window “Kid, come here!”

She was addressing a small, dirty child scrounging for cans and cola bottles next to a trash can. The child came running, but not before he had slung his bag of bottles and cans over his back. He was obviously quite unwilling to let them out of his sight for even a moment.

“Take a case from the back of the truck,” Ms. Xu instructed. The child did as he had been told. “Open it and have a look.” The child did. He was shocked, but far less so than the adults. “What is it?” Ms. Xu asked.

“Money.” The child raised his head, looking straight at her.

“One million yuan. Take it to your parents,” she continued.

“So it's a real thing? What they're always talking about?” He blinked in surprise and turned his head to all the cases remaining on the back of the truck.

“What do you mean?” Ms. Xu asked in turn.

“Handing out money,” the boy answered. “They said people are handing out money everywhere. Throwing it out like trash.”

“Just agree to one condition.” Ms. Xu cut to the chase. “The aliens are about to arrive; if they ask you, you will truthfully tell them how much money you have, right? That is all we ask. Can you promise to do that?”

“Sure!” the child called out.

“Take the money back to your family, child. Soon all poverty will come to an end,” Mr. Zhu told the boy, starting the truck.

“And so will wealth,” Ms. Xu noted, somberly.

“Focus! The situation may be miserable as is, but it is still our duty to prevent it from getting worse,” Mr. Zhu stated flatly as he drove on.

“Are you really trying to tell me that you two actually take this little game of yours seriously?” Mr. Smoothbore could hardly believe he was asking the question.

Mr. Zhu abruptly hit the brakes. His hands left the wheel as he gesticulated with sudden fervor. “Of course! Of course it is serious! Do you really want to live in poverty like them from now on? Do you really want to be homeless and starving?”

“I am not even all that interested in whether I live or die,” Mr. Smoothbore replied with a shrug.

“The call of duty will keep you going. It is what sustains me in these dark days; the duty imposed upon us by our wealth,” Mr. Zhu replied, still agitated. “And as to our wealth: It is not stolen and not plundered. Every last cent we earned in fair competition! It is our wealth that makes social progress possible. Society should thank us!”

“Tell our Elders that.” With that, Mr. Zhu got out of the truck and heaved a great sigh toward the sky above.

“You can see,” Mr. Zhu said as he turned to Mr. Smoothbore who had followed him, “we are no psychopaths, murdering the poor; quite to the contrary. You have witnessed what we do. We are spreading our wealth among the poorest. In this city, in many other cities and in hotspots of poverty all across our nation, all the personnel of our companies are doing the same things we are. They are pooling every resource our conglomerates have at their disposal – billions of checks, credit cards, bankbooks, and trucks upon trucks full of hard cash – all to eliminate poverty.”

At that moment, Mr. Smoothbore noticed the sky above. The long string of silvery stars stretched from horizon to horizon, while the main body of our Elders' ship was

nowhere to be seen. It had completely disintegrated. More than a thousand spaceships now formed a halo of silver stars encircling the entire globe.

“The Earth has been surrounded,” Mr. Zhu noted. “Each of those stars is as big as one of our aircraft carriers and each alone has enough firepower to destroy the entire planet.”

“Last night, they destroyed Australia,” Ms. Xu added.

“Destroyed? Destroyed how?” Mr. Smoothbore asked, staring at the sky.

“An energy beam shot from the sky, sweeping the entire continent. It passed right through all structures, even bunkers. Humans and all larger mammals died within the hour, while insects and plants remained unharmed. Everything else remained utterly untouched; not even the porcelain in the shop windows had as much as a crack,” Ms. Xu explained.

Mr. Smoothbore glanced at Ms. Xu out of the corner of one eye and then turned back to the sky. It certainly shocked him, but he was far more capable than most when dealing with dread and terror.

“It was a display of power. They chose Australia because it was the first to unequivocally reject their reservation plan,” Mr. Zhu further elaborated.

“What plan?” Mr. Smoothbore asked.

“The plan they had all along. The Elders that came to our Solar System are fleeing from some sort of famine. Because they cannot continue living on the First Earth, we will lose our homelands; that is what they told us, even though they did not reveal what really happened to them. They want to occupy our Fourth Earth, claiming it as their colony. And as for Earth's people, we will be relocated to a reservation. Australia was selected as this reservation. All other territories on Earth will belong to our Elders.” Mr. Zhu paused. “All of this will be announced in today's evening news.”

“Australia? A giant island in the middle of the ocean…how fitting. Australia's outback is a giant desert. If they squeeze all five-billion-plus of us in there we will all be starving sooner rather than later,” Mr. Smoothbore noted dryly.

“Things will not be that catastrophic. Humanity's agriculture and industry will cease in the Australian reservation. There will be no need to engage in production to subsist,” Mr. Zhu replied.

“What will we live off?” Mr. Smoothbore asked.

“Our Elders will care and provide for us. All that humanity needs to survive will be supplied by our Elders in perpetuity, and what they supply, they will evenly distribute among us. Every person will receive the same. The future of humanity is a society in which every last trace of the gap between the rich and the poor has been erased,” Mr. Zhu explained concisely.

“And how much will all of us receive?” Mr. Smoothbore inquired.

“You have grasped the key issue at hand: According to their reservation plan, our Elders will conduct a comprehensive survey of human societies. The purpose of this investigation is to determine humanity's current minimum standard of living. Our Elders will allocate every person with the resources necessary to maintain that standard.”

Mr. Smoothbore's head sunk as he pondered what he had been told. Suddenly he laughed. “Ah, I sort of get it now. At least some of this great big mess makes sense now.”

“You understand what humanity is faced with,” Mr. Zhu stated.

“In fact, our Elders’ plan is very fair for humanity,” Mr. Smoothbore replied just as dryly.

“What? You actually think this is fair? You are…!” Ms. Xu was almost shouting in her frustration.

“Actually, he is right. It is very fair,” Mr. Zhu calmly agreed. “If there was no gap between rich and poor, no

difference between the highest and lowest living standards, the reservation could be a paradise for humanity.”

“But as things are ...” Mr. Smoothbore nodded.

“What we are doing now is very simple: We are rapidly spanning the chasm between rich and poor before our Elders' survey commences!” Mr. Zhu declared before he could finish his thought.

“So that is what you call the liquidation of wealth?” Mr. Smoothbore asked.

“Indeed,” Mr. Zhu immediately replied. “Currently the world's wealth is a solid. This solid has its peaks and valleys; just like the buildings on this road, just like the mountains and valleys. But if we liquefy all of it, it will become an ocean; and this ocean's surface will be uniformly smooth and level.”

“But what you are doing right now can only lead to chaos,” Mr. Smoothbore noted.

“True.” Mr. Zhu was unperturbed. “What we are doing is merely a gesture, a display of goodwill from the wealthy. The true liquidation of wealth will soon commence on a global scale in a joint effort of national governments and the United Nations. A great campaign to eliminate poverty is about to begin. The developed nations will pour their wealth across the developing world; the rich will throw their money amongst the poor. That will be the real effort.”

“But things cannot be as simple as all that,” Mr. Smoothbore said with a grim smile.

“What do you mean? You bastard...” Ms. Xu snarled through clenched teeth as she thrust her finger at Mr. Smoothbore's nose.

Mr. Zhu immediately interceded. “He is smart. He figured it out.”

“Yes. I have figured it out. Some of the poor do not want your money.” Mr. Smoothbore was calm, almost content.

Glancing at Mr. Smoothbore, Ms. Xu silently lowered her head. Mr. Zhu nodded. “Right. Some among them do not

want our money. Can you imagine? They scrounge for food in the trash, but refuse a million yuan.” He grimaced. “Just imagine.”

“But those people must certainly be a tiny minority,” Mr. Smoothbore pointed out.

“Certainly, but as long as the poor make up even one out every one-hundred-thousand they will be enough to form a social stratum according to the advanced survey methods that our Elders will employ,” Mr. Zhu replied. “Their standard of living would be identified as humanity's minimum and thereby determine the level which our Elders supply to the reservation.” He paused. “Do you understand? Just one-tenth of a basis point!”

“So, do you know how many you are currently dealing with?” Mr. Smoothbore asked.

“About one out of every thousand, a hundred times too many,” Mr. Zhu answered.

“The damned, petulant, stubborn miscreants!” Ms. Xu cursed toward the skies.

“The marks you contracted me to kill are some of those people.” As things stood, Mr. Smoothbore had no interest in using the terms of his trade.

Mr. Zhu just nodded.

Mr. Smoothbore's face distorted into a bizarre grimace as he suddenly laughed toward heaven. “Ha, ha, ha!” He could barely contain himself. “I am actually *helping* humanity?!”

“You are helping humanity. You are saving all of human civilization,” Mr. Zhu agreed flatly.

“As a matter of fact, all you would really need to do is threaten to kill them. Then they would take the money,” Mr. Smoothbore mused.

“That is not certain enough!” Ms. Xu whispered harshly as she leaned toward him. “They are all depraved sociopaths, twisted by their class envy. Even if we give them money, they will claim to be penniless when our Elders

come to survey them. We have no choice but to rid the Earth of these people as soon as possible."

"I understand." Mr. Smoothbore nodded.

"So, what are you planning to do? We have done what you asked and explained our reasons. Of course, money will be meaningless soon and you certainly have no interest in helping humanity," Ms. Xu said. There was only a slight hint of a question in her statement.

"Money has long lost its importance to me. And I have not really thought about the other thing," Mr. Smoothbore said with a shrug, "but I will carry out my contract. I will do it before midnight, today. Please prepare to confirm its completion." As he finished, he stepped out of the truck and began to walk away.

"I have one question," Mr. Zhu called out after him. "It may be rude, so do not answer if you do not want to. But if you were poor, would you take our money?"

"I am not poor." Mr. Smoothbore did not turn back and continued to walk. But after a few steps he did stop. He slowly turned around and he fixed the two of them with a hawkish glare. "But if I was, no, I would not take it."

Then, Mr. Smoothbore strode away.

"Why won't you take their money?" Mr. Smoothbore asked his first mark. The homeless man he had last found on Blossom Plaza was now camping out in the grove of a nearby park. The grove was doubly illuminated: From above, the faint blue light of the ring of spaceships shone through the canopy, casting dappled shadows on the soil. From the city beyond, ever-shifting and changing colors slanted through the trees. The metropolis' multicolored lights seemed to tremble, as if in fear of the alien, blue glow.

The bum offered him a cheeky grin. "They begged me. So many rich folks came a' begging to me. A woman even cried! Even if I wanted their money, they could not just beg me to take it. Rich folks begging me… How cool is that?"

“Yes, very cool,” Mr. Smoothbore said, pulling the trigger of his snub-nose.

The bum was a hardened thief and it had taken him no more than a glance to notice that the man walking into the park had been clutching something under his coat. Having caught his interest, the homeless man had been watching whatever it was carefully. Now it suddenly flashed beneath the coat, like the eye of some strange creature, winking at him. Then he fell into eternal darkness.

It was an instant cooling processing; the rapidly tumbling bullet severed almost everything above his work's brow. The gunshot had been muffled by Mr. Smoothbore's clothes. No one had noticed.

Back on the landfill. Today, Mr. Smoothbore found only one scavenger scrounging through the trash; the others had obviously all taken the money.

Under the light of the blue ring of stars, Mr. Smoothbore climbed up the warm and squishy trash toward his mark. Before coming to this point he had reminded himself a hundred times that that woman was not his Pumpkin. Now, there was no need to remind himself again. His blood was forever frozen. The flickering flames of youth would not warm it. The scavenger paid his arrival no heed and so Mr. Smoothbore simply pulled the trigger. Here on the landfill there was no need to suppress his weapon. Freed, the snub-nose's shot rang loud and clear as the flash of its muzzle lit the landfill like a blast of lightning. The range gave the bullet the time to sing as it spun through the air. It whimpered and screamed, like a thousand wailing ghosts.

It was another instant cooling. The projectile spun like the blade of a blender, in an instant tearing his mark's heart to tiny pieces. The scavenger was dead before she ever hit the ground. And as she did, her form became one with the garbage, vanishing. Even the spraying blood, a last

testament to her existence, was instantly swallowed by trash.

Just then, Mr. Smoothbore became aware of a presence behind him. Abruptly spinning on the spot, he came face to face with the painter. The vagrant's long hair was fluttering in the night breeze, dancing like blue flames under the light of the star ring.

“They had you kill her?” the painter asked.

“I am merely fulfilling a contract. Did you know her?” came Mr. Smoothbore's reply.

“Yes. She used to come by and look at my paintings. She was barely literate, but she sure could read my art. She liked it, just like you,” the artist answered glumly.

“You are also part of my contract,” Mr. Smoothbore noted flatly.

The vagrant artist calmly nodded. There was no trace of fear about him. “I thought so,” he said.

“Just out of curiosity, why didn't you take the money?” Mr. Smoothbore asked.

“All my paintings show poverty and death. If I were to become a millionaire overnight, my art would die,” the painter explained.

Mr. Smoothbore nodded. “Your art will live on. I am very fond of your paintings.” His voice glowed with sincere praise as he raised his revolver.

“Just wait a moment. You just said you were doing contract work. Would you take on a contract from me?” the artist asked hastily, but without fear.

Mr. Smoothbore nodded again. “Of course.”

“My death is meaningless, but I want to avenge her.” The painter pointed to where the scavenger had collapsed.

“Let me express your intention in the language of my trade: You want to contract me to process a work batch, the work being those who contracted me to process you two works,” Mr. Smoothbore explained, waiting for confirmation.

It was the artist's turn to nod. “That would be it.”

“No problem,” Mr. Smoothbore agreed. There was no trace of insincerity in his reply.

“But I have no money,” the artist pointed out.

Mr. Smoothbore could only smile. “You sold me your painting for a very low price. It is enough to cover the cost of the business.”

“Then, thank you,” the artist uttered his last words.

“You're most welcome. I am merely fulfilling a contract,” Mr. Smoothbore replied, the deadly flame again bursting from his gun. The bullet tumbled, its strange wail ripping through the air, its body ripping through the artist's heart. Blood burst from his chest and back. Three seconds later he fell, his spurting blood showering the ground in a tepid red rain.

“That was not necessary.”

The voice came from behind him. Again, Mr. Smoothbore abruptly spun on his heel to see a man standing amongst the trash. The leather jacket the man wore closely resembled Mr. Smoothbore's own. The man himself appeared to be somewhat his junior, but otherwise he looked very ordinary, even as the blue light of the star ring gleamed in his eyes.

Mr. Smoothbore let the gun sag. But even as he dropped his aim, he slowly began to squeeze his revolver's trigger, unhurriedly re-cocking the snub-nose's hammer. Without aiming it, he held the gun at a hair's trigger.

“You the police?” he casually asked.

The stranger shook his head.

“Then go; report it to the police.” Mr. Smoothbore was ready to turn away.

The man did not move.

“I won't shoot you in the back. I just process contract work,” Mr. Smoothbore explained.

“We currently do not interfere in humanity's affairs,” the newcomer calmly replied in turn.

His words struck Mr. Smoothbore like a thunderbolt. Involuntarily his hand relaxed, the gun's hammer falling back in place. He studied the stranger as carefully as he could, but in the light of the star ring, he looked no different than anyone else.

“You,” Mr. Smoothbore paused for a second, “have already come?” he finally asked, his words bristling with a rare intensity.

“We came a long time ago,” the alien replied.

A long silence fell between the two from two different worlds standing on that landfill of the Fourth Earth. To Mr. Smoothbore, the air felt thick enough to suffocate him. He needed to say something; that something became a question, bubbling from his subconscious, echoing the events of those past days. “Are there rich and poor people where you come from?”

The First Earther smiled. “Naturally. I am a poor.” He pointed to the star ring in the sky. “As are they.”

“How many people are up there?” Mr. Smoothbore asked.

“If you are referring to the ones currently above us, about half a million. But they are just the vanguard. In a few years another ten-thousand spaceships will arrive, carrying a billion,” the alien answered.

“A billion…” Mr. Smoothbore digested the information. “They can't all be poor, can they?”

“They are all poor,” the stranger replied.

“How many people does the First Earth have?” Mr. Smoothbore continued his questions.

“Two billion,” the alien answered.

“How can so many on one world be poor?” Mr. Smoothbore asked.

“How can so many on one world *not* be poor?” the stranger asked in return.

“I would think,” Mr. Smoothbore replied, “that too many poor people would destabilize a world. And that would make things tough for the rich and the middle class as well.”

“Given the current level of development on the Fourth Earth, that would certainly be right,” the alien agreed.

“But there will come a time when I would be wrong?” Mr. Smoothbore asked the obvious.

The alien hung his head, then finally replied, “Well, let me tell you the story of rich and poor on the First Earth.”

“I would very much like to hear it.” Mr. Smoothbore returned the snub-nose to his underarm holster.

“Our two human civilizations developed along very similar lines. The roads you have traveled, we took as well, and we, too, passed through an era very much like your current age. Even though society's wealth was not evenly divided, it still maintained a certain balance. There were not too many rich or poor and most believed that with progress the gap between rich and poor would gradually close. They looked forward to an age in which wealth would be distributed fairly. But we soon discovered that things were more complicated than that; the balance that had existed was soon to be broken,” the alien explained.

“Broken by what?” Mr. Smoothbore wondered.

“Education. You well-know that in your world's current era education is the only means by which people can move up the social ladder. If you imagine society and its strata as an ocean with various layers of water separated by temperature and salinity, then education is like an open tube passing from surface to bottom. It is the only thing keeping the layers from becoming completely isolated from one another,” the alien continued.

“So you are saying that fewer and fewer could afford university,” Mr. Smoothbore assumed.

“Yes. The costs of higher education continued to rise, gradually turning it into a privilege reserved solely for the children of the elite. But the costs of traditional means of education faced certain limitations, if only because of the forces of the market. The tube therefore will continue to exist, even if it becomes thin and tight as a straw. However,

technology will one day suddenly and fundamentally change all education," the stranger said, slowly unraveling the mystery.

"Are you talking about injecting information directly into the brain?" Mr. Smoothbore hazarded the guess.

"Exactly," the alien acknowledged. "But the injection of knowledge is only a part of it. Super-computers with capacities that far exceed the human brain can be implanted straight into the cerebrum. Anyone with such an implant can instantly recall all of the immense quantities of information stored in these computers – but even that is just a part of the picture. These computers also function as intelligence amplifiers, capable of raising human thought to a new, higher level. Knowledge, intellect, depth of thought, even psychological and dispositional perfection and aesthetic ability – they all become just another form of commodity – a form of commodity that can be bought."

"They must be very expensive." It was hardly a question.

"Oh, yes, very expensive." The alien nodded. "Expressed in your current monetary terms, the costs of such a superior 'education' would be comparable to the price of two or three suites of fifteen-hundred-square-foot condos in prime locations of Beijing or Shanghai."

"But at that price, there will still be those who can afford it," Mr. Smoothbore said.

"Yes," the alien again agreed, "but it is a very small segment of society. The tube connecting the bottom of society with the top had been severed. The intelligence of a person who received this super-education was an entire level beyond what a normal person can ever hope to achieve. A chasm now gaped between the two, as wide as the canyon between a dog and an ordinary person; and this difference, of course, made itself known in almost all spheres of society, even in such areas as the appreciation of art. And so, this super-intelligentsia formed a new civilization all of its own. It was a civilization completely

incomprehensible to the rest of humanity, in much the same way as a symphony is incomprehensible to a dog. For example, the super-intelligentsia mastered hundreds of languages and so, in certain situations and when speaking with certain people, it became a matter of etiquette to use the correct language. In situations like these, ordinary people seemed – at least to the super-intelligentsia – as simple and crude as dogs, barking at humans." The alien paused. "And so, quite naturally, something fundamental changed. You are smart. I bet that you can imagine what I mean."

"Rich and poor are no longer the same..." Mr. Smoothbore let the thought churn through his mind. "The same ..." He fell silent.

"Rich and poor were no longer the same *species*," the alien agreed. "Just like humans and dogs are not the same, the poor are no longer human."

"Oh," Mr. Smoothbore softly exhaled, "that really changes almost everything."

"It changed many things," the alien grimly agreed. "First and foremost, the very factors you mentioned as maintaining the balance of wealth and limiting the number of poor ceased to exist. Even if there are far more dogs than humans, they still lack the power to destabilize society. All they can do is cause enough trouble to become a problem worth solving. Frivolously killing dogs is a punishable offense, but it is hardly the same as killing a person, especially when rabid dogs threaten the safety of humans. In fact, that makes killing all the dogs a viable alternative. This in essence was the situation of the poor." The stranger shook his head. "Without a common basis between two species, real sympathy cannot exist. It was humanity's second evolution. The first was our split from the apes, relying on natural selection; this was the split of the rich from the poor, relying on a principle just as sacred: The inviolable right to private property."

“That principle is currently sacred to our world as well,” Mr. Smoothbore noted.

“On the First Earth, this rule was maintained by the so-called 'Machine'. That system was a powerful means of enforcing society's rules and its Enforcers could be found in every corner of our world. Some Enforcers were no bigger than bugs, but one and all, they were powerful enough to kill hundreds in the blink of an eye. The rules they obeyed were not the Three Laws of Robotics proposed by your Asimov, but instead the foundational law of the First Earth's constitution: Private property shall be inviolable. They were in no way agents of autocracy. Far from it; they enforced the law with absolute impartiality, irrespective of social status. If the pitiful property of a poor person was threatened, they would protect it like anyone else's, in strict accordance with our constitution.

Under the powerful protections of the Machine, the First Earth's wealth was concentrated among an ever smaller minority. Technological developments lead to another change: The independently wealthy no longer needed anyone else. In your world, the affluent still need the poor; factories still need workers. But on the First Earth, machines no longer required operators and highly efficient robots could fill any and every function. The lower classes had nothing left to offer or sell and so were plunged into abject poverty without recourse, devoid of all hope of betterment. As this situation developed, it completely transformed the essence of the First Earth's economy, accelerating the concentration of wealth at an incredible speed.

“I would not be able to explain the highly complex process of wealth concentration to you,” the alien said, “but in essence it was no different than the operations of capital markets in your world. In the time of my great-grandfather, sixty percent of the wealth of the First Earth was under the control of ten million; in the world of my grandfather, eighty percent of our world's wealth was in the hands of a mere ten

thousand. And, when my father was young, ninety percent of the wealth was held by no more than forty-two individuals.

“When I was born, capitalism on the First Earth had reached the peak of peaks, producing an almost unbelievable marvel of wealth: Ninety-nine percent of the wealth of our world was now in the hands of single person! That person was known as the 'Last Entrepreneur'.

“Even though there was still a gap between rich and poor among the other two billion, they were vying for nothing more than the remaining one percent of the world's wealth. And so the First Earth became a world with one rich man and two billion poor. The constitution remained and with it the inviolability of private property. And the Machine continued to faithfully carry out its duty, protecting the private property of that sole individual.

“Do you want to know what the Last Entrepreneur owned?” the alien asked, but gave Mr. Smoothbore no chance to answer. “He owned the entire First Earth! Every last continent and ocean of our planet became his private halls and gardens. Even the very air and atmosphere became his private property. The remaining two billion poor lived in completely sealed homes, separated from the world outside. Inside, these homes were equipped with entirely autonomous miniature eco-cycle systems that used their own pitiful supplies of water, air, and soil to provide for the tiny world sealed within them. The only thing they could take from the outside world was the last resource not the property of the Last Entrepreneur: Sunlight.

“My family's home was next to a river and surrounded by green grass. The grass stretched to the banks of that river and beyond, to the azure feet of the mountains in the distance. We could hear the song of the birds in the air and the splashing of the fish in the water. We saw herds of deer leisurely drink at the river's bank; and, most intoxicating to me, we could see the wind rippling through the great

grasslands just outside. But none of it belonged to us. Our family was completely cut-off from the outside world. All we could do was watch it through our hermetically sealed portholes that were never to be opened. To leave our home, we had to go through an airlock, much as one might leave a spaceship for a spacewalk. In fact, there was little separating my family's life from life on a spaceship. The only real difference was that the hostile environment was inside – not out!

“We only breathed the foul air provided to us by our life-support system, only drank water that had been re-filtered a million times over, and only ate barely edible food recycled from our own excrements. And all along, there was nothing more than a single wall separating us from the bountiful, vast world outside. Yet, when we left the house, we had to wear suits like astronauts. We had to bring our own food and water, even our own oxygen. After all, the air did not belong to us. It was the private property of the Last Entrepreneur.

“Of course, we had our luxuries,” the alien continued. “On holidays or weddings, for example, we would leave our sealed homes and venture into the great outdoors of the First Earth. The first breath of fresh air was what always got to us the most. The air was ever so slightly sweet – sweet enough to make you cry. But of course it cost us money. Before leaving our home, we had to swallow a pill-sized air-vendor. This device could monitor and measure how much air we breathed and with every breath, money was deducted from our bank account. For the poor it was a true luxury, something they could only do once or twice a year. When we were outside, we never dared to exert ourselves. In fact, we mostly just sat around to limit the amount we would breathe. Before returning home we needed to carefully scrape and clean our shoes; after all, the soil outside did not belong to us.

“Let me tell you how my mother died. To save money, she had not left the house for three years. She did not even

go outside on holidays. On the night that it happened, she – entirely by accident – sleepwalked into the airlock and right out! She must have been dreaming about nature. When the Enforcer found her, she was already a good ways from our home. It saw that she was without an air-vendor, so it dragged her back home. As it hauled her along, the Enforcer clasped her neck with its mechanical pincher. It had no intention of killing her; it was just protecting a citizen's inviolable private property – the air. When it arrived at our home, my mother was already dead, strangled. The enforcer dropped her corpse in front of us with the following words: 'She is guilty of larceny. A penalty has been imposed, but your funds are insufficient to cover it. For this reason we will confiscate your mother's remains to collect the debt.' I should also tell you that a corpse was very valuable to poor families. After all – it is made up of seventy percent water and many other useful resources. Even so, the value of her body in the end was not enough to pay the fine, so the Machine also confiscated a good chunk of our family's air.

“The air supply of our family's life-support system was already critically low at the time and we lacked the funds to refill it. After the Enforcer took its share, we were left with so little that our very lives hung in the balance. To replenish used air, the life-support system was now forced to separate oxygen from water via electrolysis. However, doing so rapidly degraded the system in its entirety. Soon the master control issued a warning: If we did not add fifteen liters of water to the system, it would completely collapse within thirty hours. The glow of the red warning lights flooded every room. For a while we planned to steal some water from the river outside, but we soon discarded the idea; the omnipresent Enforcers would kill us before we ever made it home with the water. My father silently mulled over the situation for many long moments, telling me not to worry and go to sleep. I was very afraid, but I still went to bed – more for the lack of oxygen than anything else. I do not

know how long I slept before a robot woke me. It had come from a resource conversion vehicle that had docked onto our house. It pointed to a bucket of crystal clear water and told me, 'This is your father.' The resource conversion vehicles were mobile installations that converted human bodies into resources for life-support systems. My father had let it extract all the water from his body, even while a beautiful river gurgled in the moonlight a mere three hundred meters from our home. The resource conversion vehicle had also extracted some other parts of his body for our life-support system: A small box of organic fats, a bottle of calcium, even a bit of iron, about as large as a coin.

“My father's water saved the home's life-support system and so I lived on. In the following five years I grew and matured. Then, one autumn day, I gazed out my window, watching dusk fall, when I suddenly saw someone run along the river's edge. I could not believe my eyes. How could anyone afford such a luxury? Who could afford to breathe so much outside? I looked more closely, and by all the Gods, it was the Last Entrepreneur! I saw him slow his run and seat himself on a stone at the river's bank. He even let his bare feet dangle into the clear waters of the river. He looked like a healthy, well-muscled and proportionate, middle-aged man, but I knew that he was actually over two-hundred-years-old. His age was kept in check by genetic engineering to the point of immortality. But when I saw him then, he looked to be nothing more than an ordinary man.

“Another two years passed before the state of my home's life-support system deteriorated again. It was a small-scale system with a limited life-span and finally it collapsed completely. The oxygen content of my air began to drop relentlessly. In the end, I was left with no option but to swallow an air-vendor and go outside before I collapsed from asphyxiation inside my home. I went outside and, like everyone else whose life-support system had given up the ghost, I calmly awaited my fate: I would breathe until the

pitiful funds in my account had run dry, and then I would be suffocated by the strangling pincers of an Enforcer.

“As I left my home, I noticed a large group of people outside. Apparently, the large-scale collapse of life-support systems had begun. A gigantic Enforcer came to hover in the air over all of us. It broadcast a final warning: 'Citizens, you have broken into someone's home. You are trespassing into a private residence. Please, leave immediately! Otherwise …' We shouted back, 'Leave? Where to? We can't breathe in our homes.'

“Together with the others, I began to run through the emerald green grass at the river’s bank, freed of all worries. In our crazed celebration of life, we let the fresh, sweet spring wind blow past our pale faces.

“I don't know how long we ran,” the alien said, “but at some point we realized that our accounts had long since been fully breathed-up. But for some reason, the Enforcers did not come to take us. As we stood in amazement, we heard the voice of the Last Entrepreneur echo from the gigantic Enforcer floating in the sky:

“‘Greetings, I welcome all of you to my humble abode! I am very pleased to entertain so many guests and I hope you enjoyed your stay in my yard, but unfortunately, I must ask you all to consider my situation; there are just too many of you. As of this moment, nearly a billion people have left their homes and come into mine as their life-support systems collapsed. Moreover, more than a billion additional visitors will soon come and they, too, as all of you have, will break into my home, violating my right to property rights and privacy. It would be an entirely reasonable remedy to the situation for the Machine to end your lives, and if I had not advised it to desist, you would all have long been vaporized by its lasers. But I was privileged to extensive super-education and therefore I will extend my courtesy to all guests in my home, even those who break into it. That notwithstanding, I ask you to put yourselves in my stead.

You must surely see that two billion guests in one's home is a bit much, especially as I am a person who enjoys his peace and quiet. Therefore, I must ask you to please leave my humble abode. I am, of course, aware that you have nowhere to go on this Earth, but I have taken it upon myself to prepare twenty-thousand large-scale spacecrafts for you. They offer enough capacity for all two billion of you. Each one of these vessels is the size of a city and each can travel at one percent of light-speed. Although they are not equipped with full life-support systems, these ships are sufficiently equipped to keep you in cryo-stasis for up to fifty-thousand years. Our Solar System has but one Earth, so your only recourse will be to find a new home planet in interstellar space, but I am certain that you will find such a place. Considering how vast the universe is, why ever would you wish to squeeze into the tight bounds of my tiny shack? There is no cause for you to bear me ill will; I obtained my home by entirely legitimate means. I had my beginnings as the manager of a small company for feminine hygiene products and the entire path of my career, right to the level you witness today, was predicated on nothing but business acumen. Never did I rely on illegal means or methods and so the Machine protected me and will continue to protect me. As I am a law-abiding citizen, it will also protect my private property, but it will not tolerate your illegal actions. In conclusion, I must ask you all to embark at your first convenience. For the sake of our common evolutionary origin I will certainly remember you and I hope that you will remember me. Farewell and please, take care.’

“That is how we came to the Fourth Earth,” the alien said. “Our voyage here was a thirty-thousand-year-long, wandering journey through the depths of space. On the way we lost nearly half of our ships. Some disappeared in the interstellar dust; others were swallowed by black holes.” He paused as pain crossed his face, but soon he finished. “But, finally, ten-thousand ships and their one billion passengers

arrived at this world. Well, that was the story of the First Earth. The story of two billion poor and one rich man.”

“If you had not come to interfere, would our world have repeated this story?” Mr. Smoothbore asked both himself and the no-longer stranger as the tale finished.

“I do not know,” the still-alien replied. “Perhaps; perhaps not. The progress of civilization is like the life of an individual, subject to the vagaries of fate…” He shrugged his shoulders. “Well, I should go. I am no more than an ordinary social surveyor and I have work to do if I am to make a living.”

"So do I,” Mr. Smoothbore replied.

“Take care, dear Child,” the alien said with a wave.

“Take care, dear Elder,” Mr. Smoothbore echoed as he took his leave.

In the light of the star ring, the two men from two worlds parted ways.

As Mr. Smoothbore entered the Grand Presidential Hall, the 13 standing members of the Committee for the Liquidation of Wealth turned to face him.

Mr. Zhu addressed him first. “We have verified the completion of your contract. You did very well. The other half of your payment has been transferred to your account, even if money will soon be meaningless.” Genuine remorse crossed the magnate's face. “There is something more you certainly already know: Our Elders' surveyors have already arrived on Earth. Our, and your, efforts have become meaningless. We have no further work to give you.”

“But I still have a job that needs doing,” Mr. Smoothbore replied, drawing his revolver. As he readied his gun, he thrust his left fist forward.

Bang, bang, bang, bang, bang, bang, bang – Seven glinting bullets fell to the table. Together with the six shots in his snub-nose there were 13 in all.

Thirteen faces, shaped by the weight of their immense wealth, twisted in unison as shock and horror flashed across their refined features. Then a calm settled. Maybe they felt relief.

Outside, a cluster of titanic comets streaked across the sky, their brilliant light bursting through the thick windows, overwhelming the light of the crystal chandeliers. The ground below shook violently as the ships of the First Earth entered the atmosphere.

“Have you eaten?” Ms. Xu asked Mr. Smoothbore, pointing to a bowl of instant noodles on the table. “Let us eat first.”

They placed a silver basin formerly used for wine and ice on three crystal ashtrays. They poured water into the basin, then lit a fire underneath it. They fed the flames with hundred yuan notes, each in turn offering notes to the fire. Spellbound, they watched the yellow and green flames leap like some cheerful, vivacious creature.

The 1.35 million brought the water to a boil.

# Curse 5.0

**T**he Curse 1.0 was born on the December 8, 2009.

It was the second year of the global financial crisis and common wisdom on the street still held that things would soon turn around. It never occurred to most that the real crisis had only just begun. Everything seemed to be wrapped in an air of anxiety and everywhere people were looking for any opportunity to let off steam. Perhaps it was these circumstances that gave birth to the Curse 1.0.

The Curse's creator was a young woman, somewhere between 18 and 28, and that was pretty much all IT-Archaeologists learned about her. The cursed was a young man, 20-years-old. Unlike the creator, there was little about him that remained undocumented. His name was Sa Bi, a name that could hardly avoid raising unfortunate associations with “idiot” in Chinese, and when it happened he was a senior at Taiyuan Polytechnic. What happened between the two was in no way remarkable, no different from what happened between boys and girls everywhere, every single day. There were thousands of versions of the supposed events and perhaps the real one was in there among them, but no one except those two themselves knew exactly which particular version transpired between them. In any case, when the drama had run its course, the girl hated the boy with a burning passion and so she coded the Curse 1.0.

The girl was an expert coder, although it isn’t known where and how she learned her craft. Despite the ever-growing abundance of IT specialists at the time, the number of programmers actually proficient in deep-level coding had not increased. There were just too many easy and convenient tools out there. With their help, there was no need to code close to the hardware. Laboriously writing line by meticulous line of code seemed superfluous when merely

running the right tool could produce the desired results. This was even true for viruses like the one the girl was about to write. An endless variety of hacker tools allowed coders to produce viruses by quickly combining a few pre-coded modules or, even simpler still, by using a single module and only slightly modifying it. The last virus to become a pandemic in pre-Curse China, the so-called Panda Burning Incense –or Fujacks Virus – was created in just this way.

This girl, however, chose to start from square one, without the use of any tools whatsoever. She coded it line upon line, like a peasant weaving cloth from a hand loom. One could just imagine her, crouched in front of her monitor, hammering away at the keys, grinding her teeth. She must have been the spitting image of Heinrich Heine's description of *The Silesian Weavers*: “Germany, your shroud's on our loom; and in it we weave the threefold doom…We weave; we weave.”

No computer virus in history spread as quickly as the Curse 1.0. There were two reasons for its success: First, the Curse did not actually damage the infected system. In fact, most viruses had no intention of causing direct harm. What damage they did was usually the result of poorly executed propagation methods and programming. The Curse, for its part, was as good as perfect when it came to avoiding propagation-related side-effects. Its behavior was remarkably restrained as well: In most infected systems it never manifested at all; only if specific system parameters compounded in a certain way – probably in about one out of ten infected systems – did it enact, and even then it only ever showed up once. What it did was simple: It displayed a pop-up message reading:*Die and go to hell, Sa Bi!!!!!!!!*

If one clicked the pop-up, the virus would display further information about Sa Bi, informing the user that the accursed was a student at Taiyuan Polytechnic, in Taiyuan, Shanxi Province, China, enrolled in Department XXX ,

majoring in XXX, in class XXX, residing in dorm XXX, room XXX. If the pop-up was not clicked, the message would disappear after three seconds, never to reappear on that computer. The virus went so far as to remember the hardware information of systems it had displayed the pop-up on. Furthermore, on those machines it would then remain forever dormant, even if the operating system was reinstalled.

The second reason for the success of the Curse 1.0 was its ability to mimic system processes. This was by no means the girl's invention, but she had expertly and truly mastered its use. System mimicry is achieved by making large parts of a virus' code identical to the code of the operating system, thereby ensuring that its behavior is similar to that of processes run by the operating system. When anti-virus software removes such a virus, it very likely will cause significant damage to the operating system as well, making extreme caution the only real option when dealing with this kind of virus. Both Rising AntiVirus and Norton targeted the Curse 1.0, but dealing with it turned out to be much more troublesome than they had expected. In fact, things ended up looking even worse than when Norton AntiVirus mistakenly deleted system files of the Chinese language version of Windows XP in 2007. This, together with the fact that the Curse 1.0 caused no real harm and that it drained only a tiny, completely unnoticeable amount of system resources, lead all manufacturers to eventually remove the Curse 1.0 from their virus definition databases.

On the very day that the Curse was born, science fiction author Liu Cixin was on business in Taiyuan, the capital of the northern Shanxi province, for the 264th time. Even though it was his least favorite city by a margin, Cixin always went shopping in the old, ever-bustling market street when he was in town. From a small corner store, he bought a bottle of lighter fluid for his positively ancient Zippo

lighter. It was one of the few items that even today could not just be bought off of the Taobao.com Marketplace or eBay.

Two days ago, snow had fallen on the city. Like always, it had compacted to ice, covering the streets. And so, as he made his way to the train station, Cixin had slipped and fallen, landing painfully on his behind. Preoccupied with his hurting backside, he had totally forgotten that he had taken the lighter fluid out of his traveling bag and put it into his pocket. It had not gone well when security had checked him. They had forced him to surrender the lighter and on top of that fined him 200 yuan.

Now, he liked Taiyuan even less.

The Curse 1.0 lived on. Five years and then 10 years passed and still its quiet proliferation continued across the web as it multiplied and prospered.

By then, the financial crisis had finally ended and the boom times had returned. In the wake of peak oil, the use of coal had increased all across the world and this black gold had left Shanxi rolling in revenue. It had made the province the Arabia of Asia. Its capital, Taiyuan, had naturally become a new Dubai. It was a city shaped by its coal tycoons. Once poverty-stricken, it had always bourn grand ambition, even in the bad days at the beginning of the century. Back then, wonderfully luxurious music halls and bathhouses had been erected on streets overflowing with the unemployed. Now, having become genuinely newly rich, the entire city lived in luxury, laughing all the way to the bank. The city's immense buildings now made Shanghai pale in comparison and its massive main street, one of the broadest in China, had become a deep canyon; so deep, in fact, that it rarely allowed even a glimpse of the Sun. Rich and poor, full of dreams and desires, crowded into the city. And the city would swallow them in the vortex of its bustling, noisy maelstrom, churning 24/7 each and every day of the year.

Almost instantly they would forget themselves and why they had come.

That day, Liu Cixin again came to Taiyuan. It was the 397th time, and again he went to buy lighter fluid. On his way, he noticed an elegant and handsome young man on the street, a particularly conspicuous strand of white gleaming in his long hair. Cixin, of course, immediately recognized his fellow author, Pan Haitian. Haitian had started out writing science fiction, had then turned his attention to the genre fantasy, only to return to science fiction. Drawn in by Taiyuan's boom, he had recently abandoned his Shanghai home and moved there. Haitian and Cixin stood at opposite ends of the science fiction spectrum – the former to the soft end, the latter on the hard edge. Nonetheless, they were now very happy to have run in to each other and they decided to have lunch together.

They opted for one of the regional specialties, *tounao*. Enjoying the nutritious lamb soup and a fair helping of spirits that traditionally accompanied it, they got to talking shop – writing. It did not take long for the more than mildly intoxicated Cixin to exuberantly extol his next grand project: He was planning to write a 10-volume, three million character science fiction epic describing 200 civilizations who would suffer 2,000 cycles of destruction in a universe repeatedly reformatted by vacuum decay events and ending with the entire known universe being flushed down a super massive black hole. The idea and his enthusiasm were infectious and so Haitian quickly suggested that the two of them should collaborate. Using the same epic framework, Cixin would write a version that embodied the hardest of hard science fiction. This edition would be aimed at the male demographic. Haitian, on the other hand, would get to work on a version that was the softest of soft fantasy literature. It would be aimed at the female reader. The idea

clicked and the two writers threw themselves at the project without hesitation or reserve.

It was the 10th birthday of the Curse 1.0 and its doomsday was night. After Vista, Microsoft had found it increasingly difficult to justify the upgrade treadmill of its operating system, indirectly extending the longevity of the Curse 1.0. But operating systems are like the wives of the newly rich: Eventual upgrades are inevitable. So, with every passing year, the Curse 1.0 found its code ever less compatible with the computers it encountered. Soon, it sunk to the bottom of the vast ocean that is the web, doomed to die and disappear. Just as its fate seemed sealed, a new academic discipline was born: IT-Archaeology. With less than half-a-century of history behind it, it would be easy to say that the web had no *ancient* things to study, but the idea, buoyed by the up-swell of nostalgia, found many firm friends. The main focus of IT-Archaeology was uncovering forgotten life in the nooks and crannies of the web. They looked for web pages that had not been clicked in 10 years, BBS still registerable but un-patronized for two decades and similar buried treasures. Amongst these virtual artifacts, the viruses of “remote antiquity” were the most sought-after; finding a virus still alive after roaming the wilds of the web for more than a decade was no less exciting than finding a dinosaur in a mountain lake.

This was how the Curse 1.0 was rediscovered. Its finder upgraded the entire code of the virus, making it compatible with modern operating system and so guaranteed its survival.

It had become the Curse 2.0. The original creator of the Curse 1.0 now became known as “Curse Progenitor” and the IT-Archaeologist who updated the code was tagged as “Curse Upgrader”.

The moment the Curse 2.0 appeared on the web found Cixin and Haitian standing around a trash can by the Taiyuan Train Station. They were squabbling over a half a pack of instant noodles that they had just liberated from the can. The last five years had been a valley of trials and tribulations for the two. Each had devoted himself to his part of their three million character, 10-volume science fiction and fantasy epic. They had titled their works *Three Thousand Bodies* and *The Infinite Odyssey*, respectively. Both totally and fully believed in the project, but as yet had been unable to find a publisher. So they had sold off everything, including their homes, and drawn an advance on their pensions to self-publish the works. In the end, *Three Thousand Bodies* sold 15 copies and *The Infinite Odyssey* 27 copies. After all their works had found a grand total of 42 readers, and every science fiction fan knew that that was a lucky number. After hosting a grand – and of course self-financed – book signing, they had begun their life on the streets.

Luckily, there were few places that were more inviting to the homeless than Taiyuan. The trash cans in the extravagant and luxurious metropolis offered an abundant supply of food. Recently a few abandoned On-the-Go-Pills had even made their appearance in Taiyuan's trash. Finding a place to stay was not much of a problem either. Another way Taiyuan had emulated Dubai was in its installation of air-conditioned bus-stops. Also, if they ever got tired of life on the streets, they could always stay in a relief station for a few days. There they would not only receive food and shelter but other benefits as well. Taiyuan's long-thriving sex industry had responded to the government's appeals and established Sunday as a sex relief day for disadvantaged groups. The relief stations were one of the areas where volunteers from the red-light districts provided their services. In the city's Social Happiness Indicator Survey, homeless beggars ranked first and so the two authors could

only regret not having devoted themselves to this lifestyle even sooner.

The time they relished most of all, however, was their weekly invitation to dinner by the editorial department of the *Science Fiction King*, usually at a high-end restaurant. Taiyuan's *Science Fiction King* was the quintessential sci-fi magazine, and was fully cognizant that the soul of this form of literature was the sense of wonder and alienation it engendered. Nowadays, high-tech fantasies had lost their ability to evoke these feelings. Technological marvels had become entirely prosaic events of everyday life. Low-tech fantasies, on the other hand, had become perfect vehicles for wonder and alienation. This led them to develop a retro-future style known as Counter-Wave Science Fiction. It enjoyed great success, heralding a second golden age of science fiction.

Fully embracing the spirit of Counter-Wave Science Fiction, the editorial department of the *Science Fiction King* absolutely refused to make use of the internet or even computers. They only accepted handwritten documents and used movable-type printing presses to publish their magazine. They had gone so far as to build a luxurious stable next to their editorial offices and to acquire several dozen Mongolian horses, all easily in the same price range as a BMW. The magazine's employees used no other form of transportation, riding their absolutely off-line horses through the city. The inhabitants of Taiyuan had learned that the clip-clop of a horse's hooves was a sure signal that someone from SFK was passing by.

The editorial departments frequent dinners with Cixin and Haitian were not only in acknowledgement of the science fiction stories they had written in the past; the invitations came because, even though the science fiction they were writing was now no longer really science fiction at all, the two of them lived and embodied the ideals of

Counter-Wave Science Fiction. They were, after all, completely off-line, living a very low-tech life indeed.

Neither the SFK team, nor Cixin or Haitian, could have ever guessed that this mutual lifestyle would come to determine their fate.

The Curse 2.0 had spread for seven years. Then one day a woman, who would later be known as the “Curse Weaponizer”, found the virus. After meticulously studying the code of the Curse 2.0, she again upgraded it. The Curse Weaponizer keenly felt the 17-year-old hate and resentment the Curse Progenitor had poured into her creation. The Weaponizer, too, had felt that most painful betrayal and she, too, had found herself consumed by a burning hate and an endless litany of unspoken curses. But the two women were not entirely alike: The Weaponizer thought that the other girl 17 years ago had been rather pathetic and silly: Just what had she really achieved? Had she harmed even a single hair on Sa Bi's head? Her curse could have just as well been the act of some peasant angrily sticking needles into a voodoo doll. The only thing she had achieved was to deepen her own depression. *Now*, the Weaponizer thought, *let your elder sister help you.* (This was a rather silly way for the Weaponizer to put it; the Curse Progenitor was almost certainly still alive and much older than her). But in essence, it was effective.

Seventeen years had passed to the day since the Curse was born and a new era, unlike anything before it, had arrived. It was the dawn of a world completely caught in the web. Seventeen years ago, only computers had been online. Now, the web had become something akin to an immense Christmas tree, with almost every imaginable object another blinking light, hanging from the web's innumerable branches. In the home, for example, every single electric appliance was connected and controlled via the web. Even

nail clippers and bottle openers were no exception. The former could analyze the cut nail matter and recommend a calcium deficiency via text or email. The latter could determine if the spirits in the bottle were the genuine article and send a notification if the bottle had won a sweepstakes. The bottle openers were even able force breaks in drinking if its user had become excessively intoxicated.

It all gave the Curse the opportunity to assume direct control of hardware.

The Curse Weaponizer added a new function to the Curse 2.0: *If Sa Bi is riding a taxi, kill him in a car crash!*

In fact, this was a rather simple operation for the AI-programmers of this age. These days, cars were already completely autonomous, piloted solely through the web. When a passenger swiped his credit card as he hired a taxi, the new Curse could identify him via the information on the card. Once Sa Bi had been identified as the patron of a taxi, the ways in which he could be killed were virtually limitless. The simplest and most direct was to simply crash him into a building or to send his taxi of a bridge. After having given it some thought, the Curse Weaponizer changed her mind, deciding against a simple car crash. She instead developed a far more romantic method of killing, worthy of her younger sister of 17 years ago (like everyone else, the Curse Weaponizer was in fact wholly unaware what Sa Bi had done to the Progenitor, and she may well have been fundamentally wrong about the man).

Once the fully upgraded Curse learned that its target had boarded the vehicle, it would completely ignore the requested destination. Instead the taxi would set off on a crazy ride up north, right into a stretch of land that in recent years had become a desert. The car would stop in this wasteland, cutting off all communication systems (by then the Curse would have already taken up residence in the car's computer and no longer needed a connection to the

web). This ensured that the taxi would become almost impossible to find. If someone should approach by pure chance, the taxi would just hide itself in another corner of the desert. All the while, the car's doors would remain firmly shut. Sa Bi would be doomed: In winter, he would freeze to death; in summer, he would die of heat exposure. And in any other season, he would die of dehydration and hunger.

And so the Curse 3.0 was born, and it was a real curse.

The Curse Weaponizer was an AI-artist and a member of a new generation on its way to the post-human. They made an art out of controlling the web, not for practical purposes, but to fulfill their sense aesthetics. Of course, aesthetics had become a markedly different concept from what they had been almost two decades ago. These artists might, for instance, make all the taxis of the city honk their horns at precisely timed moments to produce a kind of melody or they might let the brightly lit windows of large restaurants form a picture. The options were limitless.

The Curse 3.0 took its place amongst these works; it had, regardless of its very real world implications, become an outlandish piece of AI-art. On the occasion of the 2026 Shanghai Biennale of Modern Art, it received high critical praise, even though it was declared illegal due to its potential to cause bodily harm. This ruling did not stop it from spreading across the web however and soon a multitude of AI-artists began to expand and modify this piece of now collective art. The Curse quickly evolved, receiving an ever-expanding portfolio of functions:

> *If Sa Bi is at home, choke the life out of him with gas fumes!* This was comparatively simple, as every family's kitchen was controlled via the web. This connectivity allowed the heads of a household to remotely prepare meals, even from outside the house. This of course included the option of turning on the gas. The Curse 3.0 could and

would obviously deactivate the kitchen's gas alarm as it went to work.

> *If Sa Bi is at home, kill him with fire!* Also, very simple; there were many things in houses, including the gas, that could be set alight. Hair mousse, for example. It, like all things, was controlled through the web (this allowed hairstylists to remotely do one's hair at home). The fire alarm and fire extinguishers, of course, could also be disabled.

> *If Sa Bi is taking a bath, kill him with boiling water!* Much like the above and extremely simple.

> *If Sa Bi is sick in the hospital, kill him with a toxic prescription!* This one was slightly more complicated. Getting the target to receive a specific prescription was easy enough as the pharmacies of modern hospitals dispensed all their prescriptions autonomously and their systems were of course all connected to the web. The crux of the issue was the packaging of the medication. Sa Bi, despite his unfortunate name, was no idiot and he would have to take the medication of his own volition. To achieve this end, the Curse 3.0 had to track the medicine back to the factory where it was produced and packaged and then follow it down the sales-chain. Ensuring that the box of deadly medicine was sold to the target was somewhat complicated, but quite achievable. And in the eyes of an AI-artist, the more complicated it was, the more enjoyable the finished work would be.

> *If Sa Bi is in the air, kill him in the plane!* This one was far from simple and significantly more complicated than taking control of a taxi. The problem was that the Curse 3.0 was not to kill others. It was almost certain that Sa Bi would not be traveling on a private plane and so crashing the

plane was out of the question. The solution was the following plan: First, suddenly decompress the cabin in which Sa Bi was sitting (by opening a cabin door or by some other method). Then, when all passengers put on their oxygen masks, prevent Sa Bi's mask from providing oxygen.

> *If Sa Bi is eating, choke him to death!* While this may sound absurd, it was quite easily achieved. The super-accelerated modern life had led to super-accelerated fast food. This food, known as On-the-Go-Pills, looked, as the name suggested, like small pills. The On-the-Go-Pills were incredibly dense, heavy as a bullet in the hand. Once ingested, they expanded in the belly, much like hardtack used to work. The key for the Curse was to tamper with the manufacturing process, producing a super-rapidly expanding On-the-Go-Pill and then controlling the sales process to ensure that Sa Bi was the one who bought it. Then, when he popped the pill at some time during his work day and washed it down with some water, it would basically explode in his throat.

Driven by the boundless creativity of the AI-artists, the list went on and on

But the Curse 3.0 never found its target and never killed anyone. Back in the days of the Curse 1.0, Sa Bi had been seriously harassed and hounded by reporters. It left him with no other option than to change his name. The cursed even changed his family name. There were few people named *Sa* to begin with, and *Sa Bis* – due to the name's unfortunate connotations – were rarer still. In short, there was no other Sa Bi in Taiyuan who might have suffered the curse in place of its original target.

Furthermore, the data stored in the virus had not been changed in 17 years. As far as the Curse was concerned, Sa Bi was still enrolled at the university and living in a dorm.

This made finding the real Sa Bi almost impossible. One version of the Curse was outfitted with a function to track its target by infiltrating the records of the Public Security Department, but the virus failed in this endeavor.

In the following four years, the Curse 3.0 remained nothing but a piece of AI-art.

Then, it fell into the hands of the Curse Wildcarders: Cixin and Haitian.

Wildcards were an ancient concept, originating from the time of our mentors (this was what the age of the ancient operating systems, the DOS, was now called). The most commonly used wildcards were “*” and “?”. These two characters could stand in for other characters in a string of characters. “?” referred to a single character, while “*” referred to any number of characters and was the most frequently used wildcard. For instance, “Liu *” referred to every person with the family name “Liu”; “Shanxi*” referred to every string of characters starting with “Shanxi”. A single “*” referred to any and all possible combinations of characters.

Because of this, the “del *.*” was a particularly nasty little command from the time of our mentors (“del” being short for “delete” and all file names in DOS being composed of a name and an extension separated by a “dot”). As operating systems evolved, the wildcards continued to exist, but due to the convenience of graphical user interfaces, later generations almost never resorted to command line inputs. Normal users gradually forgot about wildcards altogether. Even so, they could still be used in software and that included the software running the Curse 3.0.

It was the Mid-Autumn Festival, one of China's most important public holidays. The Moon hung low over the glittering lights of Taiyuan like a vaguely moldy wheel of cheese, shining down on Cixin and Haitian who were sitting

on a bench in May Day Square. They were just laying out their trash-loot from that afternoon: They had found five half-full (or empty) bottles of spirits, two opened bags of Pingyao Beef slices, an almost full bag of Jinci Donkey Meat and three On-the-Go-Pills. Night had recently fallen and the two were ready to celebrate.

Cixin had also retrieved a broken notebook computer from one of the trash cans, professing that he would be able to repair it if his entire lifetime of working with computers was not to be for naught. He was squatting at the side of the bench, intently fiddling with the machine. All the while, Haitian was still not finished reminiscing about the sexual assistance he had received at the Relief Station that afternoon. As he worked, Cixin turned to Haitian and enthusiastically encouraged him to eat all three of the On-the-Go-Pills. His plan was simple; he wanted more of the actual meat and booze. Haitian would not be fooled, however, and refused them altogether.

The computer was soon back in working order, its screen emitting a faint blue glow as it started up. The moment Haitian saw that, to his considerable surprise, the notebook had a functioning wireless internet connection, he snatched the computer from Cixin's hands. He quickly opened the QQ chat client, but his User-Id had long since expired. He clicked on to the *Odyssey of China Fantasy* web-page, SkyCity, Douban, the Shuimu Tsinghua BBS, but over and over again he found nothing; the links had all long-since disappeared. Finally, he put the computer down.

“Oh…” He heaved a heavy sigh. “‘Long ago a man rode off on a yellow crane,’” he quoted the almost 13-centuries-old Chinese poetry.

Cixin, who had been combining bottles of spirits, looked at the screen and continued the poem. “‘Once the yellow crane left, it never returned…’”

He took back the notebook and began to study its contents. He found a large number of hacker tools and virus

samples installed on it. Most probably he had just repaired a hacker's computer. Maybe the AI-police had been in hot pursuit and the hacker had quickly ditched it in the trash can. Imaging the possibilities, he opened a file on the desktop. It was an already decompiled C-program.

Cixin recognized it: He was looking at the Curse 3.0. Casually perusing the code, he recalled his years as an e-poet. Driven more by alcohol than reason, he began scanning the targeting section of the code,

At his side, Haitian was yammering on about the incredible science fiction of those long gone years and before long Cixin, too, was caught up in nostalgia. Pushing the notebook away, he joined Haitian in reminiscing.

He remembered those years and his stories written from an omniscient perspective, so full of virility. His epics of destruction had elicited such a strong response from men, letting their hearts overflow with ardent militaristic and fanatical fervor. But now, only 15 books…he had sold only 15 books! Fuck it! He took another large gulp. He began by channeling his hate toward the male readers and then on to all men.

And has he did he stared right at the target parameters of the Curse 3.0. “Modhern men are allll bashtardhs,” he slurred as he changed the target name from “Sa Bi” to “*”. Then, he deftly altered his occupation and address from “enrolled in Department XXX”, “majoring in XXX”, “in class XXX”, “residing in dorm XXX”, “room XXX” to “*”, “*”, “*”, “*”, “*”. He only left the gender parameter keyed to “male”.

Haitian, too, heaved a sniveling sigh, thinking of his beginnings so far away; his colorful, gorgeous creations, like poems, like dreams. Once they had enchanted many girls and he had been their idol. But now, those teenage girls, daring to pass him without so much as a glance, it was just too much to bear! Tossing away an empty bottle, he mumbled, “If men are bhashtarts, shen wat dose sthat make

wimmen?” Having spoken his part, he changed the targeting parameter for sex from “male” to “female”.

Cixin would not have it; women had done nothing to him. After all, his little short stories had never sought to attract a female audience. So he changed the sex parameter back to “male”, just to have Haitian change it back to “female”. The two began to argue over how to punish their ungrateful readers, vacillating between the idea of turning Taiyuan into a city of widows or of bachelors.

In the end, Cixin began wildly swinging a bottle and a passing policeman intervened, separating the two fighting bums. Having cooled off, both scratched their heads and soon came to an equitable compromise: They changed the sex parameter to “*”, completing the wildcarding of the Curse 3.0.

Perhaps it was because of the interference or because they were dead drunk, but they left the “Taiyuan City”, “Shanxi Province, China” parameters unaltered.

The Curse 4.0 had been born.

And Taiyuan had become cursed.

No sooner had the Curse 4.0 been completed than the realization of such a grand scale mission entrusted to it weighed heavily. Due to the extreme ambition of the new work at hand, the Curse 4.0 did not immediately begin with its execution. Instead, it lay low, giving itself enough time to sufficiently propagate across the internet. Once it had achieved the necessary degree of penetration and interconnectivity, it ever so slowly, step by careful step, readied its master plan: It would begin the operation with targets susceptible to soft control and then shift to hardware control, escalating the coming calamity from there.

Ten hours after the first rays of sunlight touched the city, the Curse 4.0 commenced its operation.

The soft target operation was primarily directed against targets with sensitive, neurotic or volatile dispositions; in

particular, the Curse 4.0 selected depressed and bipolar individuals for this stage of its plan. In an age of epidemic mental illness and omnipresent psychological counseling, finding such people was singularly simple. For this first batch of its operation, the Curse 4.0 selected 30,000 individuals who had just returned from a hospital examination. These targets were notified that they had developed a liver, gastric, lung, cerebral, or colorectal cancer, a lymphoma, leukemia or, most often, esophageal cancer (it was the cancer with the highest rate of incidence in the area). Another 20,000 who had just had a blood test were told that they were HIV positive. These false notifications were not achieved by a simple forgery of diagnostic results. Instead, the Curse 4.0 took direct control of ultrasounds, CTs, MRIs, blood labs, and other medical equipment to produce truly “authenticated” diagnostic results. Even if the affected chose to get a second opinion from a different hospital, the results would remain the same.

Of the 50,000 so tormented, the overwhelming majority chose to begin treatment, but more than 400 with pre-existing suicidal tendencies immediately saw death as the path to escape from these new troubles. Soon afterwards, the now slightly less than 50,000 sensitive, neurotic, volatile, depressed, and bipolar men and women each received a phone call from their spouse or lover. The men all heard their woman say, “Look at yourself, you stupid dumb-fuck. Are you even a man? I am now seeing [*] and we are very happy together. You can just crawl into some corner and die.” The women heard their men say, “You're really looking your age, and to be honest, you were fugly from the get-go. I have no idea what I ever saw in you. Well, I am with [*] now and we are very happy together. You can just crawl into some corner and die.”

For the most part, the Curse 4.0 contrived that the target had been left for someone he or she truly despised. Of the 50,000 affected, almost all immediately attempted to call

their partner to clear the air of what had to be a simple misunderstanding or mistake, but about one percent opted to instead kill their partner or themselves; some did both.

There were still other parts to the soft target operation: For instance, it provoked bloody fights between gangs that were already at each other's throats. It also targeted criminals imprisoned for life or with long prison sentences, changing their sentences to the death penalty and immediately executing them. The list went on and on. Overall, however, it appeared as if the soft target operation was not very effective. All in all, it only managed to eliminate only a few thousand targets. However, the Curse 4.0 had the idea of it, well aware that big things needed to be approached step by careful step and eschewing no evil, no matter how small. It would leave no means of murder untried.

In its soft target operation, the Curse 4.0 managed to eliminate some of its original creators. In the years after the creation of the Curse 1.0, the Curse Progenitor had been very mistrustful of men. In the last two decades she had been careful to always use the most sophisticated means available to monitor her husband. She had in fact, for most intentions and purposes, become an expert surveillance technician. But when she suddenly received that call from her ever-faithful husband, she suffered a heart attack. Once in the hospital, she received drugs that further aggravated her myocardial infarction. She died, a victim of her own curse.

The Curse Weaponizer, too, died in this phase of the operation. She received an HIV positive test result. At first she had no intention whatsoever of killing herself, but she overdosed on pills meant to calm her nerves. In her delirium she saw her window as the gate to a wondrous garden. The Curse Weaponizer fell to her death from the 15th floor.

Five days later, the hardware operation began. The preceding soft target operation had thrown the city into a state of anxiety. The sudden spike in suicides and murders had left their mark on Taiyuan's inhabitants. The Curse 4.0, however, was still on track, successfully avoiding government detection as it had planned. The first steps of the hardware operation could thus proceed under a shroud of secrecy.

First, the number of patients receiving incorrect medicine increased sharply. The packaging of these manipulated medicines appeared to be perfectly ordinary, but for most patients even a single dose proved fatal. Simultaneously, the incidence of death by chocking also skyrocketed. The cause was On-the-Go-Pills that had been compacted far beyond their usual compression ratios. When customers felt the weight of these pills at the dispensaries, they mistakenly believed that they were getting a great value for their money.

The first large scale elimination operation targeted the city's water infrastructure. Even in a city completely controlled by AIs, it proved impossible to simply add cyanide or mustard gas into the water supplied to homes. So instead, the Curse 4.0 decided to introduce two genetically modified bacteria into the water supply. While absolutely harmless individually, when combined they were able to produce a lethal poison. The bacterial cultures never met in the city's water supply. Instead the Curse 4.0 first added only one; then it waited for that culture to clear out of the water system, and only then did it introduce the second bacterial culture. The actual mixing of the two types of bacteria happened in the human body. Meeting in the stomach or bloodstream of a target, they would produce a potentially lethal toxin. Even if this poison did not prove to be fatal, the target would be taken to a hospital where he or she would receive medication that further reacted with the bacteria, ensuring the target's demise.

By now, the Provincial and National Public Security Departments had discovered the source of the unfolding catastrophe and had begun developing specialized kill-tools to deal with the Curse 4.0. In response, the Curse 4.0 accelerated and escalated its operations. The virus' hidden undercurrent became a towering wave, crashing down on the city and drowning it in a waking nightmare.

That morning, during rush hour, a series of powerful yet muffled explosions emanated from below the city. It was the sound of subway trains crashing. Taiyuan had only rather recently built its subway network, having planned and constructed it just as the city's boom began. Because of this, the entire system was highly advanced, using maglev trains in vacuum tunnels. This allowed its subway trains to travel at absolutely astonishing speeds. Colloquially it had become known as the Prompt Portal and it was said that everything that entered would exit at its destination almost instantaneously. The trains’ unbelievable speed meant unfathomably violent collisions. In an instant, smoke-belching bulges were explosively raised from the ground. Seen from above, it almost appeared as if long lines of black pustules suddenly erupted across the face of the city.

Simultaneously, a significant part of the city's cars came under the control of the Curse 4.0. It was these virus-enslaved vehicles that became the most powerful weapon of the Curse 4.0. All at once, millions of cars began careening and colliding in all directions, like particles in Brownian motion. But the crashing of the cars was by no means a disorganized chaos; entirely to the contrary, it strictly adhered to a carefully calculated pattern and sequence. Every car first maximized the pedestrian casualties it could inflict on its crazed run. The gaps between individual vehicles were precisely coordinated, making escape almost impossible for the citizens walking on the city's streets. In open spaces and public squares, the cars even assumed

circular formations to herd Taiyuan's inhabitants to their doom. The largest of these encirclements formed on the May Day Plaza. Several thousand cars surrounded the plaza, only to crash toward its center in unison, eliminating 10,000 targets in one fell swoop.

Outside, the city was soon almost entirely cleared of targets; they had either been eliminated or had taken shelter in some building or another. As soon as this had been accomplished, the cars began crashing into the nearest structures, killing all passengers the vehicles were carrying. These collisions, too, were precisely timed and organized, targeting high-occupancy buildings. The cars assembled and concentrated their attack. One vehicle followed the next as they struck a building, piling layer upon layer of shattered car remains and maximizing the destruction. At the foot of the tallest building in the city, the 300-story Coal Exchange Building, the cars crashed until they had formed a pile-up that reached about a dozen stories all of its own. The mountain of twisted metal burned brightly, reminiscent of a bizarre, flickering funeral pyre.

The night before the Great Crash, the citizens had beheld a peculiar spectacle: The city's taxis had all gathered in long lines to refuel. The virus had guaranteed that their tanks would be full when the time to crash came. Now they smashed into buildings like an endless rain of firebombs.

The government broadcasted an emergency announcement, declaring a state of emergency for the city and calling upon the populace to stay at home. At first this decision seemed well-advised as the residential buildings had suffered very little in ways of attack when compared to the larger structures of the city. The sole reason for this mercy was that the roads of residential areas were much narrower than the main thoroughfares through the heart of the city. When the Great Crash began, these streets were

almost instantly blocked-up by wrecked cars and so made impassible.

This was no problem for the Curse 4.0, however. With the greatest of ease it all too soon turned every home into a death trap. All domestic gas valves were turned wide open. As soon as the explosive limit had been reached inside a home, the virus set off a spark. All across Taiyuan, blocks upon endless blocks of residential buildings were swallowed by the explosive fires. Some were ripped apart in their entirety, detonating like giant bombs.

The government's next step was to cut all power to the city. There was no need. Taiyuan was already without electricity and Curse 4.0 had accomplished its mission. Now without purpose, it would take no further action.

All the while, the entire city had become engulfed in a sea of fire. The flames' ferocity produced an effect eerily similar to those created by the firebombing of Dresden in World War 2. The city's oxygen was almost completely consumed by fire. Even those who escaped the burning inferno could not escape death.

The Curse Upgrader was incinerated as he drowned in the ocean of flames. Now, the first three key figures of the virus' history had become victims of their own curse.

Because of their minimal contact to the web, Cixin and Haitian, much like their homeless brethren, had escaped the Curse's initial operation. As the later stages of the operation began, they relied on skills and experience honed by years of living on the streets, and on agility that belied their age to dodge crashing car after crashing car. They could also depend on their extensive knowledge of the city’s roads, nooks and crannies. Armed with these assets and a good deal of luck, they amazingly managed to survive, even as the first fires began to rage.

But no sooner were they out of the fire than they landed in the frying pan. As the entire city was swallowed by a sea

of flames, they found themselves in the middle of a massive intersection. The suffocating heat began to shroud everything in its haze and around them the flames lashed like tongues from countless immolated buildings.

Cixin had described countless cosmic catastrophes, but the scene before him emptied his mind of every thought but panic. Haitian, on the other hand, whose stories brimmed with humanism and sentimentality, remained perfectly calm and collected.

Stroking his beard, Haitian looked at the inferno raging red all around. In the most drawn-out of tones, he asked himself, “Had I known…that destruction…such a magnificent…sight... Why did I … never write it?”

His legs weak from fear, Cixin sat himself on the ground. “Had I known that destruction is so horrible, my writing would not have been so terribly chocked-full of it! Oh, me and my doom-saying, this really is just perfect…”

Eventually, they found a point of consensus: Their very own destruction was most certainly the most rousing form of destruction imaginable.

Just then, they heard a silvery voice, like a splash of crystal clear water in this burning sea. “Cixin and Haitian, come quick!!”

Following the voice, the two saw a pair of horses piercing the flames like equine spirits. On these strange apparitions rode two most wonderfully beautiful women. They had come from the SFK editorial board. The riders pulled Cixin and Haitian onto the backs of their horses and off they dashed. Like lightning they shot through flickering gaps in the ocean of flames and over the burning wreckage of cars. Suddenly and soon, they found themselves in the clear and open. Already, the horses were galloping over the bridge out of town.

Cixin and Haitian both heaved deep sighs of relief, taking in the cool, clear air. Holding onto the waists of the girls and feeling the soft touch of their long hair, the two authors

could not help but feel that their mad dash to safety had been entirely too brief.

On the other side of the bridge they reached safety. They were shortly united with the rest of the editorial staff of the *Science Fiction King*. All of them were riding beautiful horses. This magnificent cavalry set out toward the southwest, leaving Taiyuan behind. Their passing clearly surprised the foot-bound survivors they came across on their way. Almost everyone ogled them with great interest.

A bit further down the road, Cixin, Haitian, and the *Science Fiction King* team saw one person among the survivors who was riding a bicycle. Now it was their turn to ogle: They could hardly believe their eyes – modern bicycles were connected to the web. Back in the city, the virus had locked all of them down as soon as the Great Crash began.

But it got even stranger. Riding the bicycle was a middle-aged man, a man once named Sa Bi.

Due to the severe harassment the Curse virus had brought upon him all those years ago, Sa Bi had developed an instinctive fear and loathing of all that the web had wrought. He had done much to minimize his exposure to it, including riding this 20-year-old antiquity of a bicycle. Also, he lived close to the river on the outskirts of the city. When the Great Crash happened, he had jumped on this completely offline bicycle and made his short dash to safety. In fact, Sa Bi was one of the very few people these days who was truly content, with a long line of affairs bringing him fulfillment. Had he died that day, he would have done so without resentment or regrets.

Together with Sa Bi, their mounted troop finally reached the mountains. Standing on a summit, they stared at the city below, watching it burn. A powerful gale was blowing up there, sweeping around the mountaintops, billowing from all directions and down into the Taiyuan basin. There it replenished the air lost to the hungry flames.

Not too far from them, the principal members of the city and provincial government were just disembarking from a helicopter that had carried them away from the inferno. As he looked upon his burning city, Taiyuan's Mayor clutched the pages of a speech in his pocket. It was a statement for the occasion of Taiyuan's immanent anniversary. Taiyuan's path to this birthday had certainly been full of twists and turns: Founded in 497 BC, it had endured China's tumultuous road toward becoming an empire, occupying a strategic position in the north of China. Razed in 979, the city had again begun to flourish during China's middle ages, not only by virtue of its military significance, but also becoming a renowned center of ancient culture and an important market city. The motto of the city's celebration should have been: "*Celebrate 2500 Years of Taiyuan!*"

Now, this city of 25 centuries had been reduced to ashes by a sea of flames.

At that time, contact with the city's authorities was finally re-established. They were advised that an army of relief troops was en route from all corners of the country. Communication, however, was soon cut off again. All that remained was the harsh rasping of static. One hour later, they received their next report: All rescue teams had called off their advance and the aerial rescue forces had turned about face as well.

Some leading cadre of the provincial AI-Security Bureau had taken it upon himself to compile the code of the latest version of the Curse virus, the Curse 5.0.

In this version, the target parameters for "Taiyuan City", " Shanxi Province", and "China" had been replaced with "*", "*", "*"

# The Micro-Age

# CHAPTER 1

# Return

The Forerunner now knew that he was the only person left in the universe. He knew that when he crossed the orbit of Pluto. From here the Sun was but a dim star, no different from when he had left the Solar System 30 years ago.

The divergence analysis the computer had just performed, however, told him that Pluto's orbit had significantly shifted outward. Using this data, he could calculate that the Sun had lost 4.74 percent of its mass since he had left. And that left only one conclusion, sending shivers straight through his heart, chilling his soul.

It had already happened.

In fact, humanity had long known that it would happen when he had embarked on his journey. They had learned that after thousands upon thousands of probes had been shot into the Sun. The probes' findings allowed astrophysicists to determine that a short-lived energy flash would erupt from the star, reducing its mass by about five percent.

If the Sun could think and could remember, it would have almost certainly been untroubled. In the billion-long years of its life, it had already undergone much greater upheavals than this. When it was born from the turbulence of a spiraling stellar nebula, greater changes had been measured in milliseconds. In those brilliant and glorious moments, its gravitational collapse ignited the fires of

nuclear fusion, illuminating the grim, dark chaos of stellar dust.

It knew that its life was a process, and even though it was currently in the most stable phase of this process, occasional minor, yet sudden, changes were inevitable. The Sun was much like the calm surface of water; perfectly still for the most part, but every so often broken by the bursting of a rising bubble. The loss of energy and mass meant very little to it. The Sun would remain the Sun, a medium-sized star with an apparent visual magnitude of -26.8.

The flash would not even have that great of an effect on the rest of the Solar System. Mercury would probably dissolve, while the dense atmosphere of Venus would likely be stripped to nothing. The effect on the more distant planets would be even less severe. It could be expected that the surface of Mars would melt, likely scorching its color from red to black. As for Earth, its surface would only be heated to 7,000 degrees, probably for no longer than 100 hours or so. The planet's oceans would certainly evaporate. On dry land, strata of continental rock would liquefy, but that would be that.

The Sun would then quickly revert to its erstwhile state, albeit with reduced mass. This reduction would cause the orbits of all the planets to shift outward, but that would hardly be consequential. Earth, for example, would only experience a slight drop of temperature, on average falling to about -80 degrees. In fact, the cold would advance the re-solidification of the melted surface and it would ensure that some of Earth's water and atmosphere would be preserved.

There was a joke that became popular in those days. It was a conversation with God and it went like this:

“Oh, God, for you thousands of years are just a brief moment!”

God answered, “Indeed, they are just a second to me.”

“Oh, God, for you hundreds of millions are just small change!”

God answered, “Just a nickel.”

“Oh, God, please spare me a nickel!”

Upon which God then answered, “Certainly. Just give me a second. ”

Now, it was the Sun that was asking humanity for “just a second”. It had been calculated that the energy flash would at the earliest occur in 18,000 years.

For the Sun, this certainly was no more than a second, but in humanity – faced with an entire 'second' of waiting – it engendered an attitude of apathy. “Apathism” was even elevated to a kind of philosophy. It was all not without its repercussions; with every passing day humanity grew more cynical.

Then again, there were at least four- or five-hundred generations in which humankind could leisurely find a way out.

After two centuries, humanity took the first step: A spaceship was launched into interstellar space, taxed with the mission of finding a habitable planet within 100 light-years to which humanity could migrate. This spaceship was called the UNS Ark and its crew became known as the Forerunners.

The Ark swept past 60 stars, and so past 60 infernos. Only one was accompanied by a satellite. This satellite was a 5,000-mile-wide drop of incandescent, molten metal, its liquid form in constant flux as it orbited.

It was the Ark's only achievement; further proof of humanity's loneliness.

The UNS Ark sailed for 23 years. However, as she traveled close to light-speed, this “Ark Time” equated to 25,000 years on Earth. Had it followed its mission plan, the UNS Ark should have long returned to Earth.

Flying close to the speed of light made communication with Earth impossible. Only by reducing its velocity to less than half the speed of light could the Ark be contacted by

Earth. This maneuver, however, cost significant amounts of time and energy, and therefore the Ark would usually only perform it once a month to receive a dispatch from Earth. When it slowed down, the Ark would pick up Earth's newest message, sent more than 100 years after the last. The relative time between the Ark and Earth made communication much like targeting a high-powered scope; if the scope was budged by even the slightest degree, its aim would jump a vast distance off-target.

The UNS Ark had received its last message from Earth 13 “Ark years” after it was first set out. On Earth, 17,000 years had passed since its departure. One month after that message, the Ark had again slowed, but it had received only silence. The predictions made many millennia ago could certainly have been off. One month on the Ark was more than a 100 years on Earth. In that time it must have happened.

UNS Ark had truly become an actual ark – an ark with a lone Noah. Of the other seven Forerunners, four had been killed by radiation when a star exploded in a nova four light-years from the Ark. Two others had succumbed to illness; one man had, in the silence of that fateful slow-down, shot himself.

The last Forerunner had kept the Ark at communication-speed for a long stretch. Finally, he had accelerated the Ark back to near light-speed, but a tiny flame of hope burning within him had soon tempted him to again reduce the ship's speed. Again he had listened anxiously, but all he heard was silence; and so it went on. His frequent cycles of acceleration and deceleration prolonged the return journey multi-fold.

And through it all, the silence remained.

The Ark returned to the solar system 25,000 years after its departure from Earth, 9,000 years later than had at first been planned.

# CHAPTER 2

## The Monument

**P**assing the orbit of Pluto, the Ark continued its flight deep into the Solar System. For an interstellar vessel such as the UNS Ark, traveling in the solar system was like sailing in the calm of a harbor. Soon the Sun grew brighter. As its light began to bathe the Ark, the Forerunner caught his first glimpse of Jupiter. Through his telescope he could see that the huge planet had changed almost beyond recognition. Its red spot was nowhere to be seen and its tempestuous bands appeared more chaotic than ever. He paid no heed to the other planets and continued the tranquil flight at the end of his journey, straight on to Earth.

The Forerunner's hand trembled as he pushed the button. The massive metal shield covering the porthole slowly crept open.

“Oh, my blue sphere, blue eye of the universe, my blue angel,” the Forerunner prayed, his eyelids closed firmly.

A long time later, he finally forced his eyes open.

The planet he saw was black and white.

The black was rock, melted and re-hardened; tombstone black. The white was seawater, vaporized and refrozen; corpse shroud white.

As the Ark entered low Earth orbit, slowly passing over the black land and white oceans, the Forerunner spotted no vestiges of humanity; all had been melted to nothing. Civilization was gone, lost in a wisp of smoke.

But at least there should have been some kind of monument, some memorial capable of withstanding the 7,000 degrees that had destroyed all else.

Just as these thoughts crossed the Forerunner's mind, the monument appeared. It was a video signal, originating from the surface and being sent to his spaceship. The computer streamed the signal's contents onto his screen. It was a video, millennia old. Obviously shot by extremely heat-resistant cameras, it revealed the catastrophe that had befallen Earth. The moment the energy flash hit was very different from what he had imagined so many times in the past years. The Sun did not suddenly grow brighter; most of the cataclysmic radiation it blasted forth remained well outside the visible spectrum. What he could see, however, was the end of the blue sky. It suddenly turned inferno-red, only to change again to a nightmarish purple.

He saw the cities of that era, the so familiar forms of skyscrapers, oozing with thick black smoke as the temperature surged by thousands of degrees. Soon they began to glow in the dim red of kindled charcoal; but they could not last, finally melting like countless sticks of wax.

Scorching red magma streamed from the mountain tops, forming countless cascading waterfalls of molten rock. These incandescent rapids converged to form a massive crimson river of lava that buried the earth below under its pyroclastic floods. And where there had been ocean waters, now stood only giant mushroom clouds of steam. The belly of these ferociously billowing mountains shone with the red glow of the molten world beneath. Their crests were permeated with the sky's cruel purple. The endless ranges of steam clouds expanded with relentless speed and abandon. Soon they swallowed all of the Earth…

Years passed before this haze finally dispersed, revealing that there still was a planet beneath. The burned and melted world below had begun to cool, leaving all of it covered in rippling, black rock. In some parts, magma still

flowed, forming intricate webs of fire that spanned the Earth. All traces of humanity had disappeared. Civilization had vanished, forgotten like a dream from which the Earth had awoken.

A few years later, the Earth's water, having been dissociated to oxyhydrogen under the incredible heat, began to recombine. It fell as great torrents, again covering the burning world in steam. It was as if the Earth had been trapped in a titanic steamer; dark, moist and stiflingly hot. The deluge lasted for dozens of years as the Earth continued to cool. Slowly, the oceans began to fill again.

Centuries passed. The dark clouds of evaporated seawater had finally fully dispersed and the sky was returned to blue. In the heavens the Sun reappeared. Earth's new, more distant orbit forced a sharp decline in temperatures, freezing the oceans. Now the sky was without clouds and the long-dead world below froze in complete silence.

Again the picture changed, this time revealing a city: First a forest of tall and slender buildings came into view. As the camera slowly descended from some unseen place above their highest tops, a plaza began to come into view. Its spacious extents were filled with a sea of people. The camera descended further, allowing the Forerunner to discern that all of the faces in the forum were turned up, appearing to look right at him. The camera finally stopped, hovering above a platform in the middle of the plaza.

A beautiful girl, probably in her teens, stood on this platform. Through the screen she waved right at the Forerunner, and as she waved, she shouted, “Hey, we can see you! You came to us like a streaking star!” Her voice was delicate and fair. “Are you the UNS Ark One?”

In the final years of his journey the Forerunner had spent most of his time playing a virtual reality game. To run this game, the computer directly interfaced with the player's brain signals, using his thoughts to generate three-

dimensional images. The people and objects in these images were obviously restricted in many ways, bound by the limits of the player's imagination. In his loneliness, the Forerunner had created one virtual world after another, everything from single households to entire realms.

Having spent so much time in unreal realities, he almost immediately recognized the city on his screen for what it was: just another virtual world. It was of inferior quality, at that, most likely the product of a flighty mind. Virtual images such as this one, having been born from the imagination, were always prone to errors. The pictures he saw now, however, seemed to get more wrong than right.

First and worst, when the camera passed those skyscrapers the Forerunner had seen many people leave the buildings through windows on the top floors. These people had jumped straight out, leaping hundreds of feet down to the ground below. After falling from such dizzying heights they would land without a scratch, apparently completely unharmed. Furthermore, he could see people leap off the ground only to rise, as if they were being pulled by invisible wires. These strange jumps could carry them several stories up a skyscraper's side. They could ascend even higher, pushing off foot-holds that ran up the side of all buildings, almost as if they had been put there for just the purpose. In this manner they could reach the top of any building or enter it through any of the many windows. It seemed as if these skyscrapers had neither elevators nor doors. At least, the Forerunner never saw them use anything except a window to enter or leave a building.

When the virtual camera moved above that plaza, the Forerunner could see another error: Amongst the sea of people hung crystal balls suspended by strings. These balls were about three feet in diameter. Occasionally people would reach into these balls, pulling out a part of the crystal substance with great ease. As they removed a piece, the ball would immediately recover its spherical shape. The

extracted part would do the same; but even as the small piece rounded itself again, the person who had extracted it would put it into his mouth and swallow it...

In addition to these obvious mistakes, the confusion and derangement of the image's creator could best be captured by something else entirely. Bizarre objects were floating through the city's sky and air. Some were large ones, ranging from five to ten feet, while others were smaller, only a foot or so long. Some looked like pieces of broken sponge, others like the crooked branches of some giant tree, all slowly floating through the air.

The Forerunner saw one large branch drifting toward the girl on the platform. She simply gave it a light push, sending it spiraling into the distance. The Forerunner understood then. In a world on the brink of destruction, it must have been impossible to remain of sound mind and thought.

The image was most likely being sent out by an automated installation. It had probably been buried deep beneath the surface before the catastrophe struck. Shielded from the radiation and heat, it must have lain hidden and waited, automatically rising to the surface once it was safe. This installation then probably kept an unending vigil, monitoring space, projecting these images to any of the scattered remnants of humanity returning to Earth. Chances were that these comical and jumbled images had been created with goodwill, intended to comfort the survivors.

“Did you say that other Arks were launched?” the Forerunner asked, hoping to get something from this bizarre display.

“Of course. There were twelve others!” the girl answered with enthusiasm. The absurdity of the other parts of the image notwithstanding, this girl was not half-bad at all. Her beautiful face combined the best features typical of East and West peoples. She beamed with utmost naivety. To her the entire cosmos seemed a great, big playground. Her large, round eyes seemed to sing with every flutter, while

her long hair floated and unfurled in the air, appearing completely weightless. She reminded the Forerunner of a mermaid swimming in an unseen ocean.

“So, is anyone still alive?” the Forerunner asked, his final hope flaring like a wildfire.

“Aren't you?” the girl innocently returned the question.

“Of course. I am a real human. Not like you, a computer-generated virtual person,” the Forerunner replied, slightly exasperated.

“The last Ark arrived seven-hundred-thirty years ago. You are the last Ark to return, but please tell us, do you have any women aboard?” the girl queried with great interest.

“It is only me,” the Forerunner replied, his head drooping with the memories.

“So you say that there are no women with you?” the girl asked again, her eyes widening in genuine shock.

“As I said, I am the only one. Are there no other spaceships out there that have yet to return?” the Forerunner inquired in return, desperate to keep the fire of hope alive.

The girl wrung her delicate, elfin hands before her chest. “There are none! It's so sad, so very terribly sad! You are the last of them, if…oh…” She could barely contain her sobs. “If not by cloning…” The girl was now crying uncontrollably. “Oh,” she finished, her beautiful face now covered in tears. Around her the people in the plaza were a sea of tears.

While he did not cry, the Forerunner, too, felt his breaking heart sink into new depths. Humanity's destruction had become fact beyond denial.

“Why do you not ask me who I am?” the girl asked, raising her face again. She had reclaimed her innocent demeanor, her recent sorrow, merely seconds past, apparently forgotten.

“I could not care less,” the Forerunner answered flatly.

With tears in her eyes again, the girl shouted, “But I am Earth's Leader!”

“Yes! She is the High Counselor of Earth's Unity Government!” the people in the plaza shouted in unison, darting from sorrow to excitement. They truly were a deficient product.

The Forerunner felt himself growing tired of this senseless game and he rose to turn away.

“How can you not care? All the capital has gathered here to welcome you, forefather! Do not ignore us!” the girl cried, raising a tearful wail.

Remembering his original, still unresolved question, the Forerunner turned and inquired, “What has humanity left behind?”

“Follow our landing beacon; then you can learn for yourself!” came the happy reply.

# CHAPTER 3

# The Capital

**T**he Forerunner climbed into his landing module. Leaving the UNS Ark to orbit, he began his descent to Earth, following the landing beacon's directions. He wore a pair of video specs, their lenses displaying the images being broadcast from the planet below.

“Forefather, you must immediately come to Earth's capital. Even though it is not the planet's biggest city, it is certainly the most beautiful,” the girl calling herself Earth's Leader prattled on. “You will like it! Mind, though, that the landing coordinates we have given you will lead you to a spot a good distance from the city, as we wish to avoid possible damage ...”

The Forerunner changed the image of his specs to show the area directly below his lander. Now, at only 30,000 feet in the air, he could still see nothing but black wasteland below.

As he descended, the virtual image grew even more confusing. Perhaps its creator, thousands of years ago, had been in the grips of an unimaginable depression; or, perhaps the computer projecting it, left to its own devices thousands upon thousands of years, was showing the signs of its age. In any case, for some unfathomable reason, the virtual girl had begun to sing:

“Oh, you dear angel! From the macro-age you return!

Oh, glorious macro-age,

Magnificent macro-age,
Oh, beautiful macro-age,
Oh, vanished vision! In the fires the dream did burn.”

As this beautiful singer began her hymn, she leapt into the air. She lifted off the platform, jumping a good 30 feet into the air. After falling back to the platform she sprang back up, this time clearing the plaza in a single bound. She landed on top of a building and from there she jumped again, this time across the entire width of the plaza. Landing at its other side, she looked like a charming little flea.

She leapt once more and in mid-jump she caught hold of one of the strange objects that floated through the air. The several-feet-long thing looked like the trunk of a weird tree and it carried her spiraling through the air, above the sea of people. Even as she rose, her svelte body continued to rhythmically writhe.

The sea of people below began to agitate with raw excitement. Soon it boiled over into song. “Oh, macro-age! Oh, macro-age!” As the song rose, they all began to jump. The crowd now looked like sand on a drum, rising in waves with every invisible beat.

The Forerunner simply refused to take any more of this and he killed both image and sound. He was certain now that it was even worse than he had first thought. Before the catastrophe had struck, the people of Earth must have felt venomous envy toward the survivors who had slipped through time and space and so skipped their appointed destruction. Fueled by such emotions, they had created this gross perversion to torment those that returned.

As his descent continued, the annoyance the images had caused slowly began to ebb, but by the time he felt the shock of the landing, that annoyance had almost completely left him. For a moment he succumbed to fancy: Maybe he had truly landed near a city. Perhaps it was not visible from up high?

All illusion faded to nothing as he stepped out of the lander. Beyond laid only boundless, black desolation. Despair chilled his entire body.

The Forerunner carefully slid open his visor. Immediately he felt a surge of cold air against his face. The air was very thin, but it was enough for him to breathe. The temperature was somewhere around 40 degrees below freezing. The sky was a dark blue, as it had been at dawn and dusk in the age before the catastrophe. It was neither now, as the Sun hanging overhead clearly evidenced.

The Forerunner removed his gloves, but he could not feel the Sun’s warmth. In the thin air the sunlight was scattered and weak. In the sky above he could see some stars twinkle brightly.

The ground beneath his feet had solidified about 2,000 years ago. All around he could see the ripples of hardened magma. Even though the first signs of weathering were visible, it remained hard and jagged. No matter how closely he looked, he could only make out the barest traces of soil. Before him the rippling land stretched to the horizon, punctuated only by small hills. Behind him lay the frozen ocean, gleaming white against the sky line.

Scanning his surrounding the Forerunner searched for the source of the transmission. What he finally spotted was a transparent shield dome, embedded in the rocky ground. This hemisphere was about three feet in diameter and it covered what appeared to be an array of highly complex structures.

The Forerunner soon was able to make out several similar domes scattered in the distance. They were spaced at distances of 50 to 100 feet. From where he stood they looked somewhat like bubbles, frozen as they burst through the Earth's surface, now glinting under the Sun.

Reactivating the left lens of his video specs, the Forerunner again opened a virtual window into that strange imaginary world. That shameless impostor was still floating

through the air, riding her bizarre branch, deliriously singing and writhing. As she flew, she blew kisses toward the camera. The masses below, even to the last man, cheered:

“…Oh, great macro-age!

Oh, romantic macro-era!

Oh, melancholic macro-age!

Oh, frail macro-age…!”

Numbed, the Forerunner stopped cold. Standing beneath the deep blue firmament in the light of the shining Sun under the sparkling stars, he felt the entire universe revolving around him – him. The last human.

He was engulfed by an avalanche of dank loneliness. Covering his face, he sank to his knees and he began to sob.

As he descended into despair, the singing ceased. Everyone in the virtual image stared straight toward him, their countless eyes filled with deep felt concern. The girl, still riding her branch through mid-air, beamed an almost infatuating smile right up at him.

“Do you have so little faith in humanity?” she asked, her eyes twinkling.

She continued speaking, and as she did, something that the Forerunner could not place sent a shiver across the Forerunner's body, setting all his senses on edge. Disturbed, he slowly began to rise back to his feet. As he stood, he suddenly saw it: a shadow was falling over the city in his left lens. It was as if a dark cloud had appeared out of the blue, blackening the entire sky from one second to the next. He took a step to the side. Light was immediately restored to the city.

He slowly approached the dome, intrigued. Standing before it, he bent forward, carefully studying it. Inside he could indistinctly make out a dense array of tiny, yet incredibly detailed, structures. As he looked he immediately noticed that something magnificently strange had completely dominated the sky in his video specs:

That something was his face.

“We can see you! Can you see us? Use a magnifier!” the girl shouted as loud as she could as the sea of people below once more boiled over with exhilaration.

Now the Forerunner finally and truly understood it all: He pictured the people jumping out of tall buildings; that made sense because gravity could cause them no harm in their microscopic environment. And it explained their jumps, too. In such an environment, people would easily be able to leap up a thousand-foot-tall – or should that be thousand-microns-tall? – building. The large crystal balls must, in fact, be drops of water. In this tiny environment their form would be completely at the mercy of the water's surface tension. And when these microscopic people wanted a drink, they could simply pull out an even smaller droplet. Finally, the strange, several-foot-long things that floated through the urban landscape – and that the girl was riding – these, too, made sense. They were nothing other than tiny particles of dust.

This city was not at all merely virtual. It was a city just as real as any city 25,000 years ago had been, only that it was covered by a three-foot, transparent dome.

Humanity still was. Civilization still was.

In this microscopic city floated a girl on a branch of dust – the High Counselor of Earth's Unity Government – confidently stretching her open hand toward the man who, at the moment, filled almost her entire cosmos: The Forerunner.

“Forefather, the micro-age welcomes you!”

# CHAPTER 4

# Micro-Humanity

“In the seventeen-thousand years before the Catastrophe,” the girl told the Forerunner, “humanity left no rock unturned in its search for some way out. The easiest way out would have been migrating to another star. But no Ark, including yours, was able to locate even a single star with a habitable planet. And it did not truly matter; a mere century before the catastrophe, our spaceship technology was still not developed enough to migrate even a thousandth of humanity.

“Another plan,” she continued, “was to have humanity migrate deep underground, well-hidden from the Sun's energy flash and ready to emerge once its effects subsided. That plan, however, would have done little else than drag out their inevitable death. After the Catastrophe, Earth's ecosystem was completely destroyed. Humanity could not have survived.

“There was a time when humanity fell into almost total despair. It was in that darkest night that the spark of an idea flashed to life in the mind of a certain genetic engineer: What if humanity's size could be reduced by nine orders of magnitude?” A pensive look crossed her face. “Everything about human society could also be scaled to that size, creating a microscopic ecosystem; and, such an ecosystem would only consume microscopic amounts of natural resources. It did not take long before all of humanity came

to agree that this plan was the only way in which our species could be saved.”

The Forerunner listened intently, thoroughly considering this plan.

She continued. “The plan relied on two types of technology: The first was genetic engineering. By modifying the human genome, humans would be reduced to the height of about ten microns, no larger than a single body cell. Human anatomy, however, would remain completely unchanged. This was a completely plausible goal. In essence, there is very little difference between the genome of a bacterium and that of a human. The other piece of the puzzle was nanotechnology. This technology had been developed as far back as the twentieth century and even in those days people were able to assemble simple generators the size of bacteria. Based on these humble beginnings, humanity soon learned to build everything from nano-rockets to nano-microwave ovens; but the nano-engineers of ages past could have never imagined where their technologies would ultimately be put to use.

“Fostering the first batch of micro-humans was very similar to cloning: The complete genome was extracted from a human cell and then cultivated to form a micro-human that resembled the original in all ways except size. Later generations were born just like macro-humans. That, by the way,” she added, “is what we call you. And, you may have already guessed that we call your era the 'macro-age'.

“The first group of micro-humans took to the world-stage in a rather dramatic fashion,” she told him. “One day, about 12,500 years after the departure of your Ark, a classroom was shown on all of Earth's TV screens. Thirty students sat in this classroom. Everything seemed perfectly normal. The children were normal children and the classroom was a normal classroom. There was nothing at all that would have seemed out of the ordinary. But then, the camera drew back and humanity could see that this classroom in fact stood on

the stage of a microscope.” The High Counselor would have continued her account had she not been interrupted by the Forerunner’s curiosity.

“I would like to ask,” he interjected, “if micro-humans, with their microscopic brains, can achieve the intelligence levels of macro-humans?”

The girl shook her head, more bemused than angry. “Do you take me for some kind of fool? Whales are no smarter than you are! Intelligence is not a matter of brain size. In regards to the number of atoms and quantum states in our brains, well, let us just say that our ability to process information is easily enough to match that of a macro-human brain.” She paused, then continued, curiosity ringing in her voice. “Ah, could you please show us to your spacecraft?”

“Of course, very gladly.” It was the Forerunner's turn to pause. “How exactly will you go?”

“Please wait just a moment!” the girl exuberantly shouted.

After saying this, the High Counselor leapt into the air and onto a truly bizarre flying machine. The machine resembled a large, propeller-powered feather. Soon everyone on the plaza below was leaping into the air, competing for a spot on this “feather”. It was apparent that this society obviously had neither a sense nor notion of rank or status. The people indiscriminately jumping onto this strange vehicle were certainly ordinary citizens, both young and old. Regardless of their age, they all wore the childish demeanor that seemed so out of place with the High Counselor; the result was a noisy, excited, chaotic ruckus.

The “feather” was almost instantly jam-packed with people, but a continuous stream of new “feathers” was already coming into view. No sooner than one appeared, it would already be filled with excited micro-humans. In the end, the city's sky was filled with several hundred feathers, each filled to capacity, or beyond, with people. They were all

lead by the feather-flier of the High Counselor. The girl led this formidable flying armada to somewhere in the city.

The Forerunner again bent over the dome, carefully observing the microscopic city within. This time he was able to make out the skyscrapers. To him they looked like a dense forest of matchsticks. He strained his eyes and finally was able to spot the feather-like vehicles. They looked like tiny white grains of powder, floating on water. If it had not been for the hundreds of them, it would have been impossible to see them with the naked eye.

The picture in the left lens of the Forerunner's video specs remained crisp as ever. The micro-camera-person and his unimaginably small camera had obviously also boarded a feather and from there continued to stream a live-feed. Through this feed, the Forerunner was able to catch a glimpse of traffic in the micro-city.

He was in for an immediate shock; it appeared that collisions were an almost constant occurrence. The fast flying feathers were continuously knocking into each other and into the dust particles floating through the air. They even regularly hit the sides of the towering skyscrapers! But the flying machines and their passengers were no worse for wear and no one seemed to pay any heed to these collisions.

Actually, this was a phenomenon that any junior high physics student could have explained: The smaller the scale of an object, the stronger its structural integrity: There is a vast difference between two bicycles colliding and two 10,000-ton ships ramming into each other. And, if two dust particles collide, they will suffer no harm whatsoever. Because of this, the people of the micro-world seemed to have bodies of steel and could live lives free from fear of injury.

As the feathers flew, people would occasionally jump out of the skyscraper windows, trying to board one of the machines in mid-air. They were, however, not always

successful and so some would fall from what seemed like hundreds of meters. The sheer height left the watching Forerunner with a feeling of vertigo. The falling micro-humans on the other hand plummeted with perfect grace and composure, even taking the time to greet acquaintances through skyscraper windows as they rushed toward the ground!

“Oh, your eyes are black as the ocean, so very, very deep,” the High Counselor noted of the Forerunner. “So deep with melancholy! Your melancholy shrouds our city. You should make them a museum! Oh, oh, oh …” She began to cry, clearly aggrieved.

The others, too, began to cry and their feather-fliers began bouncing between the skyscrapers, smashing into buildings left, right, front, and center.

The Forerunner could see his own huge eyes in the image on his left video spec. Their melancholy, magnified a million-fold, shocked even him. “Why a museum?” he asked, perplexed.

“Because melancholy is only for museums. The micro-age is an age without worries!” Earth's Leader loudly acclaimed. Even though tears still clung to her tender face, there was no longer any trace of sorrow to be found behind them.

“We live in an age without worries!” the others excitedly joined, shouting in unison.

It seemed to the Forerunner that in the micro-age moods shifted hundreds of times faster than they had ever done in the macro-age. These shifts seemed particularly pronounced when it came to negative emotions, such as sadness and melancholy. They could bounce back from such feelings in the blink of an eye.

However, there was another aspect of this discovery that was even harder for the Forerunner to truly fathom. Apparently, all negative emotions were incredibly rare in this era; so rare, in fact, that they were like fascinating

artifacts to the people of the micro-age. When they saw them, they grasped at the opportunity to experience them.

“Don't be depressed like a child! You will quickly see that there is nothing to worry about in the micro-age!” the High Counselor shouted, now full of joy.

Hearing her words, the Forerunner could not help but do a double-take. He had previously observed that the general mental state of the micro-humans seemed much like that of macro-age children, but he had just assumed that their children would simply be even more, well, *childish*. “Are you saying,” he asked in astonishment, “that in this era, as people age, they grow…?” He almost couldn't believe what he was asking. “Grow more childish?”

“We grow happier with age!” the High Counselor giggled.

“Yes! In the micro-age we grow happier with age!” the crowd echoed loudly.

“But melancholy can be very beautiful,” the girl continued. “Like the moon's reflection on a lake; it reflects the romanticism of the macro-age. Oh, oh, oh …” The Earth's Leader fell into plaintive cries at the imagery.

“Yes! What a beautiful age it was!” the others chimed in, their eyes brimming with tears.

The Forerunner could not help but laugh. “You little people really don't understand melancholy. Real melancholy spills no tears.”

“You can show us!” the High Counselor shouted, returning to her exuberant state.

“I hope not,” the Forerunner said, gently sighing.

“Look, this is our monument to the macro-age!” the High Counselor announced as the feathers flew over another square in the city.

The Forerunner saw the monument. It was a massive black pillar, vaguely reminding him of a giant broadcast tower. Its rough outside was covered with countless tiles, each about the size of a wheel. It almost looked as if it had been covered in fish-scales.

Staring at the towering structure, it took the Forerunner a long while to understand: It was a strand of macro-human hair.

# CHAPTER 5

# The Banquet

**F**lying upwards, the feather-fliers emerged from the transparent hemisphere, passing through some unseen hole. As they left their city's cover behind, the High Counselor turned to the Forerunner through the video screen in his specs.

“We are now a hundred miles or so from your spacecraft. If we can land on your fingers, you can carry us. It would greatly speed our journey.”

The Forerunner turned his head to his lander, which was right behind him. There was no conclusion to her reference, other than that units of measurement had also shrunk in the micro-age. He stretched out his hand and the feather-fliers landed. They looked like a fine white powder, drifting onto his fingers.

In the video lens he could now see his fingerprints. They looked like massive, semi-translucent ranges of mountains that seemed to swallow these feathers as they floated into their great canyons. The High Counselor was the first to leap from a feather. Immediately she fell, sprawling prone on the Forerunner's finger.

“Your oily skin is far too slippery!” she loudly complained, taking off her shoes. In frustration she tossed them into the distance. Now barefoot, she curiously turned, looking around as the others, too, leapt onto his skin. A sea of people soon gathered between the semi-opaque cliffs of his fingers. By

the Forerunner's best guess, there were now more than 10,000 micro-humans gathered on his hand!

The Forerunner raised himself and very, very carefully walked toward his lander, keeping his hand stretched out and steady before him.

He had not even fully entered the lander when the crowd of micro-humans began to shout. “Wow! Just look; a metal sky! An artificial Sun!”

“Don't be so dramatic; you're being silly! This is just a small shuttle. The ship above is much larger!” the High Counselor chastened her people. But she, too, was staring in wonder, turning her head in all directions, and as she turned, the crowd again began singing their strange song:

“Oh, glorious macro-age,
Magnificent macro-age,
Melancholic macro-age,
Oh, vanished vision! In the fires the dream did burn.”

As the lander took off, setting out on its flight to the UNS Ark, the High Counselor finally continued her account of the history of the micro-age,

“For a time, mirco- and macro-society co-existed. During this period the early micro-humans came to fully absorb the knowledge of the macro-world and so we inherited macro-human culture,” she told the Forerunner. “At the same time, the micro-humanity began developing its own extremely technologically advanced society. It was a society based on nano-technology. This transitional era, in-between the macro-age and micro-age, lasted for about…hmm…” the High Counselor's tiny mouth twisted ever so slightly as she recalled. “About twenty generations or so.

“Then, as the Catastrophe approached, the macro-humans ceased bearing children and their numbers dwindled by the day. At the same time, the micro-human population skyrocketed and the scope of our society expanded along with it. Soon it exceeded that of macro-human society. It was at this point that the micro-humans

requested that they be handed the reins of global governance. This demand shook macro-society to its core and lead to a powerful backlash. Some diehards refused to surrender political power. They claimed it would have been like a batch of bacteria ruling mankind. It ended with a global war between macro- and micro-humanity!”

“How horrible for your people!” The Forerunner gasped in sympathy.

“Horrible for the macro-humans; they were quickly defeated,” the High Counselor replied.

“However did that happen? A single macro-human with a sledgehammer could obliterate a micro-city of millions,” the perplexed Forerunner objected.

“But micro-humanity did not fight them in its cities, and macro-humanity's arsenal was utterly unsuitable for fighting an unseen enemy,” she told him. “The only real weapon at their disposal was disinfectant. Throughout the history of their civilization they had used it to battle micro-organisms, yet it had never yielded a decisive victory. Now that they were seeking to vanquish micro-humans, an enemy equal to them in intelligence, their chances of victory was even slimmer. They could not track the movements of the micro-armies and so we could corrupt their computer chips right under their eyes. And what could they do without their computers? Power does not come from size,” the High Counselor explained.

The Forerunner nodded in agreement. “Now that I think about it …”

The High Counselor continued, a fierce fire now burning brightly in her eyes. “Those war criminals met their just fate. Several thousand micro-human special forces armed with laser drills parachuted onto their retinas …” She let the Forerunner’s imagination do the rest before continuing more calmly. “After the war, the micro-humans had claimed control of Earth. As the macro-age ended, the micro-age began!”

“Very interesting!” the Forerunner exclaimed.

The lander docked with the Ark in low Earth orbit. The micro-humans immediately boarded their feathers-fliers again and began exploring their new surroundings. The enormous size of the spacecraft left them dumbstruck. The Forerunner at first considered their utterances an indication of their admiration, but the High Counselor soon explained her feelings about all this.

“Now we understand; even without the Sun's energy flash, the macro-age could not have endured,” she said. “You consume billions of times more resources than we do!”

“But consider that this spaceship is capable of traveling at near light-speed. It can reach stars hundreds of light-years away. This is something, small people, which could only be produced in the great macro-age,” the Forerunner countered.

“We at the moment certainly cannot create its equal. As of now, our spaceships can only reach one-tenth of the speed of light,” the High Counselor conceded.

“You are capable of space travel?” the Forerunner almost stammered. The sheer surprise was enough to knock the color out of his face.

“Certainly not as capable as you were. The spaceships of the micro-age can reach no further than Venus. In fact, we have just heard back from them and they tell us that as things stand, it seems far more habitable than Earth,” the High Counselor answered, paying no mind to his shock.

“How big are your ships?” the Forerunner asked as he regained his composure.

“The big ones are the size of your age's…hmm…” She paused, searching for the right analogy. “Soccer ball,” she finally said. “They can carry hundreds of thousands of passengers. The small ones, on the other hand, are only the size of a golf ball; a macro-age golf-ball, of course.”

These words shattered the last slivers of the Forerunner's feelings of superiority.

“Forefather, would you please offer us something to eat? We are starving!” the High Counselor asked, speaking for her people as the feather-fliers gathered on the Ark's control console.

The Forerunner could see ten-thousands of micro-humans on his command console, looking at him eagerly.

“I never expected that I would be asked to invite so many to lunch,” he answered with a smile.

“We would certainly not want to ask too much of you!” the girl said, bristling with anger.

The Forerunner retrieved a tin of canned meat from storage. Opening it, he used a small knife to carefully scoop out a tiny piece. He then cautiously placed it to one side of the ten-thousands standing on the command console. The Forerunner could make out their position with his naked eye. It was a tiny, circular area on the console, about the size of a coin. This area was just a bit less smooth than the surrounding surface, just as if someone's breath had smudged it.

“Why did you take so much? That is very wasteful!” the Earth's Leader scolded.

Now using a large monitor, the Forerunner could see her; and behind her stood a towering mountain of meat toward which her people were swarming. As they reached the pink massif, they extracted small pieces and ate them.

Looking back to the console before him the Forerunner could not make out even the slightest change in the size of that small piece of meat. On the screen he could see that the crowd had quickly dispersed, some discarding half-eaten pieces of meat on the way. The High Counselor picked a piece for herself and took a bite.

As she chewed she began shaking her head. “This is not very nice at all,” she commented as she finally finished.

“Of course, it was synthesized in the eco-cycler; it isn’t possible to taste any better. It has limited capacities for taste,” the Forerunner acknowledged apologetically.

“Give us some booze to wash it down!” The Earth's Leader raised another request almost immediately. This demand caused a cheer to erupt among the gathered micro-humans. The Forerunner raised an eyebrow; after all, he knew that alcohol could kill micro-organisms!

“You drink beer?” he cautiously asked.

“No, we drink scotch or vodka!” the Earth's Leader replied with gusto.

“Maotai would also do!” someone shouted.

In fact, the Forerunner still had a bottle of Maotai, a bottle he had kept on the Ark ever since its departure from Earth. He had intended it for the day that they found a colonizable world. He fetched it.

Wistfully holding the white porcelain bottle, he removed its cap. He then carefully poured some of the spirits into the cap, and then set it down next to the crowd.

On the screen he could see that the micro-humans had begun to scale the unassailable cliff-face that was the cap. On the micro-scale the seemingly smooth surface of the cap offered many holds. Using the climbing skills they had honed on their home's skyscrapers, the micro-humans were quickly able to ascend to the cap's rim.

“Wow, what a beautiful lake!” the chorus of micro-humans shouted in admiration.

On the screen, the Forerunner could see that the surface of that vast lake of alcohol bulge upward in a giant arc formed by the forces of its surface tension. The micro-human camera operator followed the High Counselor as she first tried to scoop out some of the liquid with her hand. This attempt failed, however, as her tiny arms could not reach. Instead, she then sat herself down on the edge of the cap. From there she let a slender foot scratch the surface of the alcohol. Her delicate foot was immediately encased in a

clear bead of liquid. Lifting her leg she used her hands to extract a small drop of alcohol from the bead. She let the drop fall into her mouth.

“Wow!” she exclaimed, nodding in satisfaction. “Macro-age alcohol really is a lot better than our micro-age spirits.”

“I am very glad to hear that we still have something that is better. But, using your feet to drink like that, that's very unhygienic,” the Forerunner noted.

“I don't understand,” she replied, looking up at him in puzzlement.

“You walked around on your bare feet for quite a while; they will likely be covered in germs,” the Forerunner explained.

“Oh, now I see!” the Earth's leader called out. She was handed a box that one of her attendants had been carrying. She opened the box and immediately a strange animal emerged. It was a football-sized round thing with countless tiny, chaotically twitching legs. The High Counselor lifted the creature by one of its small legs and explained. “Look, this is one of our city's gifts to you! A lacto-chicken!”

The Forerunner strained his mind trying to recall his microbiology. “Are you saying that that is a…” He paused in disbelief. “A lactobacillus?”

“That is what it was called in the macro-age. It is a creature that gives yogurt its taste. A very useful animal indeed!” the High Councilor replied.

“A very useful bacterium,” the Forerunner corrected. “But I now understand that bacteria certainly cannot harm you. Our concept of hygiene has become meaningless in the micro-era.”

Earth's Leader shook her head. “Not necessarily. Some animals, ah,” she caught herself, “some bacteria, can seriously hurt us. For example, there are the coli-wolves. Overpowering one of them is a great feat. But most animals, like the yeast-pigs, are quite lovable.” As she spoke, she took another drop from her foot and into her mouth. When

she shook off the remains of the alcohol bead from her foot and stood, the High Councilor was already quite tipsy and her speech had begun to slur.

“I really never would have expected that alcohol would still be around!” The Forerunner frowned, genuinely astonished.

“We,” the Earth's Leader said, her speech faltering, “we have inherited all that was beautiful about civilization. But those Macros thought that we had no right.” She stumbled a step. “The right to become the carriers of human civilization,” she slurred. Feeling a bit of vertigo, she plopped herself back down.

“We inherited all of humanity's philosophy – Western, Eastern, Greek and Chinese!” the crowd shouted with one voice.

Sitting, the Earth's leader stretched her hands toward heaven and intoned, “No man ever steps in the same river twice; the Tao gave birth to One. The One gave birth to Two. The Two gave birth to Three. The Three gave birth…” Her words faltered to nothing, but she immediately slurred on: “…Gave birth to all of creation! We appreciate the paintings of van Gogh. We listen to Beethoven's music. We perform Shakespeare's plays! To be or not to be; that is…” Again she slurred. “That is the question.” She again rose, tipsily stumbling as she gave her best Hamlet.

“In our era, a girl like you would have never even dreamt of becoming the world's leader,” the Forerunner noted.

“The macro-age was a melancholic age with melancholic politics. The micro-age is a carefree age. We need happy leaders,” the High Councilor replied, already looking a good deal more sober.

“We have not finished our discussion.” She paused, gathering herself. “Our discussion of history. We had just talked about…” She halted again, thinking. “Ah, yes, war. After the war between macro- and micro-humanity, a world war broke out amongst micro-humanity.”

The Forerunner interrupted in shock. “What? Certainly not for territory?”

“Of course not,” the High Councilor answered. “If there is one thing that is truly inexhaustible in the micro-age, it is territory. It was because of some,” here she again paused, this time for more inscrutable reasons before continuing, “some reasons that a macro-human could not understand. But know that in one of our largest campaigns, the fronts were so large they covered…” She paused a final time. “Oh, in your units, more than three-hundred-feet. Imagine, the battlefield was that vast!”

“You inherited much more from the macro-age than I could have ever imagined,” the Forerunner stated soberly.

“Later, the micro-age focused all of its energies on preparing for the impending Catastrophe. In five centuries we built thousands of super-cities, deep within the Earth's crust. These cities would have looked to you like six-foot-wide, stainless steel balls. Every one could house tens of millions. These cities were built 50,000 miles underground …”

“Wait just a second; the Earth's radius is just less than four thousand miles,” the Forerunner interjected.

“Oh, I again used our units,” the Earth's leader apologized. “In your units it would be about…” She did the calculation in her head. “Yes, half a mile! When the first signs of the Sun's energy flash were observed, the entire micro-world migrated beneath the Earth's surface. Then, then, the Catastrophe struck.

“Four hundred years after the Catastrophe, the first group of micro-humans made their way up through a massive tunnel roughly the size of a macro-era water pipe. Boring their way through the solidified magma with a laser drill, they made it to the surface,” she explained. “It would, however, be another five centuries before micro-humanity could establish a new world for humanity on the surface.

When we finally did, we built a world of tens of thousands of cities, a world of eighteen-billion inhabitants.

“We were full of optimism about humanity's future then. It was an all-pervading, boundless optimism that would have been unimaginable in the macro-age. We were optimistic precisely because of our micro-society's tiny scale. It meant that humanity's ability to survive in this universe had been increased many million-fold. For example,” she said, “what was inside that can you just opened could feed our entire city for two years. And the can itself could supply our city with all the metal it needs for those two years.”

“As a macro-human, I now have a much better understanding of the enormous advantages of the micro-age. It’s all just mythic, so very epic!” the Forerunner wholeheartedly extolled.

The High Councilor smiled and continued. “Evolution trends toward the small. Size does not make great. Microscopic life has a much easier time co-existing with nature in harmony. When the giant dinosaurs died out, their contemporaries, the ants, persisted. Now, should another great disaster approach, a spaceship the size of your lander could evacuate all of humanity. Micro-humanity could rebuild its civilization on a smallish asteroid and live comfortably.”

A long silence followed.

Finally, the Forerunner, firmly focusing on that coin-sized sea of humanity before him, solemnly stated, “When I saw the Earth again, when I thought myself the last human in the universe, I was the most forlorn human. My heart was broken and I felt all hope die. No one had ever faced such heartrending straits. But now, now, I am the happiest person alive; at least, I am the happiest macro-human there is. I see that humanity's civilization has persisted. In fact, civilization has achieved much more than just surviving; yours is the true sublimation of civilization! We are all

human, hailing from the same strain. So now, I entreat micro-humanity to accept me as a citizen of your society.”

“We accepted you when we first detected the Ark. You can come live on Earth. It will be no problem for the micro-age to support one macro-human,” the Earth's Leader replied in equally solemn tones.

“I will live on Earth, but all I need can come from the Ark. The ship's life eco-cycler will be able to sustain me for the rest of my natural life. There is no reason for a macro-human to ever again consume Earth's resources,” the Forerunner said, his face glowing with deep, silent joy.

“But our situation is improving. Not only has Venus' climate become far more hospitable to human life, Earth's temperature is also warming again. Maybe next year we will even have rainfall in many parts of the world. Then plants will be able to grow again,” the Earth's Leader stated.

“Speaking of plants, have you ever seen any?” the Forerunner asked.

The High Councilor answered. “We grow lichen on the inside of our protective dome. They are huge plants, every filament as tall as a ten-story building! Then there's also the chlorella in the water ...”

The Forerunner interjected. “But have you ever heard of grass? Or trees?”

“Are you talking about the macro-era plants that grew tall as mountains? My, they are legends of ancient times,” she replied.

The Forerunner smiled faintly and said, “I just want to do something. When I return, I will show you the gifts I bring the micro-age. I think that you will greatly enjoy them!”

# CHAPTER 6

# Rebirth

**A**lone again, the Forerunner made his way to the Ark's cold storage. The cold storage was filled with neatly arranged, tall racks. Thousands upon thousands of sealed tubes filled these racks. It was a seed bank, storing the seeds of millions of Earth's plant species. The Ark had been meant to carry these seeds to the distant world that humanity would emigrate.

There were also a few rows that constituted the embryo storage. Here the embryonic cells of millions of Earth's animal species were banked.

When the temperatures warmed next year, the Forerunner would plant grass on the Earth below. Amongst these millions of kinds of seeds, there were strains of grass hardy enough to grow in ice and snow. They would certainly be able to grow on the present day Earth.

If only a tenth of the planet's ecosphere could be restored to what it had been in the macro-age, the micro-age would become a heaven on earth. In fact, much more could probably be restored. The Forerunner indulged in the warm bliss of imagination: He could picture the micro-humans' wild joy when they would first see a colossal green blade of grass rising to the heavens. And what about a small meadow? What would a meadow mean to micro-humanity?

An entire grassland! What would a grassland mean? A green cosmos for micro-humanity! And a small brook in the

grassland? What a majestic wonder would the sight of the brook's clear waters – snaking through the grassland – be in the eyes of a micro-human? Earth's Leader had said there could be rain. If rain fell, there could be a grassland and that brook could spring to life! Then there could certainly be trees! My God, trees!

The Forerunner envisioned a group of micro-human explorers setting out from the roots of a tree, beginning their epic and wondrous journey upward. Every leaf would be a green plain, stretching to the horizon.

There could be butterflies then. Their wings would be like bright clouds, covering the heavens. There could be birds. Their every call would be like the angelic trumpets, blaring from the heavens.

Indeed, one-trillionth of the Earth's ecological resources could easily support a micro-human population of a trillion! Now the Forerunner finally understood the point that the micro-humans had so repeatedly emphasized.

The micro-age was an age without worries.

There was nothing that could threaten this new world, nothing but …

Shivers grasped the Forerunner's mind and soul as he realized what he must do; and, it had to be done immediately. There was no time to delay. He went over to one of the racks and retrieved a hundred sealed tubes.

They contained the embryonic cells of his contemporaries, the embryonic cells of macro-humans.

The Forerunner took these tubes and he dropped them into the laser incinerator, normally used for waste removal. He then went back to cold storage, walking up and down the rows several times, carefully checking every nook and cranny. Only when he was absolutely certain that none of these tubes had been left behind did he return to the laser incinerator. He felt a sense of deep tranquility as he pushed the button.

The laser beam burned with tens of thousands of degrees. In its blazing light the tubes and the embryos they contained were vaporized in the wink of an eye.

# Devourer

# CHAPTER 1

# The Crystal from Eridanus

It was right in front of him, but the Captain still could barely make out its translucent crystal structure. Floating through the black void of space, it was hidden by the dark, like a piece of glass sunken in the murky depths. Only the slight distortion of starlight its passage provoked allowed the Captain to make out its position. Soon it was lost again, disappearing in the space between the stars.

Suddenly, the Sun distorted, its distant, eternal light twisting and twinkling before their eyes. It gave the Captain a start, but he maintained his proverbial “Asian cool”. Unlike the dozen soldiers floating beside him, he managed not to gasp in shock. The Captain immediately understood; the crystal, a mere 30 feet away, had moved in front of the Sun, shining 60 million miles in the distance. In the three centuries to come, this strange vista would often play across his mind and he would wonder if it had been an omen of humanity's fate to come.

As the highest ranking officer of the United Nation's Earth Protection Force in space, the Captain commanded the force's interplanetary assets. It was a tiny unit, but it was equipped with the most powerful nuclear weapons humanity had ever devised. Its enemies were lifeless rocks hurtling through space; asteroids and meteorites that the early warning system had determined to be a threat to Earth. The

mission of the Earth Protection Force was to redirect or to destroy these objects.

They had been on space patrol for more than two decades now, yet they had never had a chance to deploy their bombs. All rocks large enough to warrant their use seemed to avoid Earth, willfully denying them their chance for glory.

Now, however, a sweep had discovered this crystal at a distance of two astronomical units. The crystal's trajectory was as precipitous as it was utterly unnatural, and that was taking it straight toward Earth.

The Captain and his unit cautiously approached, their space suits' boosters spinning a web of trails around the strange object. Just as they closed to 30 feet, a misty light flashed to life inside the crystal, clearly revealing its prismatic outline about 10 feet long. As the space patrol drew nearer, they could make out the intricate, crystalline pipes of its propulsion system. The Captain was now floating directly in front of it. Stretching the gloved right hand of his spacesuit toward the crystal, he initiated humanity's first contact with an extra-terrestrial intelligence.

As he reached, the crystal again faded to transparency. A brilliantly colored image now sprang to life inside it. It was a manga girl, with huge, rolling eyes and long hair that cascaded down to her feet. She was wearing a beautiful, flowing skirt and she seemed to dreamily drift in invisible waters.

“Warning! Alert! Warning! The Devourer approaches!” she immediately shouted out, stricken with obvious panic. Her large eyes stared at the Captain, a lithe arm pointing away from the Sun in unmistakable alarm. There could be little doubt the unseen pursuer was hot on her dainty heels.

“Where do you come from?” the Captain inquired, by all appearances unperturbed.

“Epsilon Eridani, as you apparently call it, and by your reckoning of time, I have traveled for sixty thousand years,”

she replied, before again raising her cry. “The Devourer approaches! The Devourer approaches!”

The Captain continued his inquiry. “Are you alive?”

“Of course not; I am merely a message,” came the response. But it was only a short reprieve. “The Devourer approaches! The Devourer approaches!”

“How is it that you can speak English?” the Captain continued.

The girl again replied without hesitation. “I learned in transit,” she said, only to carry on: “The Devourer approaches! The Devourer approaches!”

“And that you look as you do…?” the Captain let his question trail off.

“I saw it in transit,” she said, before continuing to shout with ever greater urgency. “The Devourer approaches! The Devourer approaches! Oh, surely the Devourer must terrify you.”

“What is the Devourer?” the Captain finally asked.

“In appearance it matches a gigantic tire. Hm, yes, that would be an analogy that works for you,” the Girl from Eridanus began her explanation.

“You are very well-acquainted with how things work on our world,” the Captain interrupted, raising an eyebrow behind his visor.

“I became acquainted in transit,” the girl replied, before again crying out: “The Devourer approaches!” With that last cry she flashed to one end of the crystal. Where she had been a second ago, an image of the “tire” appeared, and it indeed closely resembled a tire, even though its surface glowed with phosphorescent light.

“How large is it?” one of the other officers queried.

“Thirty-one thousand miles in total diameter. The 'tire's' body is six thousand miles wide and the hole in the middle has a diameter of nineteen thousand miles.”

There was a long pause before someone asked the question now on everyone's mind. “Are the miles you are

talking about *our* miles?”

The girl immediately and calmly answered. “Of course. It is so large that it can encircle an entire planet, just like one of your tires might fit around a soccer ball. Once it has encased a world, it begins plundering the planet's natural resources, only to spit out the remains like a cherry pit once it is done!”

There was another pause before the officer spoke again, his voice quivering with trepidation. “But we still do not understand what the Devourer really is.”

The girl in the crystal offered more information without hesitation. “It is a generation ship, although we do not know where it came from or where it is going. In fact, even the giant lizards that pilot the Devourer surely do not to know. Having wandered the Milky Way for tens of millions of years, they will have certainly forgotten both their origin and their original purpose. But this much is certain: In the far past, when the Devourer was built, it was much smaller. It eats planets to grow, and it devoured our world!”

As she finished, the image of the Devourer in the crystal grew, gradually coming to dominate its entire surface. It soon became apparent that it was slowly descending upon the unseen camera operator's world. Seen through the eyes of the planet's inhabitants, their world had become nothing more than the bottom of a slowly spinning, cosmic well. Complex structures were clearly visible, covering the walls of this titanic well. At first, they reminded the Captain of infinitely magnified microprocessor circuitry. Then, he realized that they were an endless string of cities, stretching the entire inner ring of the Devourer. Looking up, the image in the crystal revealed a circle of blue radiance emanating from the well's mouth. In the sky above it formed a gigantic halo of fire, encircling the stars.

The Girl from Eridanus told them that they were seeing the jets of the Devourer's aft ring engine. As she spoke, her entire body erupted into a flowing flourish, and even her

cascading hair began to wave like countless twisting arms, with every last part of her expressing boundless terror.

“What you are seeing is the devouring of the third planet of Epsilon Eridani,” she told them. “The first thing you would have noticed, had you been on our world then, was your body becoming lighter. You see, the Devourer's gravitational pull was powerful enough to counteract our planet's gravity. The destruction this wrought was devastating: First our oceans surged to meet the Devourer as it passed over our planet's pole. Then, as it moved to fully encircle our world, they followed it to the equator. As the oceans swept the globe, their waves raised high enough to engulf the clouds.

The incredible gravitational forces tore at our continents, ripping them apart as if they were nothing but tissue-paper. Our sea floor and dry land were pockmarked by countless volcanic eruptions.” The girl paused in her narrative, only to pick it up with a flutter of her big eyes. “Now that it had encircled our equator, the Devourer stopped, perfectly matching our planet in its orbit around our Sun. Our world was right in its maw.

“When the plunder of a world commences, countless cables thousands of miles long are lowered from the Devourer's inside wall to the planet's surface below. An entire world is trapped, like a fly in the web of a cosmic spider. Giant transport modules are then sent back and forth between planet and Devourer, taking with them the planet's oceans and atmosphere. As they shuttle to and fro, other titanic machines begin to drill deep into the planet's crust, frenziedly extracting minerals to satisfy the Devourer's hunger.” The girl again paused, her eyes staring intensely into the distance. She continued as abruptly as she had stopped. “Devourer and planet cancel out each other's gravity, creating a low-gravity zone between this tire-like entity and the planet. This zone makes it that much easier to bring the planet's resources to the Devourer. The epic plunder is extremely efficient.

Expressed in Earth time, the Devourer only needs to *chew* on a world for a century or so. After it is done, all of the planet's water and atmosphere will have been picked to nothing. As the Devourer ravages, its gravity will also come to deform the planet, slowly stretching it along its equator. In the end, it will become…" the girl paused a third time, this time struggling for words rather than effect, "how would you call it? Yes, discus-shaped. The Devourer, having sucked the planet completely dry, will move on, spitting out the planet. When it leaves, the planet will return to its round shape. As it reforms, the entire world will suffer an ultimate global catastrophe; its surface coming to resemble the molten sea of magma that heralded its birth many billion years ago. Much like then, no trace of life will remain in this inferno."

"How far is the Devourer from our solar system?" the Captain immediately asked as she finished.

"It is just behind me!" she warned urgently. "In your reckoning, it will arrive in a mere century! Alert! The Devourer approaches! The Devourer approaches!"

# CHAPTER 2

# Emissary Fangs

Just as the debate over the crystal's credibility began to rage in earnest, the first small Devourer ship entered the solar system. It was heading straight toward Earth.

The first contact was again initiated by the space patrol led by the Captain. The mood of this contact could not have been more different than the last and mood was by far not the only contrast. The exquisitely-wrought structure of the Eridanus Crystal bore all the hallmarks of the ethereal technology of a delicate civilization. The Devourer's ship represented the polar opposite. Its exterior appeared exceedingly crude and ungainly, somewhat like a frying pan that had spent the better part of a century forgotten in the wilderness. It immediately reminded onlookers of a giant steampunk machine.

The envoy of the Devourer Empire was his vehicle's equal, a massive, ungraceful lizard covered in huge slabs of scale. Erect, he stood nearly 30 feet tall. He introduced himself as “Faingsh,” but his appearance and later behavior quickly led to him being called “Fangs” instead.

When Fangs landed before the United Nation's Building, his craft's engines blasted a large crater, the splattering concrete leaving the surrounding buildings scarred and battered. As the alien emissary's massive size made entry into the Assembly Hall impossible, the world's heads of state had gathered on the United Nations Plaza in front of the UN

Building to meet him. Some among them now covered their faces with bloody handkerchiefs, staunching foreheads gashed open by flying glass and concrete.

The ground shook with every step Fangs took toward them and when the alien spoke, his voice roared. It was a sound like the screaming horns of a dozen train engines and it left the hair standing on end of all who heard it. Fangs spoke through an unwieldy translator hanging around his neck. The device repeated his words back in English; he, too, had learned the language in transit. The rough male voice his translator produced, despite being much less in volume than Fangs' real voice, nonetheless made his listeners' flesh creep.

“Ha! Ha! You white and tender worms, you fascinating little worms,” Fangs jovially began.

All around people covered their ears until the thunderous roar had ended and only removed their hands slightly to hear the translation.

“You and I will live together for a century and I believe that we shall come to like each other,” Fangs continued.

“Your honor, you must know that we are very concerned as to the purpose of your great mother ship's arrival in our solar system!” the Secretary General stated, raising his head to address Fangs. Even though he was shouting at the top of his lungs, he still managed to sound no louder than a mosquito's buzz.

Fangs adopted a human-like posture, raising himself on his hind legs. As he shifted his weight, the Earth trembled. “The great Devourer Empire will consume the Earth so that it may continue its epic journey!” he proclaimed. “This is inevitable!”

“What, then, of humanity?” the Secretary General asked, his voice quivering ever so slightly.

“That is something I will assuredly determine this very day,” Fangs replied.

In the pause that followed, the heads of state exchanged meaningful glances. The Secretary General finally nodded and said, “This definitely requires that we enter into private consultations with one another.”

Fangs shook his massive head, interrupting before they could speak further. “It is a very simple matter; I must merely have a taste ...”

And with that, his giant claw reached into the gathered crowd and snatched up a European head of state. He gracefully tossed the man, a throw of 20-odd feet, straight into his mouth. Then he carefully began to chew. From the first crunch to last, his victim remained completely mute; it was impossible to tell whether it was dignity or terror that stayed his screams.

In the terrible moments that followed, the only sound was that of the man's skeleton snapping and cracking between Fangs' giant, dagger-like teeth. After about half a minute, Fangs spat out the man's suit and shoes, much as a human might spit out watermelon seeds. Even though the clothes were covered in oozing blood, they remained horrifyingly intact.

All the world seemed to have fallen completely silent, a deathly quiet seeming to be without beginning or end; without end, that is, until a human voice broke it.

“How, sir, could you just pick him up and eat him?” the Captain asked as he stood amongst the crowd.

Fangs walked toward him with colossal, thundering steps. The crowd scattered in his wake. He stood before the Captain and lowered his gaze of pitch black, basketball-sized eyes until he was staring right at him. He asked, “I shouldn't have?”

“Sir, how could you have known that you can eat him?” the Captain asked flatly. “From a biochemical perspective it is almost impossible that a being from such a distant world should be edible.”

Fangs nodded, his large maw almost seeming to grin. “I have had my eye on you. You watched me with cool detachment, lost in thought. What is it that you were contemplating?”

The Captain returned his smile and replied, “Sir, you breathe our air and speak using sound waves. You have two eyes, a nose, and a mouth. You have four limbs arranged along a bilateral symmetry…” He let his thought drift off into silence.

“And you don't understand it?” Fangs asked, snaking his giant head right in front of the Captain's face. With a hiss, he exhaled a nauseating breath, reeking of blood and gore.

“That is correct. I do understand the principle of the matter well enough to find it incomprehensible that we should be so similar,” the Captain answered, showing no signs of revulsion or fear.

“There is something I do not understand. Why are you so calm? Are you a soldier?” Fangs asked in response.

“I am warrior in defense of Earth,” the Captain answered.

“Hm, but does pushing around small stones really make you a warrior?” Fangs countered with more than a hint of mockery.

“I am ready for greater tests,” the Captain solemnly stated, raising his head.

“You fascinating little worm.” Fangs laughed, nodding. Raising his body to its full height, he turned back to the heads of state. “But let us return to the real topic at hand: Humanity's fate. You are tasty. There is a smooth and mild quality about you that reminds me of certain blue berries we found on a planet in Eridanus. I therefore congratulate you. Your species will continue. We will raise you as livestock in the Devourer Empire. We will allow you to live a good sixty years before we bring you to market.”

“Sir, do you not think that our meat will be too gamey at that age?” the Captain asked with a cold chuckle.

Fangs roared with laughter, his voice like an erupting volcano. “Ha, ha, ha, ha! The Devourers like chewy snacks!”

# CHAPTER 3

# Ants

The United Nations engaged Fangs in several further meetings. Even though no one else was eaten, the verdict on humanity's fate remained unchanged.

A meeting was scheduled to take place in a meticulously prepared archaeological excavation site in Africa.

Fangs' ship landed right on schedule and about 50 feet away from the dig site. The deafening explosion and storm of debris that accompanied the craft's arrival had by this point become all too familiar.

The Girl from Eridanus had advised them that the vessel's engine was powered by a miniature fusion reactor. The concept, like most of the information she had provided on the Devourers, was easy enough for the human scientists to understand; the things she told them about the technology of Eridanians, on the other hand, never failed to baffle the people of Earth. Her crystal, for example, began to melt in Earth's atmosphere. In the end, the entire section containing its propulsion system dissolved, leaving nothing but a thin slice of crystal gracefully floating through the air.

As Fangs arrived at the excavation site, two UN staffers presented him with a large album, a full square yard in size. It had been meticulously designed to accommodate the Devourer's huge stature. The album's hundreds of beautifully wrought pages revealed all aspects of human

culture in brilliantly colored detail. In some ways it resembled an opulent primer for children.

Inside the large pit of the excavation site itself, an archaeologist vividly described the glorious history of Earth's civilizations. He threw all his passion into his desperate attempt to make this alien understand; understand that there was so much on this blue planet so worth cherishing. As he spoke, his fervor moved him to tears. It was a pitiable spectacle.

Finally, he pointed to the excavation and intoned: “Honorable emissary, what you see here are the newly discovered remains of a town. This fifty-thousand-year-old site is the oldest human settlement discovered to date. Could the hearts of your people truly be hard enough to destroy this magnificent civilization of ours? A civilization that has developed, step by slow step, over fifty thousand years?”

While all this was going on, Fangs began leafing through the album with obvious, playful amusement. As the archaeologist finished, Fangs raised his head and glanced at the excavation pit. “Hey, archaeologist worm, I care neither for your hole nor your old city in the hole. I would, however, very much want to see the earth you removed from the pit,” he said, pointing at a large pile of dirt.

The archaeologist went from baffled to completely stunned as the artificial voice of the translator finished relaying Fangs' request. “Earth?” he asked, fumbling for words. “But there's nothing in that pile of dirt.”

“That is your opinion,” Fangs said, approaching the mound of earth. Bending his gigantic body ground-ward, he reached into the pile with two of his huge claws and began digging. A circle of onlookers quickly formed, many gasping at the deceptive deftness of Fangs' seemingly unwieldy claws. Prodding the soft earth, he repeatedly retrieved tiny specks from the soil, only to place them on the album. Fangs seemed completely engrossed in this strange labor for a

good 10 minutes. Having finished whatever he had been up to, he carefully lifted the album with both claws and straightened his body. Walking toward the gathered humans, he gave them a chance to see what it was that he had placed on the album.

Only by looking very carefully could those gathered make out that it was hundreds of ants. They were gathered in a tight bunch, some alive, others curled up in death.

“I want to tell you a story,” Fangs said as the humans studied the ants. “It is the story of a kingdom. This kingdom was descended from a great empire and it could trace its ancestry all the way back to ends of Earth's Cretaceous period, where its founders built a magnificent city in the shadow of the towering bones of a dinosaur.” Fangs paused, deep in thought, before continuing. “But that is long-lost, ancient history and when winter suddenly fell, only the last in a long line of queens remembered those glory days. It was a very long winter indeed, and the land was covered by glaciers. Tens of millions of years of vigorous life were lost as existence became ever more precarious.

“After waking from her last hibernation, the queen could not rouse even one out of every hundred of her subjects. The others had been entombed by the cold, some being frozen to nothing but transparent, empty shells. Feeling the walls of her city, the queen realized that they were as cold as ice and hard as steel. She understood that the Earth remained frozen. In this age of terrible cold, even summer brought no thaw. The queen decided it was time to leave the homeland of her ancestors and to seek out unfrozen earth to establish a new kingdom.

“And so the queen led her surviving subjects to the surface to begin their long and arduous journey in the shadow of looming glaciers,” Fang said. “Most of her remaining subjects perished during their protracted wanderings, consumed by the deadly cold. But the queen and a few straggling survivors finally found a patch of earth

that remained untouched by frost. Overflowing geothermal energy warmed this sliver of land. The queen, of course, knew nothing of this. She did not understand why there should be moist and soft soil in this frozen world, but she was in no way surprised that she had found it: A race that persevered through sixty million long years could never suffer extinction!

In the face of a glacier-covered Earth and a dim Sun, the queen proclaimed that it was here that they would found a new great kingdom, a kingdom that would endure for all eternity. Standing under the summit of a tall, white mountain, she declared that this new kingdom would be known as 'Realm of the White Mountain',” he said grandly.

“In fact, the eponymous summit was the skull of a mammoth,” he continued. “It was the zenith of the Late Pleistocene of the Quaternary Glaciation. In those days the human worms were still dumb animals, shivering in their scattered holes. It would still be ninety thousand years before the first candle light of your civilization would appear a continent away on the plains of Mesopotamia.

Living off the frozen remains of mammoths in the vicinity the Realm of the White Mountain, they survived ten thousand hard years. Then, as the ice age ended, spring returned to Earth and the land was again draped in green. In this great explosion of life, the Realm of the White Mountain quickly entered a golden age of prosperity. Its subjects were beyond number and ruled a vast domain. In the next ten thousand years the kingdom was ruled by countless dynasties, and countless epics told its stories.”

As he continued, Fangs pointed at the large pile of earth in front of them. “That is the final resting place of the Realm of the White Mountain. As you archaeologist worms were preoccupied by your excavations of a lost and dead fifty-thousand-year-old city, you completely failed to realize that the soil above those ruins was teeming with a city that was very much alive. In scale it was easily comparable to New

York, and the latter is a city on merely two-dimensions. The city here was a grand three-dimensional metropolis with many layers. Every layer was densely packed with labyrinthine streets, spacious forums, and magnificent palaces. The design of the city's drainage and fire prevention systems handily outshone those of New York.

“The city was home to a complex social structure and a strict division of labor,” he told his captive audience. “Its entire society ran with machine-like precision and harmonious efficiency. The vices of drug use and crime did not exist here and hence there was neither depravity nor confusion. But its inhabitants were by no means devoid of emotion, showing their abiding sorrow whenever a subject of the Realm passed away. They even had a cemetery on the surface at the edge of the city and there they would bury their dead an inch under the ground.

“However, the greatest acclaim must be reserved for the grand library nestled in the lowest layer of this city. In this library one could find a multitude of ovoid containers. Each container was a book filled with pheromones. The exceedingly complex chemistry of these pheromones stored the city's knowledge. Here the epics detailing the enduring history of the Realm of the White Mountain were recorded. Here you could have learned that in a great forest fire all the subjects of the kingdom embraced each other to form countless balls, and that with heroic effort they were able to escape a sea of fire by floating down a stream. You could have learned the history of the hundred-year war against the White Termite Empire; or of the first time that an expedition from the kingdom saw the great ocean…” Fangs let his translator's voice trail off.

Then his booming voice again rang out. “But it was all destroyed in three short hours. Destroyed when, with an Earth-shattering roar, the excavators came, blackening the sky. Then their giant steel claws came cutting down. They grabbed the soil of the city, utterly destroying it and

crushing all within. They even destroyed the lowest layer where all the city's children and the tens of thousands of snow-white eggs, yet to become children, rested."

All of the world again seemed to have fallen deathly quiet. This silence outlasted the quiet that had followed Fangs' horrible feast. Standing before the alien emissary, humanity was, for the first time, at a loss of words.

Finally Fangs said, "We still have a very long time to get along and very many things to talk about, but let us not speak of morals. In the universe, such considerations are meaningless."

# CHAPTER 4

# Acceleration

**F**angs left the people at the dig site in a state of deep shock and despair. The Captain again was the first to break the silence. He turned to the surrounding dignitaries of all nations and said, “I know that I am but a nobody and the only reason that I am fortunate enough to attend these occasions is because I was the first to come into contact with two alien intelligences. Nonetheless, I want to say two things: First, Fangs is right; second, humanity's only way out is to fight.”

“Fight? Oh, captain, fight ...” the Secretary-General shook his head, bearing a bitter simile.

“Right! Fight! Fight! Fight!” the Girl from Eridanus shouted from her crystal pane as she flitted several feet above the heads of those assembled. In her Sun-drenched crystal the long-haired girl's entire body erupted into a flowing flourish.

“You people from Eridanus fought them. How did that end?” someone called out. “Humanity must think of its survival as a species, not of satisfying your twisted desire for vengeance.”

“No, sir,” the Captain said, turning to face the assembled crowd. “The Eridanians engaged an enemy they knew nothing about in their war of self-defense. Furthermore, they were a society that had historically not known war. Given the circumstances, it is hardly surprising that they were

defeated. Nonetheless, in a century of bitter warfare, they meticulously acquired a deep understanding of the Devourer. We now have been handed that vast reservoir of knowledge by this spaceship. It will be our advantage.

“Judicious preliminary studies of the material have shown that the Devourer is by no means as terrible as we had first feared,” he told them. “Foremost, beyond the fact that it is inconceivably large, there is little about the Devourer that exceeds our understanding. Its life-forms, the ten billion-plus Devourers themselves, are carbon-based life forms, just like us. They even resemble us on a molecular level, and because we share a biological basis with the enemy, nothing about them will remain beyond our grasp. We should count our blessings; just consider that we could just as well have been faced with invaders made of energy fields and the stuff of neutron stars.

“But there is even more cause for hope,” he said. “The Devourer possesses very little, shall we say, 'super-technology'. The Devourer's technology is certainly very advanced when compared to humanity's, but that is primarily a question of scale, not of theoretical basis. The main energy source of Devourer's propulsion system is nuclear fusion. In fact, the primary use for water plundered from planets – beyond providing basic life-support – is fuel for this system. The Devourer's propulsion technology is based on the principle of recoil and the conservation of momentum; it is not some sort of strange, space-time bending MacGuffin.” The Captain, paused looking at the faces before him. “All of this may dismay our scientists; after all, the Devourer, with its tens of millions of years of continuous development, clearly shows us the limits of science and technology; but it also clearly shows us that our enemy is no invincible god.”

The Secretary-General mulled over the Captain's words, then asked, “But is that enough to ensure humanity's victory?”

“Of course we have more specific information. Information that should allow us to formulate a strategy that will give a good shot at victory. For example –”

“Acceleration! Acceleration!” the Girl from Eridanus shouted over their heads, interrupting the Captain.

The Captain explained her outburst to the baffled faces around him. “We have learned from the Eridanian data that the Devourer's ability to accelerate is limited. The Eridanians observed it for two long centuries and they never once saw it exceed this specific limit. To confirm this, we used the data we received from the Eridanian spaceship to establish a mathematical model that accounts for the Devourer's architecture and material strength of its structural components. Calculations using this model verify the Eridanian's observations. There is a firm limit to the speed at which the Devourer can accelerate and this limit is determined by its structural integrity. Should it ever exceed it, the colossus will be torn to pieces.”

“So what?” the head of a great nation asked, under-whelmed.

“We should remain level-headed and carefully consider it,” the Captain answered with a laugh.

# CHAPTER 5

# The Lunar Refuge

**F**inally, humanity's negotiations with the alien emissary showed some small signs of progress. Fangs yielded to the demand for a lunar refuge.

“Humans are homesick creatures,” the Secretary-General had said in one of their meetings, tears in his eyes.

“So are the Devourers, even though we no longer have a home,” Fangs had sympathetically answered, nodding his head.

“So, will you allow a few of us to stay behind? If you permit, they will wait for the great Devourer Empire to spit out the Earth after it has finished consuming the planet. After waiting for the planet's transformed geology to settle, they will return to rebuild our civilization.”

Fangs shook his gargantuan head. “When the Devourer Empire consumes, it consumes completely. When we are done, the Earth will be a Mars-like desolation. Your worm-technology will not be enough to rebuild a civilization.”

The Secretary-General would not be dissuaded. “But we must try. It will assuage our souls, and it will be especially important for those of us in the Devourer Empire being raised as livestock. It will surely fatten them if they can think back on their distant home in this solar system, even if that home no longer necessarily exists.”

Fangs now nodded. “But where will those people go while the Earth is being devoured? Besides Earth, we also will

consume Venus. Jupiter and Neptune are too large for us to consume, but we will devour their satellites. The Devourer Empire is in need of their hydrocarbons and water. We will also take a bite out of the barren worlds of Mars and Mercury, as we are interested in their carbon dioxide and metals. The surfaces of all these worlds will become seas of fire."

The Secretary-General had an answer ready. "We can take refuge on the Moon. We understand that the Devourer Empire in any case plans to push the Moon out of orbit before consuming the Earth."

Fangs nodded. "That is right. Combined, the gravitational forces of Devourer and Earth will be very powerful. They could crash the Moon into our ring ship. Such a collision would be enough to destroy our empire."

The Secretary-General smiled ever so-slightly as he replied. "All right then; let a few of us live up there then. It will be no great loss to you."

"How many do you plan to leave behind?" Fangs queried.

"The minimum to preserve our civilization, one-hundred thousand," the Secretary-General answered flatly.

"Well then, you should get to work," Fangs concluded.

"Get to work? What work?" the Secretary-General asked, perplexed.

"Pushing the Moon out of its orbit. For us, that is always a great inconvenience," Fangs answered dismissively.

"But," said the Secretary-General as he grasped his hair in despair as he meekly voiced his protest. "Sir, that would be no different than denying humanity our meager and pitiable request. Sir, you know that we do not possess such technological prowess!"

"Ha, worm, why should I care? And besides, don't you still have an entire century?" Fangs concluded with a chuckle.

# CHAPTER 6

## Planting the Bombs

On the gleaming white plains of the Moon, a spacesuit-clad contingent stood next to a tall drilling tower. The emissary of the Devourer Empire stood somewhat apart, his giant frame another towering silhouette against the horizon. All eyes were firmly focused on a metal cylinder being slowly lowered from the top of the drilling tower down into the drill well below. Soon the cable was speeding into the well. On Earth 240,000 miles away, an entire world was glued to the unfolding events. Then came the signal; the payload had reached the bottom of the well. All observers, including Fangs, broke into applause as they celebrated the arrival of this historic moment.

The last nuclear bomb that would propel the Moon had been put in place. A century had passed since the Eridanus Crystal and the emissary of the Devourer Empire had arrived on Earth. For humanity it had been a century of despair; a hundred years of bitter struggle.

In the first half of the century, the entire Earth had zealously thrown itself at the task of constructing an engine that could propel the Moon. The technology needed to build such an engine, however, utterly failed to materialize. All that was accomplished was that the Moon's surface had gained a few scrap metal mountains, the remains of failed prototypes. Then there were also the lakes of metal, formed

where experimental engines had melted under the heat of nuclear fusion.

Humanity had asked the emissary of the Devourer Empire for technological assistance; after all, the lunar engines would not even have to be a tenth of the scale of the countless super engines of the Devourer.

Fangs, however, refused, and instead quipped, “Don't assume that you can build a planetary engine just because you understand nuclear fusion. It's a long way from a firecracker to a rocket. Truth be told, there is no reason at all for you to work so hard at it. In the Milky Way, it is perfectly commonplace for a weaker civilization to become the livestock of a stronger civilization. You will discover that being raised for food is a splendid life indeed. You will have no want and live happily to the end. Some civilizations have sought to become livestock, only to be turned down. That you should feel uncomfortable with the idea is entirely the fault of a most banal anthropocentrism.”

So humanity placed all their hope in the Eridanus Crystal, but again they were disappointed. The technology of the Eridanian civilization had developed along completely different lines from Earth's or that of the Devourer. Their technology was wholly based on their planet's organisms. The crystal, for example, was a symbiont to a kind of plankton that floated in their world's oceans. The Eridanians merely synthesized and utilized the unusual abilities of their planet's life forms without ever truly understanding their secrets. And so, without Eridanian life forms, their technology remained completely unworkable.

After more than 50 valuable years were wasted, the despairing humanity suddenly produced an exceedingly eccentric scheme to propel the Moon. It was the Captain who first came up with this plan. At the time he had a leading role in the Moon propulsion program and had advanced to the rank of marshal. Even though his plan was unapologetically crazy, its technological demands were

modest and humanity's available technology was fully capable of making it work; so much so, in fact, that many were surprised why no one had come up with it earlier.

The new plan to propel the Moon was very simple. A large array of nuclear bombs would be installed on one side of the Moon. These bombs would for the most part be buried about two miles under the lunar surface. Their spacing would ensure that no bomb was destroyed by the blast of another. According to this plan, five million nuclear bombs were to be installed on the Moon's 'propulsion side'. Compared to these bombs, humanity's most powerful Cold War-era nuclear bombs were mere conventional weapons.

When the time came to detonate these super powerful nuclear bombs under the lunar surface, the force of their explosions would be wholly incomparable to the nuclear tests of earlier ages, suffocated deep underground. These denotations would blow-off a complete stratum of lunar matter. In the Moon's low gravity, the exploded strata's rocks and dust would reach escape velocity. As they were launched straight into space, they would exert an enormous propulsive force on the Moon itself.

If a certain number of bombs were detonated in rapid succession, this impulse could become a continuous propelling force, just as if the Moon had been fitted with a powerful engine. By detonating nuclear bombs in different places it would be possible to control the Moon's flight path.

The plan would even go one step further, calling for not one, but two layers of nuclear bombs within the lunar surface. The second layer would be installed at a depth of about four miles. After the top layer had been completely used up, two miles of lunar matter would be stripped from the propulsion side of the Moon. The unceasing denotations would then smoothly transition to the second layer. This would double the duration for which the “engine” could propel the Moon.

When the Girl from Eridanus heard of this plan, she came to the conclusion that humanity was truly insane. “Now I understand. If you had technology to match the Devourers, you might be even more savage than they are,” she exclaimed.

Fangs, on the other hand, was full of praise. “Ha, ha! What a wonderful idea you worms managed to dream up. I love it. I love your vulgarity. Vulgarity is the highest form of beauty!” he commended humanity.

“Absurd; how can vulgarity be beautiful?” the Girl from Eridanus retorted.

“The vulgar is naturally beautiful and nothing is more vulgar than the universe! Stars burn manically in the pitch-black cold abyss of space; is that not vulgar? Do you understand that the universe is masculine? Feminine civilizations, like yours, are fragile, fine and delicate; a sickly abnormality in a tiny corner of the universe. And that is that!” Fangs replied.

A hundred years had passed and Fangs' huge frame still brimmed with vitality. The Girl from Eridanus was still vivid and bright, but the Marshal felt the weight of years. He was 130, an old man.

At the time, the Devourer had just passed the orbit of Pluto. It was awakening after its long journey of 60,000 years from Epsilon Eridani. In the dark of space its huge ring lit up with brilliant lights and its immense society began its works, preparing to plunder the solar system.

After the Devourer had plundered the peripheral planets, it flung itself onto a precipitous trajectory toward Earth.

# CHAPTER 7

## Humanity’s First and Last Space War

The acceleration of the Moon away from Earth had begun.

The Moon was hanging in the sky of Earth's day side when the first bombs were detonated. The flash of every explosion briefly lit up the Moon in the blue sky, giving it the appearance of a giant silver eye frantically blinking in the heavens. When night fell on Earth, the one-sided flashes of the Moon still shone the light of human handiwork to the surface 25,000 miles below. A pale silver trail following the Moon's back side was now visible. It was composed of the rocks blasted into space from the Moon's surface. Cameras installed on the propulsion side of the Moon showed strata of rock being blasted into space like billowing floodwaters. The waves of rock quickly faded smaller in the distance, becoming thin strands trailing the Moon. Turning toward the Earth's other side, the Moon circumscribed an accelerating orbit.

Humanity's attention, however, was now squarely focused on the great and terrible ring that had appeared in the sky: The Devourer's approach loomed over the Earth. The enormous tides its gravity evoked had already destroyed Earth's coastal cities.

The Devourer's aft engines flashed in a circle of blue light as it engaged in final orbital adjustments as it approached. It eventually perfectly matched the Earth's orbit around the

Sun, while at the same time aligned its axis of rotation with Earth's. Having completed these adjustments, it ever so slowly began to move toward the Earth, ready to surround the planet with its huge ring body.

The Moon's acceleration continued for two months. In this time a bomb had exploded within its surface every two or three seconds, resulting in an almost incomprehensible total of 2.5 million nuclear explosions. As it entered into its second orbit around the Earth, the Moon's acceleration had forced its once circular orbit into a distinctly elliptical shape. As the Moon moved to the far end of this ellipse, Fangs and the Marshal arrived on its forward-facing side, away from the exploding bombs. The Marshal had expressly invited the alien emissary for this occasion.

As they stood on the lunar plain surrounded by craters, they felt the tremors from the other side shake deep beneath their feet. It almost seemed as if they could sense the powerful heartbeat of Earth's satellite. In the pitch-black sky beyond, the Devourer's giant ring dazzled with its brilliant light, its huge shape consuming half the sky.

“Excellent, Marshal-worm, most excellent indeed!” Fangs applauded, his voice full of sincere praise. “But,” he continued, “you should hurry. You only have one more orbit to accelerate. The Devourer Empire is not accustomed to waiting for others. And I have another question: The cities you built below the surface a decade ago are still empty. When will their inhabitants arrive? How can your spaceships transport one-hundred thousand here from Earth in only one month?”

“We will bring no one here,” the marshal calmly replied. “We will be the last humans to stand on the Moon.”

Hearing this, Fangs twisted his body in surprise. The Marshal had said 'We', meaning the 5,000 officers and soldiers of Earth's space force. They formed a perfect phalanx on the crater-covered lunar plain. At the front of the phalanx a soldier brandished a blue flag.

“Look, this is our planet's banner. We declare war upon the Devourer Empire!” the Marshal announced defiantly.

Fangs stood dumbfounded, more confused than surprised. Immediately his body began to reel as he was thrown onto his back as the Moon's gravity suddenly surged. Fangs was knocked prone to lunar ground, stunned beyond any thought of movement. All around him lunar dust kicked up by his massive fall slowly began to drift to the ground.

But the dust was quickly thrown up again, stirred by massive shock waves reverberating from the other side of the Moon. These shocks soon left the entire plain covered in a layer of white dust.

Fangs realized the frequency of nuclear explosions on the other side of the Moon had abruptly increased several times over. Judging by the sharp increase of gravity, he could infer that the Moon's acceleration must have increased several times as well. Rolling over, he retrieved a large hand-held computer from a pocket in the front of his spacesuit. On it he brought up the Moon's current orbital trajectory. Immediately he realized that this tremendous increase of acceleration would take the Moon out of orbit. The Moon would break free of Earth's gravity and shoot off into space. A flashing red line of dots showed its predicted course.

It was on collision course with the Devourer.

Discarding his computer without a second thought, Fangs slowly raised himself to his feet. Straining his neck against the explosive increase in gravity, he peered through the billowing clouds of lunar dust. Standing in front of him was Earth's army, still upright, stalwart like standing stones.

“A century of conspiracy and deceit,” Fangs mumbled under his breath.

The Marshal just nodded in agreement. “You now realize that it is too late,” he pointed out gravely.

Fangs spoke after a long sigh. “I should have realized that the humans of Earth were a completely different breed from the Eridanians. Life on their world had evolved

symbiotically, free of natural selection and of the struggle for survival. They did not even know what war was.” He halted, digesting what had happened. “We let that guide our assessment of Earth's people. But you, you have ceaselessly butchered one another from the day that you climbed down from the trees. How should you be easily conquered? I ...,” Again he paused. “It was an unforgivable dereliction of duty!”

When the Marshal spoke, his steady, level tone explained further what Fangs was realizing. “The Eridanians brought us vast quantities of vital information. The information included the limits of the Devourer's ability to accelerate. It is this information that formed the basis of our battle plan. As we detonate the bombs that change the Moon's trajectory, its maneuvering acceleration will come to exceed the Devourer's acceleration limit three-fold. In other words,” he said, “it will be thrice as agile as the Devourer. There is no way that you can avoid the coming collision.”

“Actually, we were not completely off-guard,” Fangs said. “When the Earth began producing large quantities of nuclear bombs we began to constantly monitor their whereabouts. We made sure that they were installed deep within the Moon, but we did not think ...” Fangs continued, but it was musing to himself than replying.

Behind his visor the Marshal smiled faintly. “We aren't so stupid as to directly attack the Devourer with nuclear bombs,” he said. “We know that the Devourer Empire has been steeled by hundreds of battles. Earth's simple and crude missiles would certainly have one and all been intercepted and destroyed. But you cannot intercept something as large as the Moon. Perhaps the Devourer, with its immense power, could have eventually broken or diverted the Moon, but it is far too close for that now. You are out of time.”

Fangs snarled. “Crafty worms. Treacherous worms, vicious worms.” He shook his head, bristling. “The Devourer

Empire is an honest civilization. We put all things out in the open, yet we have been cheated by the deceitful treachery of the Earth-worms.” He gnashed his huge teeth as he finished speaking, his fury almost goading him to lock his giant claws around the Marshal. The soldiers and their rifles aiming right at him, however, stayed his talons. Fangs had not forgotten that his body, too, was but flesh and blood. One burst of bullets would end him.

With his eyes firmly fixed on Fangs, the Marshal stated, “We will leave and you, too, should make your way off the Moon, otherwise you will surely be killed by the Devourer Empire's nuclear weapons.”

The Marshal was very right. Just as Fangs and the human space forces left the Moon's surface, the interceptor missiles of the Devourer struck. Both sides of the Moon now flashed with brilliant light. The forward facing side of the Moon, too, exploded as huge waves of rocks were blasted into space. All around the Moon, lunar matter was violently scattered in all imaginable directions. Seen from the Earth, the Moon, on its collision course with the Devourer, looked like a warrior, wild hair ablaze with rage. There was no force that could have stopped it now! Wherever on Earth this spectacle was visible, seas of people erupted into feverish cheers.

The Devourer's interception action did not continue for long and soon ceased. It realized that it had been completely meaningless. In the moments in which the Moon would close the short distance between them, there was no way to divert its course or to destroy it.

The explosions of the Moon's nuclear propulsion had also ceased. It was now fast enough and Earth's defenders wanted to preserve enough nuclear bombs to carry out any last minute maneuvers. All was silent.

In the cold quiet of space, the Devourer and Earth's satellite floated toward each other in complete tranquility. The distance between the two rapidly decreased. As it dwindled to 30,000 miles, the control ship of Earth's

Supreme Command could already see the Moon overlapping the giant ring of the Devourer. From there it looked like a ball bearing in a track.

Up to this point the Devourer had not made any changes to its trajectory. It was easy to understand why: The Moon could have easily matched any premature orbital maneuver. Any meaningful evasive action would have to be taken in the final moments before the Moon's impact. The two cosmic giants were almost like ancient knights in a joust. They were charging toward one another, galloping across the distance separating them, but the victor would only be decided in the blink-of-an-eye before they made contact.

Two great civilizations of the Milky Way held their breath in rapt anticipation, awaiting that final moment.

At 22,000 miles, both sides began their maneuvers. The Devourer's engines were first to flare, shooting blue flames more than 5,000 miles out into space. It began its evasion. On the Moon, nuclear bombs were once again ignited, ferociously detonating with unprecedented intensity and frequency. It carried out its adjustments, matching its course to ensure a collision. Its arcing tail of debris clearly described its change of direction. The blue light of the Devourer's 5,000 mile flames merged with the silver flashes of the Moon's nuclear blasts; it was the most magnificent vista ever to grace the solar system.

Both sides maneuvered like this for three hours. The distance between them had already shrunk to 3,000 miles when the computer displays showed what no one in the control ship dared believe: The Devourer was changing course with an acceleration speed four times greater than the limit the Eridanians had claimed possible!

All this time they had unreservedly believed in this limit. They had made it the foundation of Earth's victory. Now, the nuclear bombs remaining on the Moon no longer had the capacity to make the necessary adjustments to give chase. Calculations showed that in three short hours, even if they

did all they could, the Moon would brush pass the Devourer, falling short by 250 miles.

One last burst of dizzying flashes washed over the control ship, exhausting all of the Earth's nuclear bombs. At almost exactly the same moment, the Devourer's engines fell silent. In a deathly quiet the laws of inertia told the final verses of this magnificent epic: The Moon scraped past the Devourer's side, barely missing. Its velocity was so high that the Devourer's gravity could not catch it, only twisting its trajectory as it zoomed past. After the Moon had passed the Devourer, it silently sped away from the Sun.

On the control ship the Supreme Command, too, fell into a deathly silence. Minutes passed.

“The Eridanians have betrayed us,” a commander finally whispered in shock.

“The crystal was probably just a trap set by the Devourer Empire!” a staff officer shouted.

In an instant the Supreme Command fell into utter chaos. All but one began to scream and shout, some to vent their utter despair, others to conceal it. All were on the verge of hysteria. A few of the non-military personnel wept; others tore the hair from their heads. Spirits stood teetering on the verge of the abyss, ready to fall forever.

Only the Marshal remained serene, standing quietly in front of a large screen. He slowly turned and with one simple question calmed the chaos. “I would ask all of you to pay attention to one detail: Why did the Devourer cut its engine?”

Pandemonium was immediately replaced by deep thought. Indeed, after the Moon had used its last nuclear bomb; the enemy had no reason to shut down its engine. They had no way of knowing whether or not there were any bombs left on the Moon. Furthermore, there was the danger of the Devourer's gravity catching the Moon. Had the Devourer continued to accelerate, it could have easily extended the distance to the Moon's trajectory. It could have

– should have – made it farther than those tiny, barely adequate 250 miles.

“Give me a close up of the Devourer's outer hull,” the Marshal commanded.

A holographic image was displayed on the screen. It was a picture being transmitted by a miniature, high-speed reconnaissance probe flying 300 miles above the Devourer's surface. The splendidly illuminated surface of the Devourer came into clear view. In awe they beheld the massive steel mountains and canyons of its giant ring body slowly turn past their view. A long black seam caught the Marshal's attention. In the past century, he had become very familiar with every detail of the Devourer's surface, but he was absolutely certain that *that* gap had not existed before. Quickly others, too, noticed it.

“What is that? Is it …. a crack?” someone asked.

“It is. A crack. A three thousand mile-long crack,” the Marshal said, nodding. “The Eridanians did not betray us. The data in the crystal was accurate. The acceleration limit is real, but as the Moon approached, the despairing Devourer decided to damn the consequences and to exceed it by four-fold, desperate to avoid the collision. This, however, had consequences: The Devourer has cracked.”

Then they found more cracks.

“Look, what's going on now?” someone shouted as its rotation brought another part of Devourer's surface into view. A dazzling bright light began glowing on the edge of its metal continent as if dawn were creeping over its vast horizon.

“The rotational engine!” an officer called out.

“Indeed. It is the rarely used equatorial rotational engine!” the Marshal explained. “It is firing at full power, trying to stop the Devourer's rotation!”

“Marshal, you were spot on and this proves it!”

“We must act now and use all available means to gather detailed data so that we can run a simulation!” the Marshal

commanded. Even as he spoke, the entire Supreme Command was already executing the task.

In the past century a mathematical model had been developed that precisely described the Devourer's physical structure. The required data was gathered and it ran very efficiently, and so the results were quickly produced: It would take nearly 40 hours for the rotational engine to reduce the Devourer's rotation to a speed at which it could avoid destruction. Yet, in only 18 hours the centrifugal forces would completely break it to pieces.

A cheer rose among the Supreme Command. The big screen shone with the holographic image of the Devourer's coming demise: The process of the break up would be very slow, almost like a dream. Against the pitch-black of space, this giant world would disperse like milk foam floating on coffee, its edges gradually breaking off, only to be swallowed by darkness beyond. It looked like the Devourer was melting into space. Only the occasional flash of an explosion now revealed its disintegrating form.

The Marshal did not join the others as they watched this soul-soothing display of destruction. He stood apart from the group, focused at another screen, carefully observing the real Devourer. His face betrayed no trace of triumph. As calm returned to the bridge, the others began to take notice of him. One after the other they joined him at the screen. There they quickly discovered that the blue light at the Devourer's aft had reappeared.

The Devourer had restarted its engine.

Given the critical state the ring structure was already in, this seemed like an utterly unfathomable mistake. Any acceleration, no matter how minute, could cause a catastrophic breakup. But it was the Devourer's trajectory that truly baffled the onlookers: It was ever so slowly retracing its steps, returning to the position it had held before its evasive maneuvers. It was carefully reestablishing

its synchronous orbit and re-aligning its axis of rotation with Earth's.

“What? Does it still want to devour the Earth?” an officer exclaimed, both shocked and confused.

His question provoked a few scattered laughs. All laughter, however, soon fell silent as the others became aware of the look on the Marshal's face. He was no longer looking at the screen. His eyes were closed. His face was blank and drained of all color. In the past hundred years, the officers and personnel who had made fending off the Devourer a pillar of their soul had become very familiar with the Marshal's countenance. They had never seen him like this. A calm fell over the gathered Supreme Command as they turned back to the screen. Finally they understood the gravity of the situation.

There was a way out for the Devourer.

The Devourer's flight toward the Earth had begun. It had already matched the Earth in both orbital speed and rotation as it approached the planet's South Pole.

If it took too long, the Devourer's own centrifugal forces would tear it apart; if it went too fast, the power of its propulsion would rip it to pieces. The Devourer's survival was hanging on a thin thread. It had to hold to a perfect balance between timing and speed.

Before the Earth's South Pole was enveloped by the Devourer's giant ring, the Supreme Command could see the shape of the frozen continent change rapidly. Antarctica was shrinking, like butter in a hot frying pan. The world's oceans were being pulled toward the South Pole by the immense gravity of the Devourer and now the Earth's white tip was being swallowed by their billowing waters.

As this happened, the Devourer, too, was changing. Many new cracks began to cover its body, and all of them were growing longer and wider. The first few tears were now no longer black seams, but gaping chasms glowing with

crimson light. They could easily have been mistaken for thousands of miles-long portals to Hell.

In the midst of all this destruction, a few fine white strands rose from the ring's massive body. Then, more and more of these filaments emerged, flowing from every part of the Devourer's body. It almost looked like the huge ship had sprouted a sparse head of white hair. In fact, they were the engine trails of ships being launched from the great ring. The Devourers were fleeing their doomed world.

Half of the Earth had already been encircled by the Devourer when things took a turn for the worse: The Earth's gravity was acting almost like the invisible spokes of a cosmic wheel, bearing the disintegrating Devourer. No new cracks were appearing on its surface and the already open rips had ceased growing. Forty hours later, the Earth had been completely engulfed by the Devourer. The effect of the planet's gravity was stronger here and the cracks on the Devourer's surface were beginning to close. Another five hours later, they had completely closed.

In the control ship, all the screens of the Supreme Command had gone black and even the lights went dark. The only remaining source of illumination was the deathly pale rays of the Sun piercing through the portholes. In order to generate artificial gravity, the mid-section of the ship was still slowly rotating. As it did, the Sun rose and fell, porthole to porthole. Light and shadow wandered, as if it were replaying humanity's forever bygone days and nights.

“Thank you for a century of dutiful service,” the Marshal said. “Thank you all.” He saluted the Supreme Command. Under the gaze of the officers and personnel, he calmly folded up his uniform. The others followed his example.

Humanity had been defeated. The defenders of Earth had done their utmost to discharge their duties and as soldiers they had still done their duty gloriously. In spirit, they all accepted their unseen medals with clear conscience. They were entitled to enjoy this moment.

# CHAPTER 8

# Epilogue: The Return

**“T**here really is water!” a young lieutenant shouted with joyous surprise. It was true; a vast surface of water stretched out before them. Sparkling waves shimmered under the dusky heavens.

The Marshal removed the gloves of his spacesuit. With both hands he scooped up some water. Opening his visor, he ventured a taste. As he quickly closed his visor again, he said, “Hey, it’s not too salty.” When he saw that the lieutenant was about to open his own visor, he stopped him. “You'll suffer decompression sickness. The composition of the atmosphere is actually not the problem; the poisonous sulfuric components in the air have already thinned out. However, the atmospheric pressure is too low. Without a visor it is like being at thirty thousand was before the war.”

A general dug in the sand at his feet. “Maybe there's some grass seeds,” he said, smiling as he raised his head to look at the Marshal.

The Marshal shook his head as he replied. “Before the war, this was the bottom of the ocean.”

“We can go have a look at New Land Eleven. It’s not far from here. Maybe we can find some there,” the lieutenant suggested

“Any will have been long ago burned,” someone said with a sigh.

Each of them scanned the horizon in all directions. They were surrounded by an unbroken chain of mountains only recently born by the orogenic movements of the Earth. They were dark blue massifs made of bare rock. Rivers of magma spilling from their peaks glowed crimson, like blood oozing from the body of slain stone titan.

The magma rivers of the Earth below had burned out.

This was Earth, 230 years after the war.

After the war had ended, the more than 100 people aboard the control ship had entered the hibernation chambers. There they waited for the Devourer to spit out the Earth; then they would return home. During their wait their ship had become a satellite, circling the new joint planet of Devourer and Earth in a wide orbit. In all that time, the Devourer Empire had done nothing to harass them.

One-hundred-twenty-five years after the war, the command ship's sensors picked up that the Devourer was in the process of leaving the Earth. In response, it roused some of those in hibernation. When they woke, the Devourer had already left the Earth and flown on to Venus. The Earth had been transformed into a wholly alien world, a strange planet, perhaps best described as a lump of charcoal freshly out of the oven. The oceans had all disappeared and the land was covered in a web of magma rivers.

The personnel of the control ship could only continue their hibernation. They reset their sensors and waited for the Earth to cool. This wait lasted another century.

When they again woke from hibernation, they found a cooled planet, its violent geology having subsided; but now the Earth was a desolate, yellow wasteland. Even though all life had disappeared, there was still a sparse atmosphere. They even discovered remnants of the oceans of old.

So, they landed at the shore of such a remnant, barely the size of a pre-war continental lake.

A blast of thunder, deafening in this thin atmosphere, roared above them as the so familiar crude form of a Devourer Empire ship landed not far from their own vessel. Its gigantic doors opened and Fangs took his first tottering steps out, leaning heavily on a walking stick the size of a power pole.

“Ah, you are still alive, sir!” the Marshal greeted him. “You must be around five hundred now?”

“How could I live that long? I, too, went into hibernation, thirty years after the war. I hibernated just so I could see you again,” Fangs retorted.

“Where is the Devourer now?” the Marshal asked.

Fangs pointed into the sky above as he answered. “You can still see it at night; it is but a dim star now, just having passed Jupiter's orbit.”

“It is leaving the solar system?” the Marshal queried.

Fangs nodded. “I will set out today to follow it.”

The Marshal paused before speaking. “We are both old now.”

Fangs sadly nodded his giant head. “Old ...” he said, his walking stick trembling in his hand. “The world, now ...” he continued pointing from heaven to Earth.

“A small amount of water and atmosphere remains. Should we consider this an act of mercy of the Devourer Empire?” the Marshal asked quietly.

Fangs shook his head. “It has nothing to do with mercy; it is your doing.”

The Earth's soldiers looked at Fangs in puzzlement.

“Oh, in this war the Devourer Empire suffered an unprecedented wound. We lost hundreds of millions in those tears,” Fangs admitted. “Our ecosystem, too, suffered critical damage. After the war, it took us fifty Earth years just to complete preliminary repairs and only once that was done could we begin to chew the Earth. But we knew that our time in the solar system was limited. If we did not leave in time, a cloud of interstellar dust would float right into our

flight path. And if we took the long way round, we would lose seventeen thousand years on our way to the next star. In that time the star's state will have already changed, burning the planets that we wish to eat. Because of this we had to chew the planets of the Sun in great haste and we could not pick them clean," Fangs explained.

"That fills us with great comfort and honor," the Marshal said, looking at the soldiers surrounding him.

"You are most worthy of it. It truly was a great interstellar war. In the lengthy annals of the Devourer's wars, ours was one of the most remarkable battles! To this day, all throughout our world, minstrels sing of the epic achievements of the Earth's soldiers," Fangs stated.

"We would more hope that humanity would remember the war. So, how is humanity?" the Marshal queried.

"After the war, approximately two billion humans were migrated to the Devourer Empire, about half of all of humanity," Fangs answered, activating the large screen of his portable computer. On it pictures of life on the Devourer appeared. The screen revealed a beautiful grassland under blue skies. On the grass a group of happy humans was singing and dancing. For a while it was difficult to distinguish the sex of these humans. Their skin was a soft, subtle white. They were all dressed in fine, gauzy clothes and on their heads they all wore beautiful wreathes of flowers. In the distance one could make out a magnificent castle, its appearance clearly modeled on something from an Earth fairytale. Its vibrant colors made it look as if it were made of cream and chocolate.

The camera's lens drew closer, giving the Marshal a chance to study these people's countenance in detail. He was soon completely convinced that they were truly happy. It was an utterly carefree happiness, pure as crystal. It reminded him of the few short years of innocent childhood joy that pre-war humans had experienced.

“We must ensure their absolute happiness,” Fangs said. “It is the minimum requirement for raising them. If we do not, we cannot guarantee the quality of their meat. And it must be said that the Earth people are seen as food of the highest quality; only the upper class of the Devourer Empire society can afford to enjoy them. We do not take such delicacies for granted.” Fangs paused for a moment. “Oh, Marshal. We found your great-grandson, sir. We recorded something from him to you. Do you care to see it?”

The Marshal glimpsed at Fangs in surprise, then nodded his head.

A tender-skinned, beautiful boy appeared on the screen. Judging by his face he was only 10-years-old, but his stature was already that of a grown man. He held a flower wreathe in his feminine hands, having obviously just been called from a dance.

Blinking his large, shimmering eyes, he said, “I hear that my great-grandfather still lives. Then I ask only one thing of you, sir. Never, ever come see me! I am nauseated! When we think of humanity's life before the war we are all nauseated! What a barbaric life that was, the life of cockroaches! You and your soldiers of Earth wanted to preserve that life! You almost stopped humanity from entering this beautiful heaven! How perverse! Do you know how much shame, how much embarrassment you have caused me? Bah! Do not come looking for me! Bah! Go and die!” After he had finished, he skipped to join the dancing on the grassland.

Fangs was first to break the awkward silence that followed. “He will live past the age of sixty. He will have a long life and will not be slaughtered.”

“If it should have anything to do with me, then I am truly grateful,” the Marshal said, smiling miserably.

“It does not. After learning about his ancestry, he became very depressed and filled with feelings of hate

toward you. Such emotions prevent his meat from meeting the standards," Fangs explained.

As Fangs looked at these last few humans before him, genuine emotions played across his massive eyes. Their spacesuits were extremely old and shabby and the many years past were etched into their faces. In the pale yellow of the Sun they looked like a group of rust-stained statues. Fangs closed his computer and, full of regret, said, "At first I did not want you to see this, but you are all true warriors, well capable of dealing with the truth, ready to recognize," he paused for a long while before continuing "that human civilization has come to an end."

"You certainly destroyed Earth's civilization," the Marshal said staring into the distance. "You have committed a monstrous crime!"

"We finally have started to talk about morals again," Fangs said with a laugh and a grin.

"When you invaded our home and after you brutally devoured everything in it, I would think that you lost all rights to talk about morals," the Marshal said coldly.

The others had already stopped paying attention; the extreme, cold brutality of the Devourer civilization was just beyond human understanding. Nothing could have been less interesting to them than to engage them in an exchange about morals.

"No, we have the right. I now truly wish to talk about morals with humanity," Fangs said before again pausing. "'How, sir, could you just pick him up and eat him?'" he continued, quoting the then Captain. Those last words left nobody unshaken. They did not emanate from the translator, but came directly from Fangs' mouth. Even though his voice was deafening, Fangs somehow managed to imitate those 300-year-old words with perfection.

Fangs continued, returning to the use of his translator. "Marshal, three hundred years ago your intuition did not mislead you: When two civilizations – separated by

interstellar space – meet, any similarities should be far more shocking than their differences. It certainly shouldn't be as it is with our species.”

As all present focused their gaze on Fangs' frame, they were overcome with a sense of premonition that a world-shaking mystery was about to be revealed.

Fangs straightened himself on his walking-stick and, looking into the distance, said, “Friends, we are both children of the Sun; and while the Earth is both our species' fraternal home, my people have the greater claim to her! Our claim is one-hundred-forty million years older than yours. All those millennia ago, we were the first to live on this beautiful planet and here we established our magnificent civilization.”

The Earth's soldiers stared blankly at Fangs. The waters of the remnant ocean rippled in the pale of the yellow sunlight. Red magma flowed from the distant new mountains. Sixty million years down the rivers of time, two species, each the ruler of this Earth in their own time, met in desolation on their plundered home world.

“Dino … saur …,” someone exclaimed in shocked whispers.

Fangs nodded. “The Dinosaur Civilization arose one-hundred million years ago on Earth, during what you call the Cretaceous period of the Mesozoic. At the end of the Cretaceous, our civilization reached its zenith, but we are a large species and our biological needs were equally great. In the wake of our population explosion, the ecosystem was stretched to its limit and the Earth was pushed to its brink as it struggled to support our society. To survive we completely consumed Mars' elementary ecosystem.

“The Dinosaur Civilization lasted twenty thousand years on Earth,” he continued, “but its true expansion was a matter of a few thousand years. From a geological perspective, its effects are indistinguishable from those of

an explosive catastrophe; what you call the Cretaceous–Tertiary extinction event.

“Finally, one day all the Dinosaurs boarded ten giant generation ships and with these ships sailed into the vast sea of stars. In the end, all these ten ships were joined together. Then, whenever this newly united ship reached another star's planet, it expanded. Now, sixty million years later, it has become the Devourer Empire you know.”

“Why would you eat your own home world? Are Dinosaurs bereft of all sentimentality?” someone asked.

Fangs answered, lost in thought. “It is a long story. Interstellar space is indeed vast and boundless, but it is also different than you would imagine. The places that truly suit us, as advanced carbon-based life-forms, are few and far between. A dust cloud blocks the way to the center of the Milky Way just two thousand light years from here. There is no way for us to pass through it and no way for us to survive in it. And after it comes an area of powerful radiation and a large group of wandering black holes.” Fangs paused, before continuing, still speaking more to himself than the humans before him. “If we should travel in the opposite direction, we would just come to the end of the spiral arm and then, not far beyond, nothing but a limitless, desolate void. The Devourer Empire has already completely consumed almost all the planets that could be found in the habitable areas that exist between these two barriers. Now, the only way out is to fly to another arm of the Milky Way. We have no idea what awaits us there, but if we stay here we will certainly be doomed. It will be a journey of fifteen million years, taking us right through the void. To survive it we must build large stocks of all possible expendables.

“Right now, the Devourer Empire is just like a fish in a drying stream. It must make a desperate leap before its water completely evaporates. It realizes that the most likely end is a landing on dry land and death under the scorching Sun; but there is the slight chance that it may fall into a

neighboring water hole and so survive.” Fangs lowered his gaze toward the humans to near eye-level. “As far as sentimentality is concerned, we have lived through tens of millions of arduous years and fought stellar wars beyond number. The hearts of the Dinosaur race have long since petrified. Now the Devourer Empire must consume as much as it possibly can in preparation for our million-year journey.” Fangs again paused, deep in thought. “What is civilization? Civilization is devouring, ceaselessly eating, endlessly expanding; everything else comes second.”

The Marshal, too, was deep in thought. Looking at Fangs, he questioned, “Can the struggle for existence be the universe's only law of biological and cultural evolution? Can we not establish a self-sufficient, introspective civilization where all life exists in symbiosis? A civilization like that of the Eridanians.”

Fangs answered without hesitation or pause. “I am no philosopher; perhaps it can be done. The crux is, who will take the first step? If one's survival is based on the subjugation and consumption of others and if that should be the universe's iron law of life and civilization, then whoever first rejects it in favor of introspection will certainly perish.”

With that Fangs returned to his spaceship, but he re-emerged, now carrying a thin and flat box in both talons. The box was about ten-foot square and it would have easily taken four men to carry. Fangs placed the box on the ground and opened its top. To the humans' surprise, the box was filled with earth and grass was growing on it. On this lifeless world, its green left no heart untouched.

As Fangs opened the box, he turned to the humans. “This is pre-war soil. After the war, I put all of its plants and all of its insects into suspended animation. Now, after more than two centuries, they have awoken beside me. Originally, I wanted to take this soil with me as a memento. Alas, I thought about it and I have changed my mind. I have

decided to return it to where it truly belongs. We have taken more than enough from our home world.”

As they gazed upon this tiny piece of Earth, so full of life, the humans' eyes began to moisten. They now knew the dinosaurs' hearts had not turned to stone. Behind those scales colder and crueler than steel and rock, beat a heart that longed for home.

Fangs shook his claws, almost as if he wanted to cast off the emotions that had gripped him. Slightly shaken, he said, “All right then, my friends, we will go together, back to the Devourer Empire.” Seeing the expression on the humans' face, he raised a claw and continued. “You will, of course, not be food there. You are great warriors and you will be made citizens of the Empire. And there is still work that needs your attention: Build a museum of the human civilization.”

The eyes of every single Earth soldier turned to the Marshal. He stood deep in thought, then slowly nodded.

One after the other, the Earth's soldiers boarded Fangs' spaceship. Because its ladder was intended for Dinosaurs, they had to pull their entire body up each rung to climb inside. The Marshal was the last human to board the ship. Holding to the lowest rung of the ship's ladder, he pulled his body off the ground. Just at that moment something in the ground beneath his feet caught his eye. He stopped in mid-pull, looking down. For a long time he hung there, motionless.

He had seen … an ant.

The ant had climbed out of that box of soil. Never losing sight of the tiny insect, the Marshal let go of the ladder and squatted down. Lowering his hand, he let the ant clamber onto his glove. Raising it to his face, he carefully studied the small creature. Its obsidian body glinted in the sunlight. Holding it, the Marshal walked over to the box. There he cautiously returned the ant to the tiny blades of grass. As he

lowered his hand he noticed more ants climbing about the soil beneath the grass.

Raising himself, he turned to Fangs who was standing right by his side. “When we leave, this grass and these ants will be the dominant species on Earth.”

Fangs was at a loss for words.

“Earth's civilized life seems to be getting smaller and smaller. Dinosaurs, humans and now probably, ants,” the Marshal said, returning to his squat. He looked on, his eyes deep with love and admiration as he watched these small beings live their lives in the grass. “It is their turn.”

As he spoke, the Earth's soldiers reemerged from the spaceship. Climbing down to Earth, they returned to the box of living soil. Standing around it they, too, were filled with deep love.

Fangs shook his head. “The grass cannot survive. It might even rain, here at the seaside, but it won't do for the ants.”

“Is the atmosphere too thin? They seem to being doing just fine at the moment,” someone noted.

“No, the air is not the problem. They are not like humans and can live well in this atmosphere. The real crux of the matter is that they will have nothing to eat,” Fangs replied.

“Can't they eat the grass?” another voice joined in.

“And then? How will they live on? In this thin air the grass will grow very slowly. Once the ants have eaten all the blades, they will starve. In many ways their situation mirrors the destiny of the Devourer civilization,” Fangs mused.

“Can you leave behind some food from your spaceship for them?” another soldier asked, almost pleaded.

Fangs again shook his massive head. “There is nothing in my spaceship besides water and the hibernation system. On that note, we will hibernate until we catch up with the Devourer. But what about your spaceship, do you have any food onboard?”

Now it was the Marshal's turn to shake his head. “Nothing but a few injections of nourishment solution; useless.”

Pointing to the spaceship, Fangs interrupted the discussion. “We must hurry. The Empire is accelerating quickly. If we tarry, we will not catch up.”

Silence.

“Marshal, we will stay behind.” It was the young lieutenant who broke the silence.

The Marshal forcefully nodded.

“Stay behind? What are you up to?” Fangs asked in astonishment, turning from one to the other. “The hibernation equipment on your spaceship is almost completely depleted and you have no food. Do you plan to stay and wait for death?”

“Staying will be the first step,” the Marshal calmly answered.

“What?” the ever more perplexed Fangs asked.

“You just mentioned the first step toward a new civilization,” the Marshal explained.

“You,” Fangs could hardly believe his own words, “want to be ants' food?”

Earth's soldiers all nodded. Fangs wordlessly gazed at them for what seemed like forever, before turning and slowly hobbling back to his spaceship, heavily leaning on his walking stick.

“Farewell, friend,” the Marshal shouted after Fangs.

Fangs replied with a long, drawn-out sigh. “An interminable darkness lies before me and my descendants; the darkness of endless war and a vast universe. Oh, where in it could there be a home for us?”

As he spoke, the humans saw that the ground beneath his feet had moistened, but they could not tell if he could, or did, shed tears.

With a thunderous roar the Dinosaur's spaceship lifted off and quickly disappeared into the sky. Where it had disappeared, the Sun was now setting.

The last warriors of Earth seated themselves around the living soil in silence. Then, beginning with the Marshal, they

all, one by one, opened their visors and laid their bodies on the sandy earth.

As time passed, the Sun set. Its afterglow bathed the plundered Earth in a beautiful red. As it faded, a few stars began to twinkle in the sky. To his surprise, the Marshal saw that the dusky sky was a beautiful blue. Just as the thin atmosphere began to deprive him of his consciousness, the Marshal felt the tiny movements of an ant on his temple, filling him with a deep sense of contentment. As the ant climbed up to his forehead, he was transported back to his so very distant childhood. He was at the beach, lying in a small hammock that hung between two palm trees. Looking up to the splendid sea of stars above, he felt his mother's hand gently stroke his forehead …

Darkness fell. The remnant ocean lay flat as a mirror, pristinely reflecting the Milky Way above. It was the most tranquil night in the planet's history.

In this tranquility, the Earth was reborn.

# Taking Care of Gods

# CHAPTER 1

Once again, The god had upset Qiusheng's family.

The morning began very well. A thin layer of white fog floated at the height of a man over the fields around Xicen Village like a sheet of rice paper that had just become blank: the quiet countryside being the painting that had fallen out of the paper. The first rays of morning fell on the scene, and the year's earliest dewdrops entered the most glorious period of their brief lives. But the god had ruined this beautiful morning.

The god had gotten up extra early and gone into the kitchen to warm some milk for himself. Ever since the start of the Era of Support, the milk market had prospered. Qiusheng's family had bought a milk cow for a bit more than ten thousand yuan, and then, imitating others, mixed the milk with water to sell. The unadulterated milk had also become a staple for the family.

After the milk was warm, the god took his bowl into the living room to watch TV, neglecting to turn off the gas stove.

When Qiusheng's wife, Yulian, returned from cleaning the cowshed and the pigsty, she could smell gas all over the house. Covering her nose with a towel, she rushed into the kitchen to turn off the stove, opened the window, and turned on the fan.

"You old fool! You're going to get the whole family killed!" Yulian shouted into the living room. The family had switched to using liquefied petroleum gas for cooking only after they began supporting the god. Qiusheng's father had always been opposed to it, saying that gas was not as good as

honeycomb coal briquettes. Now he had even more ammunition for his argument.

As was his wont, the the god stood with his head lowered contritely, his broom-like white beard hanging past his knees, smiling like a kid who knew he had done something wrong. “I… I took down the pot for heating the milk. Why didn’t it turn off by itself?”

“You think you’re still on your spaceship?” Qiusheng said, coming down the stairs. “Everything here is dumb. We aren’t like you, being waited on hand and foot by smart machines. We have to work hard with dumb tools. That’s how we put rice in our bowls!”

“We also worked hard. Otherwise how did you come to be?” The god said carefully.

“Enough with the ‘how did you come to be?’ Enough! I’m sick of hearing it. If you’re so powerful, go and make other obedient children to support you!” Yulian threw her towel on the ground.

“Forget it. Just forget it,” Qiusheng said. He was always the one who made peace. “Let’s eat.”

Bingbing got up. As he came down the stairs, he yawned. “Ma, Pa, the god was coughing all night. I couldn’t sleep.”

“You don’t know how good you have it,” Yulian said. “Your dad and I were in the room next to his. You don’t hear us complaining, do you?”

As if on cue, the god began to cough again. He coughed like he was playing his favorite sport, with great concentration.

Yulian stared at the god for a few seconds before sighing. “I must have the worst luck in eight generations.” Still angry, she left for the kitchen to cook breakfast.

The god sat silently through breakfast with the rest of the family. He ate one bowl of porridge with pickled vegetables and half a steamed bun. During the entire time he had to endure Yulian’s disdainful looks – maybe she was still mad about the gas, or maybe she thought he ate too much.

After breakfast, as usual, the god got up quickly to clean the table and wash the dishes in the kitchen. Standing just outside the kitchen, Yulian shouted, “Don’t use detergent if there’s no grease on the bowl! Everything costs money. The pittance they pay for your support? Ha!” the god grunted his acknowledgement.

Qiusheng and Yulian left for the fields. Bingbing left for school. Only now did Qiusheng’s father get up. Still not fully awake, he came downstairs, ate two bowls of porridge, and filled his pipe with tobacco. At last he remembered the god’s existence.

“Hey, old geezer, stop the washing. Come and play a game with me!” He shouted into the kitchen.

The god came out of the kitchen, wiping his hands on his apron. He nodded ingratiatingly at Qiusheng’s father. Playing Chinese chess with the old man was a tough chore for the god: winning and losing both had unpleasant consequences. If the god won, Qiusheng’s father would get mad: You fucking old idiot! You trying to show me up? Shit! You’re the god! Beating me is no great accomplishment at all. Why can’t you learn some manners? You’ve lived under this roof long enough! But if the god lost, Qiusheng’s father would still get mad: You fucking old idiot! I’m the best chess player for fifty kilometers. Beating you is easier than squishing a bed bug. You think I need you to let me win? You… to put it politely, you are insulting me!

In any case, the final result was the same: the old man would flip the board and the pieces would fly everywhere. Qiusheng’s father was infamous for his bad temper, and now he’d finally found a punching bag in the god.

But the old man didn’t hold a grudge. Every time, after the god picked up the board and put the pieces back quietly, he sat down and played with him again – and the whole process was repeated. After a few cycles of this, both of them were tired, and it was almost noon.

The god then got up to wash the vegetables. Yulian didn’t allow him to cook because she said the god was a terrible cook, but he still had to wash the vegetables. If they weren’t washed by the time Qiusheng and Yulian returned from the fields, she would be at him again with another round of bitter, sarcastic scolding.

While the god washed the vegetables, Qiusheng’s father left to visit the neighbors. This was the most peaceful part of the god’s day. The noon sun filled every crack in the brick-lined yard and illuminated the deep crevasses in his memory. During such periods the god often forgot his work and stood quietly, lost in thought. Only when the noise of the villagers returning from the fields filled the air would he be startled awake and hurry to finish his washing.

He sighed. How could life have turned out like this?

This wasn’t only the god’s sigh. It was also the sigh of Qiusheng, Yulian, and Qiusheng’s father. It was the sigh of more than five billion people and two billion gods on Earth.

# CHAPTER 2

It all began one fall evening three years ago.

“Come quickly! There are toys in the sky!” Bingbing shouted in the yard. Qiusheng and Yulian raced out of the house, looked up, and saw that the sky really was full of toys, or at least objects whose shapes could only be toys.

The objects spread out evenly across the dome of the sky. In the dusk, each reflected the light of the setting sun—already below the horizon—and each shone as bright as the full moon. The light turned Earth’s surface as bright as midday. But the light came from every direction and left no shadow, as though the whole world was illuminated by a giant surgical lamp.

At first, everyone thought the objects were within our atmosphere because they were so clear. Eventually, humans learned that these objects were simply enormous. They were hovering about thirty thousand kilometers away in geostationary orbits.

There were a total of 21,530 spaceships. Spread out evenly across the sky, they formed a thin shell around Earth. This was the result of a complex set of maneuvers that brought all the ships to their final locations simultaneously. In this manner, the alien ships avoided causing life-threatening tides in the oceans due to their imbalanced mass. The gesture reassured humans somewhat. At least some evidence, that the aliens did not bear ill will towards Earth.

During the next few days, all attempts at communicating with the aliens failed. The aliens maintained absolute

silence in the face of repeated queries. At the same time, Earth became a planet without night. Tens of thousands of spaceships reflected so much sunlight onto the night side of Earth that it was as bright as day, while on the day side the ships cast giant shadows onto the ground. The terrifying sight pushed the psychological endurance of the human race to the limit, so that most ignored a new strange occurrence on the surface of the planet, and did not connect it with the fleet of spaceships in the sky.

Across the great cities of the world, wandering old people had begun to appear. All of them looked alike: they were ancient, had long, white hair and beards, and wore long, white robes. At first, before the white robes, white beards, and white hair got dirty, they looked like a bunch of snowmen. The wanderers did not appear to belong to any particular race, as though all ethnicities were mixed in them. They had no documents to prove their citizenship or identity and could not explain their own history.

All they could do was to gently repeat, in heavily-accented versions of various local languages, the same words to all passersby:

“We are Gods. Please, considering that we created this world, would you give us a bit of food?”

If only one or two old wanderers said this, then they would have been sent to a shelter or nursing home, and treated like the homeless with dementia. But millions of old men and women all saying the same thing – that was something else entirely.

Within half a month, the number of old wanderers had increased to more than 30 million. All over the streets of New York, Beijing, London, Moscow…the old people could be seen everywhere, shuffling around in traffic-stopping crowds. Sometimes it seemed as if there were more of them than the original inhabitants of the cities.

The most horrible part of their presence was that they all repeated the same thing:

“We are Gods. Please, considering that we created this world, would you give us a bit of food?”

Only now did humans turn their attention from the spaceships to the uninvited guests. Recently, large-scale meteor showers had been occurring over every continent. After every impressive display of streaking meteors, the number of old wanderers in that region greatly increased. After careful observation, the following incredible fact was discovered: the old wanderers came out of the sky, from those alien spaceships.

One by one, they leapt into the atmosphere as though diving into a swimming pool, each wearing a suit made from a special film. As the friction from the atmosphere burnt away the surface of the suits, the film kept the heat away from the wearer and slowed his descent. Careful design ensured that the deceleration never exceeded four gs, well within the physical tolerance of the bodies of the old wanderers. Finally, at the moment of their arrival at the surface, their velocity was close to zero, as though they had just jumped down from a bench. Even so, many of them still managed to sprain their ankles. By now, the film around them had burnt away, leaving no trace.

The meteor showers continued without stopping. More wanderers fell to Earth. Their number rose to almost one hundred million.

The government of every country attempted to find one or more representatives among the wanderers. But the wanderers claimed that the “Gods” were absolutely equal, and any one of them could represent all of them. Thus, at the emergency session of the United Nations General Assembly, one random old wanderer, who was found in Times Square and who now spoke passable English, entered the General Assembly Hall.

He had clearly been among the earliest to land: his robe was dirty and full of holes, and his white beard was covered with dirt, like a mop. There was no halo over his head, but a

few loyal flies did hover there. He shuffled his way to the round meeting table with the help of a ratty bamboo walking stick, and lowered himself under the gaze of the leaders. He looked up at the Secretary-General and his face displayed the child-like smile particular to all the old wanderers.

“I… ha… I haven’t had breakfast yet.”

So breakfast was brought. All around the world, people stared as he ate like a starved man, choking a few times. Toast, sausages, and a salad were quickly gone, followed by a large glass of milk. Then he showed his innocent smile to the Secretary-General again:

“Haha… uh… is there any wine? Just a tiny cup will do.”

So a glass of wine was brought. He sipped at it, nodding with satisfaction. “Last night, a bunch of new arrivals took over my favorite subway grate, one that blew out warm air. I had to find a new place to sleep in the Square. But now with a bit of wine, my joints are coming back to life… You, can you massage my back a little? Just a little.”

The General-Secretary began to massage his back. The old wanderer shook his head, sighed, and said, “Sorry to be so much trouble to you.”

“Where are you from?” asked the President of the United States.

The old wanderer shook his head. “A civilization has a fixed location in her infancy. Planets and stars are unstable and change. The civilization must then move. By the time she becomes a young woman, she has already moved multiple times. Then they will make this discovery: no planetary environment is as stable as a sealed spaceship. So they’ll make spaceships their home, and planets will just be places where they sojourn. Thus, any civilization that has reached adulthood will be a star-faring civilization, permanently wandering through the cosmos. The spaceship is her home. Where are we from then? Well we come from the ships.” He pointed up with a dirt-caked finger.

“How many of you are there?”

“Two billion.”

“Who are you, really?” The Secretary-General had cause to ask this. The old wanderers looked just like humans.

“We’ve told you many times.” The old wanderer impatiently waved his hand. “We are Gods.”

“Could you explain?”

“Our civilization, let’s just call her the God Civilization, existed long before Earth was born. When the God Civilization entered her senescence, we seeded the newly-formed Earth with the beginnings of life. Then, the God Civilization skipped across time by traveling close to the speed of light. When life on Earth had evolved to the appropriate stage, we came back, introduced a new species based on our ancestral genes, eliminated its enemies, and carefully guided its evolution, until Earth was home to a new civilized species, just like us.”

“How do you expect us to believe you?”

“That’s easy.”

Thus began the half-year-long effort to verify these claims. Humans watched in astonishment as spaceships transmitted the original plans for life on Earth and images of the primitive Earth. Following the old wanderer’s direction, humans dug up incredible machines from deep below Earth’s crust, equipment that had through the long eons monitored and manipulated the biosphere on this planet.

Humans finally believed, at least with respect to life on Earth, that they really were gods.

# CHAPTER 3

**A**t the third emergency session of the United Nations General Assembly, the Secretary-General, on behalf of the human race, finally asked the god the key question: why did you come to Earth?

“Before I answer this question, you must have a correct understanding of the concept of civilization.” the god stroked his long beard. This was the same god who had been at the first emergency session half a year ago. “How do you think civilizations evolve over time?”

“Civilization on Earth is currently in a stage of rapid development. Barring some natural disasters that are beyond our ability to resist, I think we will continue our development indefinitely,” said the Secretary-General.

“Wrong. Think about it. Every person experiences childhood, youth, middle age, old age, and finally death. The stars are the same way. Indeed, everything in the universe goes through the same process. Even the universe itself will have to terminate one day. Why would civilization be an exception? No, a civilization will also grow old and die.”

“How exactly does that happen?”

“Different civilizations grow old and die in different ways, just like different people die of different diseases or just plain old age. For the God Civilization, the first sign of her senescence was the extreme lengthening of each individual member’s lifespan. By then, each individual in the God Civilization could expect a life as long as four thousand Earth years. By age two thousand, their thoughts had completely ossified, losing all creativity. Because individuals

like these held the reins of power, new life had a hard time emerging and growing. That was when our civilization became old."

"And then?"

"The second sign of the civilization's senescence was the Age of the Machine Cradle."

"What?"

"At that point, our machines no longer relied on their creators. They operated independently, maintained themselves, and developed on their own. The smart machines gave us everything we needed: not just material needs, but also psychological needs. We didn't need to put any effort into survival. Taken care of by machines, we lived as though we were lying in comfortable cradles.

"Think about it, if the jungles of primitive Earth had been filled with inexhaustible supplies of fruits and tame creatures that desired to become food, how could apes evolve into humans? The Machine Cradle was just such a comfort-filled jungle. Gradually, we forgot about our technology and science. Our civilization became lazy and empty, devoid of creativity and ambition, and that only sped up the aging process. What you see now is the God Civilization in her final dying gasps."

"Then… can you now tell us the God Civilization's goal in coming to Earth?"

"We have no home now."

"But…" The Secretary-General pointed upwards.

"The spaceships are old. It's true that the artificial environment on the ships is more stable than any natural environment, including Earth's. But the ships are older than you can imagine. Old components have broken down. Accumulated quantum effects over the eons have led to more software errors. The systems' self-repair and self-maintenance functions have encountered more insurmountable obstacles. The living environment on the ships is deteriorating. The amount of life necessities that

can be distributed to individuals is decreasing by the day. We only barely survived. In the twenty thousand cities on the various ships, the air is filled with pollution and despair.”

“Are there no solutions? Perhaps new components for the ships? A software upgrade?”

The god shook his head. “The God Civilization is in her final years. We are two billion dying men and women each more than three thousand years old. But before us, hundreds of generations had already lived in the comfort of the Machine Cradle. We forgot all our technology long ago. Now, we have no way to repair these ships that have been operating for tens of millions of years on their own. Indeed, in terms of the ability to study and understand technology, we are not even as capable as you. We can’t even connect a circuit for a light bulb, or solve a quadratic equation…

“Finally, one day, the ships told us that they were close to complete breakdown. The propulsion systems could no longer push the ships near the speed of light. The God Civilization could only drift along at a speed not even one-tenth the speed of light, and the ecological support systems were nearing collapse. The machines could no longer keep two billion of us alive. We had to find another way out.”

“Did you ever think that this would happen?”

“Of course. The ships already warned us two thousand years ago. That was when we began the process of seeding life on Earth so that in our old age we would have support.”

“Two thousand years ago?”

“Yes. Of course I’m talking about time on the ships. From your frame of reference, that was 3.5 billion years ago, when the Earth first cooled down.”

“We have a question: you say that you’ve lost your technology. But doesn’t seeding life require technology?”

“Oh. To start the process of evolving life on a planet is a minor operation. Just scatter some seeds, and life will multiply and evolve on its own. We had this kind of software even before the Age of the Machine Cradle. Just start the

program, and the machines can finish everything. To create a planet full of life, capable of developing civilization, the most basic requirement is time, a few billions of years of time.

“By traveling close to the speed of light we possess almost limitless time. But now, the God Civilization’s ships can no longer approach the speed of light. Otherwise we’d still have the chance to create new civilizations and more life, and we would have more choices. We’re trapped by slowness. Those dreams cannot be realized.”

“So you want to spend your golden years on Earth.”

“Yes, yes. We hope that you will feel a sense of filial duty towards your creators and take us in.” The god leaned on his walking stick and trembled as he tried to bow to the leaders of all the nations, but he almost fell on his face.

“But how do you plan to live here?”

“If we just gathered into one place by ourselves, then we might as well stay in space and die there. We’d like to be absorbed into your societies, your families. When the God Civilization was still in her childhood, we also had families. You know that childhood is the most precious time. Since your civilization is still in her childhood, if we can return to this era and spend the rest of our lives in the warmth of families, then that would be our greatest happiness.”

“There are two billion of you. That means every family on Earth would have to take in one or two Gods.” After the Secretary-General spoke, the meeting hall sank into silence.

“Yes, yes, sorry to give you so much trouble…” the god continued to bow, while stealing glances at the Secretary-General and the leaders of all the nations. “Of course, we’re willing to compensate you.”

He waved his cane, and two more white-bearded gods walked into the meeting hall, struggling under the weight of a silvery, metallic trunk they carried between them. “Look, these are high-density information storage devices. They systematically store the knowledge the God Civilization

acquired in every field of science and technology. With this, your civilization will advance by leaps and bounds. I think you will like this."

The Secretary-General, like the leaders of all the nations, looked at the metal trunk and tried to hide his elation. "Taking care of Gods is the responsibility of humankind. Of course this will require some consultation between the various nations, but I think, in principle…"

"Sorry to be so much trouble. Sorry to be so much trouble…" The god's face was filled with tears, and he continued to bow.

After the Secretary-General and the leaders of all the nations left the meeting hall, they saw that tens of thousands of gods had gathered outside the United Nations building. A white sea of bobbing heads filled the air with murmuring words. The Secretary-General listened carefully and realized that they were all speaking, in the various tongues of Earth, the same sentence:

"Sorry to be so much trouble. Sorry to be so much trouble…"

# CHAPTER 4

**T**wo billion gods arrived on Earth. Enclosed in the suits made of special film, they fell through the atmosphere. One could see the bright, colorful streaks in the sky even during the day. After the gods landed, they spread out into 1.5 billion families.

Having received the gods' knowledge about science and technology, everyone was filled with hopes and dreams for the future, as though humankind was about to step into paradise overnight. Under the influence of such joy, every family welcomed the coming of a god or two.

That morning, Qiusheng and his family and all the other villagers stood at the village entrance to receive the gods allocated to Xicen.

"What a beautiful day," Yulian said.

Her comment wasn't solely an expression of her feelings. The spaceships had disappeared overnight, restoring the sky's wide open and limitless appearance. Humans had never been allowed to step onto any of the ships. The gods hadn't objected to that particular request from the humans, but the ships themselves refused to grant permission. They did not acknowledge the various primitive probes that Earth sent and sealed their doors tightly. After the final group of gods leapt into the atmosphere, all the spaceships, numbering more than twenty thousand, departed their orbit simultaneously. But they didn't go far, only drifting in the asteroid belt.

Although the ships were ancient, the old routines continued to function. Their only mission was to serve the

gods. Thus they would not move too far. When the gods needed them again, they would come.

Two buses arrived from the county seat, bringing the one hundred and six Gods allocated to Xicen. Qiusheng and Yulian met the god assigned to their family. The couple stood on each side of the god, affectionately supported him by the arms, and walked home in the bright afternoon sun. Bingbing and Qiusheng's father followed behind, smiling.

"Gramps, um, Gramps god." Yulian leaned her face against the god's shoulder, her smile as bright as the sun. "I hear that the technology you gave us will soon allow us to experience true communism! When that happens, we'll all have things according to our needs. Things won't cost any money. You'll just go to the store and pick them up."

The god smiled and nodded at her, his white hair bobbing. He spoke in heavily-accented Chinese, "Yes. Actually 'to each according to need' fulfills only the most basic needs of a civilization. The technology we gave you will bring you a life of prosperity and comfort surpassing your imagination."

Yulian laughed so much her face opened up like a flower. "No, no! 'To each according to need' is more than enough for me!"

"Uh huh." Qiusheng's father agreed emphatically.

"Can we live forever without aging, like you?" Qiusheng asked.

"We can't live forever without aging. It's just that we can live longer than you. Look at how old I am! In my view, if a man lives longer than three thousand years, he might as well be dead. For a civilization, extreme longevity can be fatal for the individual."

"Oh, I don't need three thousand years. Just three hundred." Qiusheng's father was now laughing as much as Yulian.

The village treated the day like it was Chinese New Year. Every family held a big banquet to welcome their god, and

Qiusheng’s family was no exception.

Qiusheng’s father quickly became a little drunk with cups of vintage  huangjiu. He gave the god a thumbs up.

“You’re really something! To be able to create so many living things – you’re truly supernatural.”

the god drank a lot too, but his head was still clear. He waved his hand. “No, not supernatural. It was just science. When biology has developed to a certain level, creating life is akin to building machines.”

“You say that. But in our eyes, you’re no different from immortals who have deigned to live among us.”

The god shook his head. “Supernatural beings would never make mistakes. But we made mistake after mistake during your creation.”

“You made mistakes when you created us?” Yulian’s eyes were wide open. In her imagination, creating all those lives was a process similar to her giving birth to Bingbing eight years ago. No mistake was possible.

“There were many. I’ll give a relatively recent example. The world-creation software made errors in the analysis of the environment on Earth, which resulted in the appearance of creatures like dinosaurs: huge bodies and low adaptability. Eventually, in order to facilitate your evolution, they had to be eliminated.

“Speaking of events that are even more recent, after the disappearance of the ancient Aegean civilizations, the world-creation software believed that civilization on Earth was successfully established. It ceased to perform further monitoring and micro-adjustments, like leaving a wound-up clock to run on its own. This resulted in further errors. For example, it should have allowed the civilization of ancient Greece to develop on her own and stopped the Macedonian conquest and the subsequent Roman conquest. Although both of these ended up as the inheritors of Greek civilization, the direction of Greek development was altered…”

No one in Qiusheng's family could understand this lecture, but all respectfully listened.

"And then, two great powers appeared on Earth: Han China and the Roman Empire. In contrast to what had happened previously, the two shouldn't have been kept apart and left to develop in isolation. They ought to have been allowed to come into full contact…"

"This 'Han China' you're talking about? Is that the Han Dynasty of Liu Bang and Xiang Yu?" Finally Qiusheng's father heard something that he knew. "And what is this 'Roman Empire'?"

"I think that was a foreigners' country at the time," Qiusheng said, trying to explain. "It was pretty big."

Qiusheng's father was confused. "Why? When the foreigners finally showed up during the Qing Dynasty, look how badly they beat us up. You want them to show up even earlier? During the Han Dynasty?"

The god laughed at this. "No, no. Back then, Han China was just as powerful as the Roman Empire."

"That's still bad. If those two great powers had met, it would have been a great war. Blood would have been spilled."

The god nodded. He reached out with his chopsticks for a piece of beef braised in soy sauce. "It could have. But if those two great civilizations, the Occident and the Orient, had met, the encounter would have generated glorious sparks and greatly advanced human progress… If only those errors could have been avoided, Earth would now probably be colonizing Mars, and your interstellar probes would have flown past Sirius."

Qiusheng's father raised his bowl of huangjiu and spoke admiringly, "Everyone says that the gods have forgotten science in their cradle, but you are still so learned."

"To be comfortable in the cradle, it's important to know a bit about philosophy, art, history, etc – just some common

facts, not real learning. Many scholars on Earth right now have much deeper thoughts than our own."

For the gods, the first few months after they entered human society were a golden age, when they lived harmoniously with human families. It was as though they had returned to the childhood of the God Civilization, fully immersed in the long-forgotten warmth of family life. This seemed the best way to spend the final years of their extremely long lives.

Qiusheng's family's god enjoyed the peaceful life in this beautiful southern Chinese village. Every day, he went to the pond surrounded by bamboo groves to fish, chat with other old folks from the village, play chess, and generally enjoy himself. But his greatest hobby was going to folk opera. Whenever a theater troupe came to the village or the town, he made sure to go to every performance.

His favorite opera was  The Butterfly Lovers. One performance was not enough. He followed one troupe around for more than fifty kilometers and attended several shows in a row. Finally Qiusheng went to town and bought him a VCD of the opera.The god played it over and over until he could hum a few lines of Huangmei opera and sounded pretty good.

One day, Yulian discovered a secret. She whispered to Qiusheng and her father-in-law, "Did you know that every time the gramps god finishes his opera, he always takes a little card out from his pocket? And while looking at the card, he hums lines from the opera. Just now I stole a glance. The card is a photo. There's a really pretty young woman on it."

That evening, The god played  The Butterfly Lovers  again. He took out the photograph of the pretty young woman and started to hum. Qiusheng's father quietly moved in. "Gramps god, is that your… girlfriend from a long time ago?"

The god was startled. He hid the photograph quickly, and smiled like a kid at Qiusheng's father. "Ha… Yeah, yeah. I

loved her two thousand years ago.”

Yulian, who was eavesdropping, grimaced. Two thousand years ago! Considering his advanced age, this was a bit gag inducing.

Qiusheng’s father wanted to look at the photograph. But the god was so protective of it that it would have been embarrassing to ask. So he settled for listening to the god reminisce.

“Back then we were all so young. She was one of the very few who wasn’t completely absorbed by life in the Machine Cradle. She initiated a great voyage of exploration to sail to the end of the universe. Oh, you don’t need to think too hard about that. It’s very difficult to understand. Anyway, she hoped to use this voyage as an opportunity to awaken the God Civilization, sleeping so soundly in the Machine Cradle. Of course, that was nothing more than a beautiful dream. She wanted me to go with her, but I didn’t have the courage. The endless desert of the universe frightened me. It would have been a journey of more than twenty billion light years. So she went by herself. But in the two thousand years after that, I never stopped longing for her.”

“Twenty billion light years? So, like you explained to me before, that’s the distance that light would travel in twenty billion years? Oh my! That’s way too far. That’s basically goodbye for life. Gramps god, you have to forget about her. You’ll never see her again.”

The god nodded and sighed.

“Well, isn’t she now about your age too?”

The god was startled out of his reverie. He shook his head. “Oh, no. For such a long voyage, her explorer ship would have to fly at close to the speed of light. That means she would still be very young. The only one that has grown old is me. You don’t understand how large the universe is. What you think of as ‘eternity’ is nothing but a grain of sand in space-time.

“Well, the fact that you can’t understand and feel this is sometimes a blessing.”

# CHAPTER 5

The honeymoon between the gods and the humans quickly ended.

People were initially ecstatic over the scientific material received from the gods, thinking that it would allow mankind to realize their dreams overnight. Thanks to the interface equipment provided by the gods, an enormous quantity of information was retrieved successfully from the storage devices. The information was translated into English, and in order to avoid disputes, a copy was distributed to every nation in the world.

But people soon discovered that realizing these god-given technologies was impossible, at least within the present century. Consider what would happen if a time traveler had provided modern technological information to the ancient Eyptians, and you will have some understanding of the awkward situation these humans faced.

As the exhaustion of petroleum supplies loomed over the human race, energy technology was at the top of everyone's minds. But scientists and engineers discovered that the God Civilization's energy technology was useless for humans at this time. The gods' energy source was based on the principle of matter-antimatter annihilation. Even if people could understand all the materials and finally create an annihilation engine and generator (impossible to realize within one generation), it would still have been for naught. That was because the fuel for these engines, antimatter, must be mined from deep space. According to the material provided by the gods, the closest antimatter ore source was

between the Milky Way and the Andromeda Galaxy, about 550,000 light years away.

The technology for interstellar travel at near light speed also involved every field of scientific knowledge, and the greater part of the theories and techniques revealed by the gods were beyond human comprehension. Just to get a basic understanding of the foundations would require human scholars to work for perhaps half a century. Scientists, initially full of hope, had tried to search the gods' materials for technical information concerning controlled nuclear fission, but there was nothing. This was easy to understand: our current literature on energy science contained no information on how to make fire from sticks either.

In other scientific fields, such as information science and life sciences (including the secret of human longevity), it was the same. Even the most advanced scholars could make no sense of the gods' knowledge. Between the gods' science and the humans' science there was still a great abyss of understanding that could not be bridged.

The gods who arrived on Earth could not help the scientists in any way. Like the god at the United Nations had said, among the gods now, there were few who could even solve quadratic equations. The spaceships adrift among the asteroids ignored all attempts at contact from the humans. The human race was like a group of new elementary school students who were suddenly required to master the material of a PhD candidate, and were given no instructor.

On the other hand, the Earth's population suddenly grew by two billion. These were all extremely aged individuals who could no longer be productive. Most of them were plagued by various diseases, and put unprecedented pressure on human society. As a result, every government had to pay each family living with a god a considerable stipend. Healthcare and other public infrastructure were

strained beyond the breaking point. The world economy was pushed to the edge of collapse.

The harmonious relationship between the god and Qiusheng's family was gone. Gradually, the family began to see him as a burden that had fallen from the sky. They began to despise him, but each for a different reason.

Yulian's reason was the most practical and closest to the underlying problem: The god made her family poor. Out of all the members of the family, the god also worried the most about her. She had a tongue as sharp as a knife, and she scared him more than black holes and supernovas. After the death of her dream of true communism, she unceasingly nagged the god:  before he came, their family had lived so prosperously and comfortably. Back then everything was good. Now everything was bad. All because of him. Being saddled with an old fool like him was such a great misfortune.  Every day, whenever she had the chance, she would prattle like this in front of the god.

The god also suffered from chronic bronchitis. This was not a very expensive disease to treat, but it did require ongoing care and a constant outlay of money. Finally, Yulian forbade Qiusheng from taking the god to the town hospital to see doctors and stopped buying medicine for him. When the Secretary of the village branch of the Communist Party found out, he came to Quisheng's house.

"You have to pay for the care of your family god," the Secretary said to Yulian. "The doctor at the town hospital told me that if it's left untreated, chronic bronchitis might develop into pulmonary emphysema."

"If you want him treated, then the village or the government can pay for it," Yulian shouted at the Secretary. "We're not made of money!"

"Yulian, according to the God Support Law, the family has to bear these kinds of minor medical expenses. The government's support fee already includes this component."

"That little bit of support fee is useless!"

“You can’t talk like that. After you began getting the support fee, you bought a milk cow, switched to liquefied petroleum gas, and bought a big new color TV! You’re telling me now that you don’t have money for the god to see a doctor? Everyone knows that in your family, your word is law. I’m going to make it clear to you: right now I’m helping you save face, but don’t push your luck. Next time, it won’t be me standing here trying to persuade you. It will be the County God Support Committee. You’ll be in real trouble then.”

Yulian had no choice but to resume paying for the god’s medical care. But after that she became even meaner to him.

One time, the god said to Yulian, “Don’t be so anxious. Humans are very smart and learn fast. In only another century or so, the easiest aspects of the Gods’ knowledge will become applicable to human society. Then your life will become better.”

“Damn. A whole century. And you say ‘only’. Are you even listening to yourself?” Yulian was washing the dishes and didn’t even bother looking back at the god.

“That’s a very short period of time.”

“For you! You think we can live as long as you? In another century, you won’t even find my bones! But I want to ask you a question: how much longer do you think you’ll be living?”

“Oh, I’m like a candle in the wind. If I can live another three or four hundred years, I’ll be very satisfied.”

Yulian dropped a whole stack of bowls on the ground. “This is not how ‘support’ is supposed to work! So you think not only I should spend my entire life taking care of you, but my sons and my grandsons should support you for ten generations and more!? Why won’t you die?”

As for Qiusheng’s father, he thought the god was a fraud, and in fact, this view was pretty common. Since scientists couldn’t understand the gods’scientific papers, there was no

way to prove their authenticity. Maybe the gods were playing a giant trick on the human race. For Quisheng's father, there was ample support for this view.

"You old swindler, you're way too outrageous," he said to the god one day. "I'm too lazy to expose you. Your tricks are not worth my trouble. Heck, they're not even worth my grandson's trouble."

The god asked him what he had discovered.

"I'll start with the simplest thing: our scientists know that humans evolved from monkeys, right?"

The god nodded. "More accurately, you evolved from primitive apes."

"Then how can you say that you created us? If you were interested in creating humans, why not directly make us in our current form? Why bother first creating primitive apes and then go through the trouble of evolving? It makes no sense."

"A human begins as a baby, and then grows into an adult. A civilization also has to grow from a primitive state. The long path of experience cannot be avoided. Actually, humans began with the introduction of a much more primitive species. Even apes were already very evolved."

"I don't believe these made-up reasons. All right, here's something more obvious. This was actually first noticed by my grandson. Our scientists say that there was life on Earth even three billion years ago. Do you admit this?"

The god nodded. "That estimate is basically right."

"So you're three billion years old?"

"In terms of your frame of reference, yes. But according to the frame of reference of our ships, I'm only 3,500 years old. The ships flew close to the speed of light, and time passed much more slowly for us than for you. Of course, once in a while a few ships dropped out of their cruise and decelerated to come to Earth so that further adjustments to the evolution of life on Earth could be made. But this didn't require much time. Those ships would then return to cruise

at close to the speed of light and continue skipping over the passage of time here."

"Bullshit," Qiusheng's father said contemptuously.

"Dad, this is the Theory of Relativity," Qiusheng interrupted. "Our scientists already proved it."

"Relativity my ass! You're bullshitting me too. That's impossible! How can time be like sesame oil, flowing at different speeds? I'm not so old that I've lost my mind. But you! Reading all those books has made you stupid!"

"I can prove to you that time does indeed flow at different rates," the god said, his face full of mystery. He took out that photograph of his beloved from two thousand years ago and handed it to Qiusheng. "Look at her carefully and memorize every detail."

The second Qiusheng looked at the photograph, he knew that he would be able to remember every detail. It would be impossible to forget. Like the other gods, the woman in the picture had a blend of the features of all ethnicities. Her skin was like warm ivory, her eyes were so alive that they seemed to sing, and she immediately captivated Qiusheng's soul. She was a woman among the gods, the god of women. The beauty of the gods was like a second sun. Humans had never seen it and could not bear it.

"Look at you! You're practically drooling!" Yulian grabbed the photograph from the frozen Qiusheng. But before she could look at it, her father-in-law took it away from her.

"Let me see," Qiusheng's father said. He brought the photograph to his ancient eyes, as close as possible. For a long time he did not move, as though the photograph provided sustenance.

"Why are you looking so close?" Yulian said, her tone contemptuous.

"Shut it. I don't have my glasses," Qiusheng's father said, his face still practically on the photograph.

Yulian looked at her father-in-law disdainfully for a few seconds, curled her lips, and left for the kitchen.

The god took the photograph from Qiusheng's father, whose hands lingered on the photo for a long while, unwilling to let go. The god said, "Remember all the details. I'll let you look at it again this time tomorrow."

The next day, father and son said little to one another. Both thought about the young woman so there was nothing to say. Yulian's temper was far worse than usual.

Finally, the time came. The god had seemingly forgotten about it and had to be reminded by Qiusheng's father. He took out the photograph that the two men had been thinking about all day and handed it first to Qiusheng. "Look carefully. Do you see any change in her?"

"Nothing really," Qiusheng said, looking intently. After a while, he finally noticed something. "Aha! The opening between her lips seems slightly narrower. Not much, just a little bit. Look at the corner of the mouth here…"

"Have you no shame? To look at some other woman that closely?" Yulian grabbed the photo again, and again, her father-in-law took it away from her.

"Let me see…" Qiusheng's father put on his glasses and carefully examined the picture. "Yes, indeed the opening is narrower. But there's a much more obvious change that you didn't notice. Look at this wisp of hair. Compared to yesterday, it has drifted further to the right."

the god took the picture from Qiusheng's father. "This is not a photograph, but a television receiver."

"A… TV?"

"Yes. Right now it's receiving a live feed from that explorer spaceship heading for the end of the universe."

"Live? Like live broadcasts of football matches?"

"Yes."

"So… the woman in the picture, she's alive!" Qiusheng was so shocked that his mouth hung open. Even Yulian's eyes were now as big as walnuts.

"Yes, she's alive. But unlike a live broadcast on Earth, this feed is subject to a delay. The explorer spaceship is now

about eighty million light years away, so the delay is about eighty million years. What we see now is how she was eighty million years ago."

"This tiny thing can receive a signal from that far away?"

"This kind of super long-distance communication across space requires the use of neutrinos or gravitational waves. Our spaceships can receive the signal, magnify it, and then rebroadcast to this TV."

"Treasure, a real treasure!" Qiusheng's father praised sincerely. But it was unclear whether he was talking about the tiny TV or the young woman on TV. Anyway, after hearing that she was still "alive" Qiusheng and his father both felt a deeper attachment to her. Qiusheng tried to hold the tiny TV again, but the god refused.

"Why does she move so slowly in the picture?"

"That's the result of time flowing at different speeds. From our frame of reference, time flows extremely slowly on a spaceship flying close to the speed of light."

"Then… can she still talk to you?" Yulian asked.

The god nodded. He flipped a switch behind the TV. Immediately a sound came out of it. It was a woman's voice, but the sound didn't change, like a singer holding a note steady at the end of a song. The god stared at the screen, his eyes full of love.

"She's talking right now. She's finishing three words: 'I love you.' Each word took more than a year. It's now been three-and-a-half years, and right now she's just finishing 'you.' To completely finish the sentence will take another three months." The god lifted his eyes from the TV to the domed sky above the yard. "She still has more to say. I'll spend the rest of my life listening to her."

Bingbing actually managed to maintain a pretty good relationship with the god for a while. The gods all had some childishness to them, and they enjoyed talking and playing with children. But one day, Bingbing wanted the god to give

him the large watch he wore, and god refused. He explained that the watch was a tool for communicating with the God Civilization. Without it, he would no longer be able to connect with his own people.

“Hmm, you see? You’re still thinking about your own civilization and race. You’ve never thought of us as your real family!” Yulian said angrily.

After that, Bingbing was no longer nice to the god. Instead, he often played practical tricks on him.

The only one in the family who still had respect and feelings of filial piety towards the god was Qiusheng. Qiusheng graduated from high school and liked to read. Other than a few people who passed the college-entrance examination and went away for college, he was the most learned individual in the village. But at home, Qiusheng had no power. In practically everything he listened to the directions of his wife and followed the commands of his father. If somehow his wife and father had conflicting instructions, then all he could do was to sit in a corner and cry. Given that he was such a softy, he had no way to protect the god at home.

# CHAPTER 6

The relationship between the gods and the humans had finally deteriorated beyond repair.

The complete breakdown between the god and Qiusheng's family occurred after the incident involving instant noodles. One day, before lunch, Yulian came out of the kitchen with a paper box and asked why half of the box of instant noodles she had bought yesterday had already disappeared.

"I took them," the god said in a small voice. "I gave them to those living by the river. They've almost run out of things to eat."

He was talking about the place where the gods who had left their families were gathering. Recently, there were frequent incidents of abuse of the gods in the village. One particularly savage couple had been beating and cursing out their god, and even withheld food from him. Eventually the god tried to commit suicide in the river that ran in front of the village, but luckily others were able to stop him.

This incident received a great deal of publicity. It went beyond the county, and the city's police eventually came, along with a bunch of reporters from CCTV and the provincial TV station, and took the couple away in handcuffs. According to the God Support Law, they had committed god abuse, and would be sentenced to at least ten years in jail. This was the only law that was universal among all the nations of the world, with uniform prison terms.

After this, the families in the village became more careful, and stopped treating the gods too poorly in front of other people. But at the same time, the incident worsened the relationship between the gods and the villagers. Eventually, some of the gods left their families and other gods followed. By now almost one third of the gods in Xicen had already left their assigned families. These wandering gods set up camp in the field across the river and lived a primitive, difficult life.

In other parts of the country and across the world, the situation was the same. Once again, the streets of big cities were filled with crowds of wandering, homeless gods. The number quickly increased, like a repeat of the nightmare three years ago. The world, full of gods and people, faced a grave crisis.

“Ha, you’re very generous! You old fool! How dare you eat our food while giving it away?” Yulian began to curse loudly.

Qiusheng’s father slammed the table and got up. “You idiot! Get out of here! You miss those gods by the river? Why don’t you go and join them?”

The god sat silently for a while, thinking. Then he stood up, went to his tiny room, and packed up his few belongings. Leaning on his bamboo cane, he slowly made his way out the door, heading in the direction of the river.

Qiusheng didn’t eat with the rest of his family. He squatted in a corner with his head lowered, not speaking.

“Hey, dummy! Come here and eat. We have to go into town to buy feed this afternoon,” Yulian shouted at him. Since he refused to budge, she went over to yank his ear.

“Let go,” Qiusheng said. His voice was not loud, but Yulian let him go in shock. She had never seen her husband with such a gloomy expression on his face.

“Forget about him,” Qiusheng’s father said, carelessly. “If he doesn’t want to eat, then he’s a fool.”

“Ha, you miss your god? Why don’t you go join him and his friends in that field by the river too?” Yulian poked a finger at Qiusheng’s head.

Qiusheng stood up and went upstairs to his bedroom. Like the god, he packed a few things into a bundle and put it in a duffel bag that he had once used when he had gone to the city to work. With the bag on his back, he headed outside.

“Where are you going?” Yulian yelled. But Qiusheng ignored her. She yelled again, but now there was fear in her voice. “How long are you going to be out?”

“I’m not coming back,” Qiusheng said, without looking back.

“What? Come back here! Is your head filled with shit?” Qiusheng’s father followed him out of the house. “What’s the matter with you? Even if you don’t want your wife and kid, how dare you leave your father?”

Qiusheng stopped but still did not turn around. “Why should I care about you?”

“How can you talk like that? I’m your father! I raised you! Your mother died early. You think it was easy to raise you and your sister? Have you lost your mind?”

Qiusheng finally turned back to look at his father. “If you can kick the people who created our ancestors’ ancestors’ ancestors out of our house, then I don’t think it’s much of a sin for me not to support you in your old age.”

He left, and Yulian and his father stood there, dumbfounded.

Qiusheng went over the ancient stone arched bridge and walked towards the tents of the gods. He saw that a few of the gods had set up a pot to cook something in the grassy clearing strewn with golden leaves. Their white beards and the white steam coming out of the pot reflected the noon sunlight like a scene out of an ancient myth.

Qiusheng found his god, and said stubbornly, “Gramps god, let’s go.”

“I’m not going back to that house.”

“I’m not either. Let’s go together into town and stay with my sister for a while. Then I’ll go into the city and find a job, and we’ll rent a place together. I’ll support you for the rest of my life.”

“You’re a good kid,” the god said, patting his shoulder lightly. “But it’s time for us to go.” He pointed to the watch on his wrist. Qiusheng now noticed that all the watches of all the gods were blinking with a red light.

“Go? Where to?”

“Back to the ships,” the god said, pointing at the sky. Qiusheng lifted his head and saw that two spaceships were already hovering in the sky, standing out starkly against the blue. One of them was closer, and its shape and outline loomed huge. Another behind it was much further away and appeared smaller. But the most surprising sight was that the first spaceship had lowered a thread as thin as spider silk, extending from space down to the Earth. As the spider silk slowly drifted, the bright sun glinted from its different sections, like lightning in the bright blue sky.

“A space elevator,” the god explained. “Already, more than a hundred of these have been set up on every continent. We’ll ride them back to the ships.” Later, Qiusheng would learn that when a spaceship dropped down a space elevator from a geostationary orbit, it needed a large mass on its other side, deep in space, to act as a counterweight. That was the purpose of the other ship he’d seen.

When Qiusheng’s eyes adjusted to the brightness of the sky, he saw that there were many more silvery stars deep in the distance. Those stars were spread out very evenly, forming a huge matrix. Qiusheng understood that the twenty thousand ships of the God Civilization were coming back to Earth from the asteroid belt.

# CHAPTER 7

**T**wenty thousand spaceships once again filled the sky above Earth. In the two months that followed, space capsules ascended and descended space elevators, taking away the two billion gods who had briefly lived on the Earth. The space capsules were silver spheres. From a distance, they looked like dew drops hanging on spider threads.

The day that Xicen's gods left, all the villagers showed up for the farewell. Everyone was affectionate towards the gods, reminding them of the day one year ago when the gods first came to Xicen. It was as though all the abuse and disdain the gods had endured had nothing to do with the villagers.

Two big buses were parked at the entrance to the village, the same two buses that had taken them here a year ago. More than a hundred gods would now be taken to the nearest space elevator and ride up in space capsules. The silver thread that could be seen in the distance was in reality hundreds of kilometers away.

Qiusheng's whole family went to send off their god. No one said anything along the way. As they neared the village entrance, the god stopped, leaned against his cane, and bowed to the family. "Please stop here. Thank you for taking care of me this year. Really, thank you. No matter where I will be in this universe, I will always remember your family." Then he took off the large watch from his wrist and handed it to Bingbing. "A gift."

"But… how will you communicate with the other gods in the future?" Bingbing asked.

“We’ll all be on the spaceships. I have no more need for this.” The god said, laughing.

“Gramps god,” Qiusheng’s father said, his face sorrowful. “Your ships are all ancient. They won’t last much longer. Where can you go then?”

The god stroked his beard and said calmly, “It doesn’t matter. Space is limitless. It’s the same wherever you die.”

Yulian suddenly began to cry. “Gramps god, I… I’m not a very nice person. I shouldn’t have made you the target of all the bitterness I’d saved up my whole life. It’s just as Qiusheng said, I’ve behaved as if I don’t have a conscience…” She pushed a bamboo basket into the god’s hands. “I boiled some eggs this morning. Please take them for your trip.”

The god picked up the basket. “Thank you.” Then he took out an egg, peeled it, and began to eat, savoring the taste. Yellow flakes of egg yolk soon covered his white beard. He continued to talk as he ate. “Actually, we came to Earth not only because we wanted to survive. Having already lived for two, three thousand years, what did we have to fear from death? We just wanted to be with you. We like and cherish your passion for life, your creativity, your imagination. These things have long disappeared from the God Civilization. We saw in you the childhood of our civilization. But we didn’t realize we’d bring you so much trouble. We’re really sorry.”

“Please stay, Gramps,” Bingbing said, crying. “I’ll be better in the future.”

The god shook his head slowly. “We’re leaving not because of how you treated us. The fact that you took us in and allowed us to stay was enough. But one thing made us unable to stay any longer: in your eyes, the gods are pathetic. You pity us. Oh, you pity us.”

The god threw away the pieces of eggshell. He lifted his face, trailing a full head of white hair, and stared at the sky, as though through the blue sky he could see the bright sea

of stars. “How can the God Civilization be pitied by Man? You have no idea what a great civilization she was. You do not know what many majestic epics she created, or how many imposing deeds she accomplished.

“It was 1857, during the Milky Way Era, when astronomers discovered that a large number of stars were accelerating towards the center of the Milky Way. Once this flood of stars was consumed by the super black hole found there, the resulting radiation would kill all life found in the galaxy.

“In response, our great ancestors built a nebula shield around the center of the galaxy with a diameter of ten thousand light years so that life and civilization in the galaxy would continue. What a magnificent engineering project that was! It took us more than 1,400 years to complete…

“Immediately afterwards, the Andromeda Galaxy and the Large Magellanic Cloud united in an invasion of our galaxy. The interstellar fleet of the God Civilization leapt across hundreds of thousands of light years and intercepted the invaders at the gravitational balance point between Andromeda and the Milky Way. When the battle entered into its climax, vast numbers of ships from both sides mixed together, forming a spiraling nebula the size of the Solar System.

“During the final stages of the battle, the God Civilization made the bold decision to send all remaining war ships and even the civilian fleet into the spiraling nebula. The great increase in mass caused gravity to exceed the centrifugal force, and this nebula, made of ships and men, collapsed under gravity and formed a star! Because the proportion of heavy elements in this star was so high, the star went supernova immediately after its birth, and illuminated the deep darkness between Andromeda and the Milky Way! Our ancestors thus destroyed the invaders with their courage

and self-sacrifice, and left the Milky Way as a place where life could develop peacefully…

“Yes, now our civilization is old. But it is not our fault. No matter how hard one strives, a civilization must grow old one day. Everyone must grow old, even you.

“We really do not need your pity.”

“Compared to you,” Qiusheng said, full of awe, “the human race is really nothing.”

“Don’t talk like that,” th god said. “Earth’s civilization is still in its infancy. We hope you will grow up fast. We hope that you will inherit and continue the glory of your creator.” The god threw down his cane. He put his hands on the shoulders of Bingbing and Qiusheng. “I have some final words for you.”

“We may not understand everything you have to say,” Qiusheng said. “But please speak. We will listen.”

“First, you must get off this rock!” The god spread out his arms towards space. His white robe danced in the fall wind like a sail.

“Where will we go?” Qiusheng’s father asked in confusion.

“Begin by flying to the other planets in the Solar System, then to other stars. Don’t ask why, but use all your energy towards the goal of flying away, the further the better. In that process you will spend a lot of money and many people will die, but you must get away from here. Any civilization that stays in her birth world is committing suicide! You must go into the universe and find new worlds, new homes, and spread your descendants across the galaxy like drops of spring rain.”

“We’ll remember,” Qiusheng said and nodded, even though neither he, nor his wife or father or son, really understood the god’s words.

“Good,” the god sighed, satisfied. “Now, I will tell you a secret, a great secret.” He stared at everyone in the family

with his blue eyes. His gaze was like a cold wind, and caused everyone's heart to shudder. "You have brothers."

Qiusheng's family looked at the god, utterly confused. But Qiusheng finally figured out what the god meant. "You're saying that you created other Earths?"

The god nodded slowly. "Yes, other Earths, other human civilizations. There were three others besides you. All are close to you, within two hundred light years. You are Earth Number Four, the youngest."

"Have you been to the other Earths?" Bingbing asked.

The god nodded again. "Before we came to you, we went first to the other three Earths and asked them to take us in. Earth Number One was the best among the bunch. After they obtained our scientific materials, they simply chased us away.

"Earth Number Two, on the other hand, kept one million of us as hostages, and forced us to give them the spaceships as ransom. After we gave them one thousand ships, they realized that they could not operate the ships. They then forced the hostages to teach them how, but the hostages didn't know how either since the ships were automatic. So they killed all the hostages.

"Earth Number Three took three million of us as hostages, and demanded that we ram Earth Number One and Earth Number Two with several spaceships each because they were in a prolonged state of war with them. Of course, even a single collision with one of our antimatter-powered ships would destroy all life on a planet. We refused, and so they killed all the hostages."

"Unfilial children!" Qiusheng's father shouted in anger. "You should punish them!"

The god shook his head. "We will never attack civilizations we created. You are the best of the four brothers. That's why I'm telling you all this. Your three brothers are drawn to invasion. They do not know what is

love or what is morality. Their capacity for cruelty and bloodlust are impossible for you to imagine.

“Indeed, in the beginning we created six Earths. The other two were in the same solar systems as Earth Number One and Earth Number Three, respectively. Both were destroyed by their brothers. The fact that the other three Earths haven’t yet destroyed each other is only due to the great distances separating their solar systems. By now, all three know of the existence of Earth Number Four and possess your precise coordinates. Thus, you must go and destroy them first before they destroy you.”

“This is too frightening!” Yulian said.

“For now, it’s not yet too frightening. Your three brothers are indeed more advanced than you, but they still cannot travel faster than one-tenth the speed of light, and cannot cruise more than thirty light years from home. This is a race of life and death to see which one among you can achieve near-light-speed space travel first. It is the only way to break through the prison of time and space. Whoever can achieve this technology first will survive. Anyone slower will die a sure death. This is the struggle for survival in the universe. Children, you don’t have much time. Work hard!”

“Do the most learned and most powerful people in our world know these things?” Qiusheng’s father asked, trembling.

“Yes. But don’t rely on them. A civilization’s survival depends on the effort of every individual. Even the common people like you have a role to play.”

“You hear that, Bingbing?” Qiusheng said to his son. “You must study hard.”

“When you fly into the universe at close to the speed of light to resolve the threat of your brothers, you must perform another urgent task: find a few planets suitable for life, and seed them with some simple, primitive life from here, like bacteria and algae. Let them evolve on their own.”

Qiusheng wanted to ask more questions, but the god picked up his cane and began to walk. The family accompanied him towards the bus. The other gods were already aboard.

“Oh, Qiusheng,” the god stopped, remembering. “I took a few of your books with me. I hope you don’t mind.” He opened his bundle to show Qiusheng. “These are your high school textbooks on math, physics, and chemistry.”

“No problem. Take them. But why do you want these?”

The god tied up the bundle again. “To study. I’ll start with quadratic equations. In the long years ahead, I need some way to occupy myself. Who knows? Maybe one day, I’ll try to repair our ships’ antimatter engines, and allow us to fly close to the speed of light again!”

“Right,” Qiusheng said, excited. “That way, you’ll be able to skip across time again. You can find another planet, create another civilization to support you in your old age!”

the god shook his head. “No, no, no. We’re no longer interested in being supported in our old age. If it’s time for us to die, we die. I want to study because I have a final wish.” He took out the small TV from his pocket. On the screen, his beloved from two thousand years ago was still slowly speaking the final word of that three-word sentence. “I want to see her again.”

“It’s a good wish, but it’s only a fantasy,” Qiusheng’s father said. “Think about it. She left two thousand years ago at the speed of light. Who knows where she is now? Even if you repair your ship, how will you ever catch her? You told us that nothing can go faster than light.”

The god pointed at the sky with his cane. “In this universe, as long as you’re patient, you can make any wish come true. The possibility may be miniscule, but it is not nonexistent. I told you once that the universe was born out of a great explosion. Now, gravity has gradually slowed down its expansion. Eventually the expansion will stop and turn into contraction. If our spaceship can really fly again at

close to the speed of light, then we will endlessly accelerate and endlessly approach the speed of light. This way, we will skip over endless time until we near the final moments of the universe.

“By then, the universe will have shrunken to a very small size, smaller even than Bingbing’s toy ball, as small as a point. Then everything in the entire universe will come together, and she and I will also be together.”

A tear fell from the god’s eye and rolled onto his beard, glistening brightly in the morning sun. “The universe will then become the tomb at the end of  The Butterfly Lovers. She and I will be the two butterflies emerging from the tomb…”

# CHAPTER 8

**A** week later, the last spaceship left Earth. The gods left.

Xicen Village resumed its quiet life.

That evening, Qiusheng's family sat in the yard, looking at a sky full of stars. It was deep fall, and insects had stopped making noises in the fields. A light breeze stirred the fallen leaves at their feet. The air was slightly chilly.

"They're flying so high. The wind must be so severe, so cold…" Yulian murmured to herself.

"There isn't any wind up there," Qiusheng said. "They're in space, where there isn't even air. But it is really cold. So cold that in the books they call it absolute zero. It's so dark out there, with no end in sight. It's a place that you can't even visit in your nightmares."

Yulian began to cry. but she tried to hide it by saying, "Remember the last two things the hod told us? I understand the part about our three brothers. But then he told us that we had to spread bacteria onto other planets and so on. I still can't make sense of that."

"I figured it out," Qiusheng's father said. Under the brilliant, starry sky, his head, full of a lifetime of foolishness, finally opened up to insight. He looked up at the stars. He had lived with them above his head all his life, but only today did he truly see them. A feeling he had never had before suffused his blood, making him feel as if he had been touched by something greater. Even though it did not become part of him, the feeling shook him to his core. He sighed at the sea of stars, and said:

“The human race needs to start thinking about who is going to support us in our old age.”

# With Her Eyes

# PREFACE

I had been working for two months straight, and I was tired. I needed to get out, relax and clear my mind, if just for a few days.

So, I asked the Director for two days of leave. He approved it, but only on the condition that I take a pair of eyes along. I agreed and so he took me to pick them up from the Control Center. The eyes were kept in a small room at the end of a long corridor. There were about a dozen pairs left when we got there. The Director pointed to a large screen as he handed me one of the pairs. I was greeted on the screen by the owner of the eyes I now held, staring at me. She appeared to be very young, probably fresh out of the university, her petite frame only accentuated by the massive spacesuit encasing her. The fact that her face looked like a mask of misery did nothing to help the situation. Just a few months ago, she had probably dreamt of the romance of space in the safety of her university library; now she faced the hellish reality of the infinite void.

“I am very sorry for imposing upon you,” she opened, bowing to me. Her soft words sounded as if they were floating to me, a gentle breeze out of the deeps of space.

“Not at all. I’m happy to have a companion,” I replied sincerely. “Where do you want to go?”

“Really?” She could barely contain her excitement and joy. “You haven't decided where you'll go?”

As she spoke, I felt my attention drawn to two peculiarities. On the one hand, there was the fact that space-to-surface communications always suffered some degree of lag. Just calling the Moon meant a delay of about

two seconds and communications with the Asteroid Belt had to deal with considerably longer lag-times. Her answers, however, seemed to arrive without any perceptible delay at all. That meant that she had to be in low Earth orbit, but there was no reason to link-up from there. Returning to the surface from there was cheap and quick, so why ever would she want me to carry her eyes on vacation?

On the other hand, she was outfitted as an aerospace engineer, but her spacesuit seemed rather odd; it lacked any visible anti-radiation system and the helmet hanging at her side apparently lacked glare guards. The suit's insulation and cooling systems were of a strange design as well.

“What station is she on?” I asked, turning to the Director.

“Just don't ask,” he answered glumly.

“Leave it, okay?” the young woman on the screen echoed abjectly enough to tug at my heartstrings.

“You aren't in lock-up, are you?” I asked, more in jest than earnest. It was not entirely without basis, however; her station appeared terribly cramped. It looked like some sort of cockpit. An almost endless array of complex navigation equipment and displays flickered and glowed behind her, yet I could see no window, not even an observation screen. In fact, the only proof that she was actually in outer space was a pencil that was slowly floating around her head.

Both she and the Director responded to my question with stunned silence, so I hurriedly continued. “Very well, I will not ask about things that shouldn't concern me, but you still need to decide where we should go.”

To her, making the decision seemed to be a genuine struggle. Clutching her gloved hands to her chest, she almost closed her eyes as she focused. If I had not known the circumstances, I could easily have been fooled into believing that she had been faced with a decision of life and death, or perhaps that she was convinced that the Earth would explode after our short vacation. I could not help but snicker at the thought.

“Oh, this isn't easy for me. If you know Helen Keller's *Three Days to See*, then you can understand how hard this is for me!” Her soft voice momentarily mustered surprising force.

“We don't have three days; just two,” I replied. “We are all beggars for time these days. Then again, we’re lucky when compared to Helen: In three hours, I can take your eyes anywhere on Earth.”

“Then let's go somewhere that we've been before!”

After she told me the location, I left with her eyes.

# CHAPTER 1

# The Taklamakan

It was a place where towering mountains and flat plains, grasslands, and forest met and embraced – a mighty grassland located a good thousand miles from the Aerospace Center where I worked. Flying via the ionosphere, our journey took a mere 15 minutes. Many generations of perseverance and hard work had transformed the Taklamakan from a sandy desert to verdant grassland. Now, after decades of vigorous population control, it was once again left deserted, if only of human habitation. Before me, the grasslands stretched straight to the horizons. Behind me, the Tian Shan Mountains were covered in the luscious green of a thick forest, punctuated only by the occasional silvery white snowcaps of the highest peaks.

I took out her eyes and put them on.

The so-called “eyes” were actually a pair of remote-sensing glasses. When worn, they transmitted visual information to a designated receiver pair of “eyes” via an ultra high frequency signal. This allowed the often very distant receiver to see everything the wearer saw just as if viewing through his or her very own eyes.

Nowadays, millions worked all year round on the Moon and the Asteroid Belt. These workers faced truly daunting costs if they wished to return to Earth for a vacation. The Aerospace Agency, always concerned with its bottom line, had devised these gadgets to solve their dilemma – and so extra-orbital astronaut had another pair of *eyes* planet-side.

Those on Earth, lucky enough to go on a real-life vacation, could take someone else's pair along, allowing a homesick space worker to share the joy of their trip. Even though these gadgets had become the butt of many a joke, the fact that those willing to wear them received significant subsidies for their travels had made them very popular indeed.

The artificial eyes were cutting-edge technology and were continuously being developed and improved. Nowadays, they could even transmit a wearer's sensation of touch and smell by picking up his or her brainwaves. Wearing these eyes on vacation was often seen as a charitable act by the earthbound Aerospace Systems staff, but due to the invasion of privacy the eyes necessitated, far from everyone was happy with the arrangement. As for myself, I hardly saw a problem with them.

The vista that stretched before my own eyes was truly marvelous. Taking it all in, I drew a deep sigh of sheer delight from the depths of my being. Her eyes, however, rang with soft sobs.

“I have dreamed of this place ever since my last trip, and now I am back in that dream!” Her gentle voice replaced the sobs. “I feel like I am rising from the depths of the oceans, like I am taking my first breath of air. I am so very afraid of being sealed away.”

I could clearly hear her take deep, long breaths. “But you are not at all sealed away now,” I said. “Compared to the vastness of space all around you, this grassland is tiny.”

She replied with total silence. Even her breathing seemed to have stopped.

With a nod, I continued, if just to break the silence. “Ah, of course, people in space are sealed away. It’s like when Chuck Yeager described Mercury astronauts as being –”

“– spam in a can,” she finished the thought for me.

We both laughed. Suddenly her laughter turned to a scream. “Oh, flowers! There are flowers! They weren't here

the last time!”

She was right; the vast grassland was adorned with countless small blossoms.

“Can you have a look at the flowers next to you?” she asked.

I squatted and did as she asked.

“Oh, so beautiful! Can you smell it? No, don't pick it!”

So I had to lie almost flat on my belly to smell the flower's faint fragrance.

“Hmm, I smell it; it’s like a faint serenade!” Pure joy echoed in her voice.

I shook my head, laughing. In this age of ever-changing crazed fads, most girls were restless to a fault. I could barely think of another young woman like her – someone who actually stopped to smell the flowers.

“Let's give this little flower a name, shall we? Mm…” She thought for a few seconds. “Yes, we'll call this one Dreamflourish. Let's have another look at that flower, okay?”

I knew she was referring to another flower now.

“What should we call her? Mm, let's call her Drizzles. Now, go to that one over there… Oh, thank you! Will you look at the depth of that green? Her name should really be Moonglow…”

In this manner we perused the flowers. We smelled each tiny blossom and then we gave them names. She was intoxicated, the rush of it all having completely absorbed her. I, however, soon grew tired of the girl in the spacesuit's games, but by the time I finally insisted she give it a rest, we had already given hundreds of flowers their names.

When I raised my eyes again later, I saw we had actually crossed a good distance of the grassland. I went back to gather the backpack I had left behind. Just as I bent down to pick it up, I again heard her cry out.

“Oh heavens, you stepped on Snowy!”

So I straightened that little white wild flower back up. Feeling somewhat silly, I began by covering a flower with both hands, then I asked her, “What are they called? What do they look like?”

“That one on the left is Crystal; it is a white one and there are three separate leaves on its stem. To the right we have Firebloom. It is a pink one with four leaves. The top two leaves are singles, while the bottom two are joined,” she replied without hesitation or error.

She got them all right and I could not help but feel at least somewhat moved.

“You see,” she said wistfully, “we all know each other and in the many, many days to come, I will think of them over and over again. It will be like retelling a wonderful fairytale. That world of yours really is magnificent!”

“This world of mine?” I asked, a little irritated. “If you keep up your childish melodramatics maybe you should get those space psychologists to send you back to the surface permanently. This is your world, too.”

With that I began to aimlessly roam about the grassland. Soon, I came upon the bank of a small stream, hidden in the thick grass. I decided to forge ahead, but her voice called me back.

“I’d really like it if you would put your hands in that river.”

So I squatted down and let my hands dangle into the water. A wave of wonderful cool refreshment flowed through my entire body. I knew that she would feel it, too, as the high frequency waves carried the feeling into the far distance of space. Again I heard her sigh.

“It's very hot where you are?” I asked, thinking of her cramped cockpit and the insulation system of her strange spacesuit.

“Hot,” she replied. “Hot like hell.” Suddenly her tone changed. “Heavens, what's that? Is that the prairie wind?”

I had taken my hands out of the water and a gentle breeze was blowing coolly against my wet fingers.

“No, don't go,” she pleaded. “It feels like its blowing right out of paradise.”

I raised both my hands into the breeze until they were dry. Then, at her request, I dipped them back into the stream and again I lifted them into the wind. Again it felt divine, and again we shared the experience. We idled away a good while like this.

I set out again, wordlessly wandering for a while. Then I heard her soft voice again, “That world of yours really is magnificent.”

“I don't know; the gray of life has dulled it all,” I replied.

“How ever is that possible?” she almost shouted. “This world has so much to offer! So many experiences and feelings! Trying to describe it all would be no different than counting the raindrops in the rain. Look at those clouds on the horizon, their silvery whiteness. Right now, they seem solid to me, like towering mountains of glittering jade. And the grassland below – that looks wispy, as if all the grass was taking off and flying away, becoming a green cloud-ocean. Look! Watch that cloud cover the Sun and float away again. What a majestic play of light and shadow on the grassland! Look at it. Can you really not feel it?”

It was my turn to reply with silence.

I spent the entire day carrying her eyes over the grassland. As we strolled, she longed to look at each and every wild flower, all the grasses and every strand of sunlight beaming over the thick green of the prairie. She thirsted for every sound the Taklamakan could offer. When we chanced upon another rivulet and saw a small fish swimming in it, she could barely contain herself. Any random breeze carrying the delicate fragrance of the grass moved her to tears. I could not help but get the impression that the intensity of her emotions was slightly pathological.

Before the Sun set, I made my way to a small, white cabin standing forlornly on the grassland. It was a guesthouse awaiting tourists, but it looked like it had not seen any guests in a while. A lone, long-outdated robot looked after the entire guesthouse. When we arrived, I was tired and hungry. I had barely had a chance to sit down and take a few bites of my meal before she asked me to get up at once so that we could watch the sunset.

“Let's see the afterglow disappear as the night slowly falls over the forest. It will be like hearing the most beautiful symphony in all the cosmos…” Her voice was all but slurred by the sheer pleasure of it all.

I grumbled to myself, but still I dragged my heavy legs out the door.

The sunset over the Taklamakan was truly beautiful, but her emotional outpour at the sight bathed it all in a still stranger light.

“You really do cherish these ordinary things,” I noted as I walked back inside later. By now, the thick, black curtain of night had fallen and the stars had begun to twinkle above.

“And why don't you?” she asked. “It is life.”

“I, like most everyone else, simply can't. You know how easy things come these days, and I am not just talking about material things; it’s also things like the beauty of a bright blue sky or a crystal clear river. The peace and tranquility of the countryside or of a remote island – all of it is available for next to nothing. Even love. Just think about how elusive that was for previous generations and how desperately they chased it, and now it can be experienced in virtual reality, at least for a while. That is why people don't cherish these things. There is a huge pile of succulent fruits right within arm's reach, so we just grab one whenever we feel like it, take a bite, and throw the rest away.”

“But not everyone has fruit within reach,” she said in a small voice.

I felt that I was causing her pain, but I had no idea why. On the way back, we did not speak.

That night, I saw her in my dreams. She was in her spacesuit, confined to her tiny cockpit, her eyes wet with tears. She reached out to me, screaming, “Carry me away! I am afraid of being sealed away!”

My eyes flashed open as I woke with a start, only to discover that she really was shouting at me. I had fallen asleep on my back, wearing her eyes.

“Please, will you take me outside?” she beseeched me. “Let's go see the Moon. By now the Moon will have risen!”

My head felt like lead as I reluctantly stumbled out of bed. Finally outside, I groggily discovered that the Moon really did shine brightly in the sky. In the night mists of the grassland it appeared almost crimson. The vast wilderness below was fast asleep, with only a few roaming fireflies casting their dim light on the shadowy ocean of grass. It looked like a dream of the Taklamakan, painted into life.

I raised my arms as I addressed the night sky. “Hey, can you see the Moon shine down here from orbit? Just tell me whereabouts your spaceship is, maybe I'll spot it. I'm sure it’s got to be in low Earth orbit.”

She did not answer me. However, she did begin to gently hum a song. As she finished the short melody, she said, “It’s Debussy's 'Clair de Lune' suite; that's *moonlight* suite in French.” Then she continued to hum, completely absorbed in the music. She seemed to have forgotten all about me. From orbit, melody and moonlight descended upon the grassland in unison. I imagined that delicate girl in space, the silvery light of the Moon shining from above, the blue Earth below, and her petite self flying in-between, her song melding with the moonlight...

An hour passed before I returned to my bed. She was still humming. I didn't know if it was still something by Debussy or not. With her soft melody in my ear, I drifted off to sleep.

I don't know how much time had passed, but the melody had changed to a shout. She was waking me again, wanting to go outside.

“Didn't you just see the Moon?!” I was angry.

“But it’s different now,” she implored. “Don't you remember the clouds in the west? By now they have probably floated on and are covering the Moon. Just imagine how the light and shadow will dance on the grassland; so beautiful… It is music of another kind. Please, take my eyes outside!”

I was very annoyed with her, but I still left the guesthouse. The clouds had floated on and the Moon was shining through them. Its light slowly drifted over the grassland, seeming to rise from the depths of the Earth, like a long-forgotten memory.

“You're like one of those sentimental poets of the Romantic era, completely out of place in this age, and most certainly out place in space,” I said to the night sky. Then, I took out her eyes and hung them from a nearby Red Willow. “You can look at the Moon yourself; I am so off to sleep. Tomorrow, I'll hustle myself back to the Aerospace Center and continue my utterly prosaic life.”

Her eyes continued to emanate her tiny voice, but I could no longer hear what she was saying. I headed straight back inside.

When I woke, the Sun had already risen for awhile. Dark clouds had come to cover the sky, shrouding the Taklamakan in a light drizzle. I went outside to find that her eyes still hung from the tree, their lenses covered in mist. I carefully wiped them dry and put them on. I assumed that having watched the moonlit night she would be well asleep now, but instead I heard her sobbing softly. What anger I still carried dissolved as my heart reached out to her.

“I'm really sorry about yesterday, but I was dead tired,” I apologized.

“No, it’s not because of you,” she all but whimpered. “The sky darkened at three-thirty and then, around five, it started to rain –”

“You haven't slept all night?” I interrupted her in shock.

She continued to sob. “It started to rain. I, I could not see the sunrise. I so wanted to see the Sun rise over the grassland.” She choked in sheer despair. “…so wanted to see it.”

My heart felt like melting. By my mind's eye, I saw her eyes, her real eyes, brimming with tears; I saw the quivering of her slender nose, and to my surprise, I felt my own eyes moisten. I had to admit it – the past day and night she had taught me something, but I could not put my finger on exactly *what*. It felt somehow obscured, like the shadowy grassland, half-hidden in the moonlight. Even so, it had changed the world to my eyes. Something was different now.

“The Taklamakan will always have its sunrises. I am sure that I can take your eyes again to see it. Or, take you in person, all right?” I offered.

Her sobbing had stopped. Suddenly, I heard her soft voice again. “Listen…”

Nothing followed. I tensed, waiting.

“That is today's first birdsong! There are birds in the rain!” Excitement bubbled in her voice. She sounded as if she had just heard the Century Bell in Tianjin, ringing-in another new millennium.

# CHAPTER 2

## Setting Sun VI

I returned to the gray of life and the bustle of work. The memory of my journey with her eyes soon began to fade. A long time passed. Then one day, as I was just about to wash the clothes I had worn on that trip, I discovered a few minute grass seeds embedded in the leg of my trouser.

A seed had also been left in the deepest recesses of my subconscious. In the lonely desert of my soul, that seed had already grown into a little green sprout. But it was still tiny, all but disappearing in surrounding vastness. And while I was not aware of it yet, at the end of another overworked day, I, for the first time, felt the natural poetry of the night breeze brushing my face. The singing birds drew my attention and I even once stopped on a bridge on my way home to watch the curtain of night fall over the city.

Certainly, the world was still dull to my eyes, but tiny specks of verdant green had begun to sneak their way into the gray. As I finally began to realize this change, my mind returned to her; the memory of her, too, germinated in my subconscious. Slowly she began to drift into my idle mind and into my dreams. Over and over again she appeared before my mind's eye, locked in that cramped cockpit, wearing her strangely insulated spacesuit.

But it all sank into the depths of my subconscious. Only one thing stood out, distinct and clear: It was that weightless pencil, slowly drifting around her head. I did not

know why, but I hardly needed to close my eyes to see it float right in front of me.

Then one day as I was making my way into the Aerospace Center, I suddenly felt myself drawn to the giant mural that adorned the center's massive entrance hall. I had passed it countless times before, but never really paid it much heed. But now something about it caught my eye. The mural depicted Earth, viewed from outer space. That pencil again floated before my mind's eye and across the mural. Again, I heard her voice, *“I am afraid of being sealed ...”* Realization struck like lightning.

Space was not the only place free of gravity!

There was a mad dash up the floors and then I was fiercely pounding on the Director's door. He was not in, but I somehow knew where he had to be. I rushed to the small room where the eyes were kept. He was there, just as I had expected. The Director was looking at the girl on the large screen. She was still shut in that tiny cockpit, still wearing that “spacesuit”. The picture was frozen, almost certainly the image of a prior recording. The Director did not turn his gaze away from the screen as he addressed me.

“You're here because of her.” It was not a question.

“Where is she *really*?” I almost shouted the question.

“You probably already guessed it,” he replied. “She is the pilot of the *Setting Sun VI*.”

It all made sense and I all but collapsed onto the carpet.

The original plan of the “Setting Sun Project” had foreseen the launch of 10 vessels, the Setting Suns I – X. After the Setting Sun VI Disaster, however, the plan had been abandoned. The Setting Sun Project was an exploration mission like many before it and its procedures were almost like any other launched by the Aerospace Center.

There was just one difference: The Setting Sun vessels did not fly into space. They descended into the depths of

the Earth.

More than one and a half centuries after the first space flight, humanity began to explore in the opposite direction. The Setting Sun subterranean ships were the first attempt at this form of exploration.

Four years ago, I had seen the launch of the *Setting Sun I* on TV. It had been the dead of night when a blinding fireball bright as the Sun had suddenly erupted from the heart of the Turpan Depression in the entire west of China. The glorious light had turned the night clouds into the gorgeous rosé of dawn. When the fireball had faded, the *Setting Sun I* was already well below ground. Where it had been, a large swathe of earth had been scorched. In the very center of this circle of red-hot, burned earth now churned a lake of molten magma. White-hot, liquid rock boiled and seethed, raising a white plume to the sky …

That night, one could feel the faint tremors all the way to Urumchi as the ship dug into the Earth.

The first five Setting Sun ships successfully carried out their missions into the deep strata of the Earth and all returned safely to the surface. On its dig, the *Setting Sun V* set a new depth record for humanity, tunneling its way almost a full 2,000 miles below sea level. The *Setting Sun VI* had no intentions of breaking this record. Geophysicists had determined that the boundary between the Earth's mantle and core could be found at a depth of roughly 2,100 miles. The scientists called it the “Gutenberg Discontinuity”. Once through this boundary, one would enter Earth's liquid iron-nickel core. This also meant that the density of the surrounding matter would abruptly and exponentially increase beyond this boundary. The design specifications of the *Setting Sun VI* did not allow it to navigate through densities of such magnitude.

At first, the mission of the *Setting Sun VI* progressed without a hitch. In only two hours, the ship had penetrated the boundary between Earth's crust and its mantle, the

Mohorovicic Discontinuity. Then it stopped for five hours on the sliding surface of the drifting continental plate before beginning its 1,800-mile journey through the Earth's mantle. Space is a lonely place, but at least astronauts can see the infinity of the universe and majesty of the stars; stratonauts in their sub-ships, on the other hand, had nothing but the sensation of endlessly increasing density to guide them. All they could glean from their rear-mounted holographic screen was the blinding glare of seething magma following in their ship's wake, instantaneously closing the tunneled space behind their ship's stern. A stratonaut once described the experience, saying they just needed to close their eyes to see the onrushing magma gather behind them, pressing down and sealing them in. It was a sensation that kept every stratonaut aware of the immensity of ever-denser material pressing down upon them, tormenting them with a feeling of intense oppression that was hard for those on the surface to comprehend. No one was spared these intense attacks of claustrophobia.

Even as it descended, the *Setting Sun VI's* research work was above and beyond the mission targets. The ship was traveling at roughly 10 miles an hour, making its journey to its target depth a matter of 20 hours. Fifteen hours and 40 minutes after its launch, however, the ship's descent was interrupted by the shrill sound of an alarm. The subsurface radar had picked up a sudden increase of density, jumping from 393 pounds per cubic-foot to 593 pounds. The material the *Setting Sun VI* was suddenly faced with was no longer silicates but a metallic substance primarily composed of nickel and iron. Furthermore, it was no longer solid, but liquid. Even though the *Setting Sun VI* had only reached a depth of 1,500 miles below the surface, all signs seemed to point to one chilling conclusion: They had broken into the Earth's core!

Later it was discovered that they had chanced upon a fissure in the Earth's mantle that cut straight to the core.

This fissure was completely filled with the highly pressurized liquid iron-nickel of the Earth's core. In the path of the *Setting Sun VI*, the Gutenberg Discontinuity reached up to a depth of 1,500 miles! The ship turned on the spot, attempting to escape the fissure. And that was when it happened: The neutron material of the ship's hull easily held up as the pressure suddenly increased to a massive 11,500 tons per square-inch, but the ship itself was composed of three parts, a front-facing fusion engine, a central cabin, and a rear-mounted drive engine. When the ship turned, the fusion engine separated from the cabin, snapped off by density and pressure that well-exceeded the ship's operating limits. The pictures broadcast by the neutrino communicator of the *Setting Sun VI* clearly showed the fusion engine splitting from the hull, only to be instantly swallowed by the crimson glow of the liquid metal.

A subterranean ship's fusion engine fired a super-heated jet that cut through the material in front of the vessel. Without it, the drive engine could not push the *Setting Sun VI* even an inch through the earth. And while the density of the Earth's core was truly terrifying, the density of the neutron material of the *Setting Sun VI* was even greater. As the buoyant force of the liquid nickel-iron was less than the vessel's weight, the *Setting Sun VI* sank, plummeting ever further down into the Earth.

A century and a half after landing on the Moon, humanity had mastered the technology needed to reach Saturn. It was planned that the hurdle between mantle and core be leapt in a similar time-frame. Now, a sub-ship had accidentally entered the core and just like an off-course Moon rocket would have drifted into the depths of space in the twentieth century, not even the slightest hope of rescue remained.

Fortunately, the hull of the ship's cabin was sturdy and its neutrino communication system allowed it to maintain uninterrupted contact with the control center on the surface. In the following year, the crew of the *Setting Sun VI*

continued with its work, prying much valuable data from the Earth's core and sending it to the surface. Encased as they were in thousands of miles of rock, the crew was obviously cut from all air and any life. They were bereft of space, floating in temperatures reaching 9,000 degrees and surrounded by pressures that could crush carbon to diamonds within seconds! Only neutrinos could escape the massive density of the material in which the *Setting Sun VI* was entombed. The ship was thoroughly trapped in a giant furnace of molten steel. In this world, Dante's *Inferno* would have been paradise; in this world, what could life mean? How could anyone even begin to describe it?

The immense psychological pressure bearing down on the crew of the *Setting Sun VI* cracked nerves and percolated into the deepest layers of their minds. One day, the ship's geological engineer woke, leapt out of bed and without warning unsealed the nearest insulated gate protecting the cabin. Even though this was only the first of four, it opened the way for a wave of incandescent air that instantly burned him to charcoal. The ship's commander, who was in the cabin at the time, immediately closed the insulated gate, managing to avert the outright destruction of the *Setting Sun VI* by the skin of his teeth. He himself, however, suffered severe burns. He had barely completed his final logbook entry, before succumbing to his injuries.

From that moment on, only a single person remained aboard the *Setting Sun VI*, trapped in the deepest recesses of the planet.

By now, the sub-ship was in an area of almost total weightlessness. The ship had sunk to a depth of 4,000 miles, reaching the deepest point imaginable. And so the last remaining stratonaut of the *Setting Sun VI* became the first person to reach the Earth's core.

In the heart of the planet she lived in a cramped cockpit of barely a hundred square-feet. Her only reprieve was the fact that the ship was equipped with a pair of remote-

sensing glasses that allowed her to maintain at least some sensory contact to the surface world far, far above. This lifeline, however, would hardly last forever as the energy of the ship's neutrino communication system quickly depleted. Already, the energy did not suffice to maintain the transmission of the ultra high-speed data the remote-sensing glasses required. The system had lost contact three months ago, just as I was taking the plane back to the Aerospace Center from the Taklamakan. At the time, her eyes had been in my luggage.

Because I had put them there.

That sunless, drizzly dawn over the grassland had been her last sight of the surface world.

From then on, the *Setting Sun VI* had only been able to maintain communication with the surface via voice and data transmissions. But in the dead of night these systems, too, had recently failed, leaving her forever alone, sealed away in the Earth's core.

The outer neutron material shell of the *Setting Sun VI* was strong enough to withstand the core's pressure and the ship's life-support systems could run for another 50 to 80 years, so she would remain alive, until the end, in her tiny one-hundred square-foot world at the center of the Earth.

I hardly dared imagine her final farewell to the surface world, but when the Director played the recording, it exceeded my wildest expectations. The neutrino beam to the surface had already been very weak and her voice faded in and out, but even as it did, it conveyed nothing but calm and peace.

“…have received your final advisement. From now on, I will devote all my efforts to my work on these research projects. In the future, maybe many generations from today, a core-ship will perhaps find the *Setting Sun VI* and dock with it. Someone will then perhaps enter here. I can only hope that the material I leave behind will then be of some use. Please, rest assured; I have made a life for myself here.

I now no longer feel constrained or sealed away. The entire world surrounds me. All I need to do to see the vast Taklmakan above is to close my eyes, and then I can clearly see every last little flower I named. But now, I must bid you farewell.”

# CHAPTER 3

# The World, Clear as Crystal

**M**any years have passed and I have visited many places. Everywhere I go, I lie upon the earth. I have lain on a beach on the island of Hainan, on the ice- and snow-covered soil of Alaska, in the middle of the Siberian White Taiga, on the burning sands of the Sahara…

Every time, the planet below opened to my mind's eye, making the Earth clear as crystal. Four thousand miles below me, anchored to the very heart of this immense, translucent sphere, I could see the *Setting Sun VI*. And I could feel her heartbeats echo through thousands of miles, right to me. I imagined the golden light of the Sun and the silvery glow of the Moon shining down to the planet's core and in my heart I could hear her humming *Clair de Lune* and her soft voice saying,

*“... so beautiful. It is music of another kind...”*

There was one thought that always soothed my soul: Even if we were worlds apart, I would never be any farther from her.

# The Longest Fall

# PREFACE

As the Earth's natural resources dwindled and its environment deteriorated, the world turned its gaze to Antarctica. This brought with it many changes, elevating the two rapidly rising powers in South America to a position on the pinnacle of world politics that reflected their strength on the soccer field. It also relegated the Antarctica Treaty System to the dustbin of history, its promises worth less than the paper on which they were written. These developments were accompanied by a triumph of human reason in another field: The complete eradication of all nuclear weapons. In a world without nuclear arms, the world's nations could begin their struggle for Antarctica free from the fear of the shadow of a thermonuclear apocalypse.

# CHAPTER 1

# A New Solid State

**M**aking his way through the vast cave, Shen Huabei was surrounded by darkness. Had it not been for the heat radiating from the ground below, he could have easily imagined himself back on the plains, shrouded in the dark of a starless night. The heat, intense enough to draw sweat from his feet despite the thick layers of insulation provided by his boots, was one remnant of the recent nuclear explosion. Where he walked, the rocks melted by the explosion had already completely re-hardened and mostly cooled. A bit further in, he could see part of the cave wall that remained hot, emanating a faint crimson glow. In Huabei's mind it was the dim light of dawn, reaching over the far horizon of his night-covered plain.

Huabei was not alone. On his left his wife, Zhao Wenjia, was making her way through the cave, while his eight-year-old son, Shen Yuan, was merrily bouncing along in front of them. Jumping and flailing, he seemed completely oblivious to the cumbersome weight of his anti-radiation suit. They were joined by the members of the UN nuclear inspection team. All around them, the team's helmet lamps cast bright beams, piercing the surrounding black.

The complete destruction of the world's nuclear weapons was being achieved by two means: Dismantlement and subterranean detonation. This cave was one of sites where China carried out its subterranean detonations.

As they delved deeper, the head of the nuclear inspection team, Professor Kamensky, began to make his way to the front of the group and toward Huabei and his wife. As he drew closer, his helmet lamp threw long, swaying shadows off the three of them. “Professor Shen,” Professor Kamensky called out from behind. “Why ever did you bring your wife and son? This is hardly the place for a family excursion.”

Huabei stopped, waiting for the Russian physicist to catch up. “My wife is a geological engineer working for the central command of the Eradication Operation,” he noted genially. “And as for my son; I think he enjoys places like this.”

“Our son has always been fascinated by the strange and the extreme,” Wenjia agreed, more to her husband than the head of the team. Even though her face was partially concealed by the radiation suit's visor, Huabei could still clearly see the unease in his wife's eyes.

“First this hole was as big as our vegetable cellar. Just two explosions and now it is this huge!” the little boy in front of them called out, skipping along. “I think the bomb's fireball is just like a buried baby; it cries and shouts, stomps and kicks. Now that is a fun baby!”

Huabei's gaze met Wenjia's. He was quietly smiling, but the worry in her expression had only deepened.

“Son, this is the work of eight babies!” Professor Kamensky noted with a laugh. He then addressed Huabei in somewhat more sober tones. “Professor Shen, I actually wanted to talk to you about something else; this time, we detonated the warheads of eight submarine-launched SL-2's, each one with a payload of one hundred kilotons. We arranged the warheads in a square on the frame –”

“And your question is?” Huabei interrupted.

“Before the detonation, we could clearly see a white sphere positioned right in the center of the frame on the monitors,” Professor Kamensky explained.

Huabei again stopped and now fully turned to face Professor Kamensky. “Professor, the Eradication Treaty only stipulates minimums for what can be placed underground; as far as I know, it says nothing about additions. The explosion's yield was monitored and successfully verified by no fewer than five different monitoring systems. Everything else is rather irrelevant, wouldn't you say?”

Professor Kamensky nodded. “That is why I am only raising it *after* the detonation; I was merely curious.”

“I presume that you have heard of *sugarcoating*?” Huabei stated more than asked.

The last word could have been a powerful incantation, stopping everyone in the cave frozen in mid-step, the previously bobbing beams of the helmet lamps suddenly locking in place. Their exchange had to be transmitted through the radiation suits' wireless communication system and so everyone in the cave had clearly heard Huabei's words.

Moments of silence followed, and then the members of the nuclear inspection team all began to descend upon Huabei. Everyone in this select group, no matter what part of the world they hailed from, was a luminary in the field of nuclear weapons research and they had all clearly heard.

“Does it really exist?” an American asked, staring at Huabei.

The latter just nodded.

It was said by those who would know, that in the middle of the last century, immediately after learning of China's first nuclear weapons test, Mao Zedong had asked, “Was that a nuclear explosion?” It is unclear whether he had intended it that way, but his question showed a good grasp of the matter.

The key piece of technology in a nuclear fission bomb is the implosion pressure acting toward its center compressing the fissile materials in its core. This implosion force is generated by setting off conventional explosives tightly

packed around the bomb's core. The compression forces exerted by this implosion in turn causes the fissile materials to reach critical mass and so spark a violent chain reaction that initiates the nuclear explosion. All of this happens in the millionth of a second, demanding that the implosion forces acting on the fissile materials be engineered to incredibly exacting standards. Even the tiniest irregularities can prevent the fissile materials from reaching critical mass before they are scattered by the explosion. Such mishaps end in nothing more than a conventional chemical explosion. From the very beginning, researchers used extremely complicated mathematical models to design the explosive yields for the compression core. In recent years, various methods of using cutting-edge technology to produce ever more perfect compression cores had been explored. “Sugarcoating” was one of these methods.

The “sugarcoating” itself was a type of nano-material that would cover the fissile material of a nuclear bomb around which the conventional explosives would then be packaged. The sugarcoating would automatically cause any pressures acting on it from the outside to be evenly distributed along its inside. As a result, even if the conventional explosives produced uneven pressures, they would all be leveled out by the sugarcoating, making the conventional explosive produce a perfect implosion.

“You saw the white sphere in the middle of the eight nuclear warheads. That was an alloy packaged in sugarcoating,” Huabei explained. “During the nuclear explosion it was subjected to enormous pressures. We plan to conduct research on it during the entire eradication process. After all, this is a rare opportunity. Once all nuclear weapons have been destroyed, it will be very difficult to generate such fast-acting and powerful compression forces. It will be very interesting to see what the effects will be and what changes the test material will undergo under these enormous pressures. We hope that with this research, we

will be able to afford sugarcoating technology the prospect of a bright future in civilian hands.”

Considering the possibilities, one UN official said, “You should encase graphite in sugarcoating; then we could produce a large diamond with every explosion. It might make the very costly business of eradicating nuclear weapons a rather profitable endeavor.”

Laughter immediately echoed throughout the com-system; the officials without technical backgrounds were always the butt of ridicule in situations like these.

“I don't even know by how many magnitudes the forces produced by eight one-hundred-kiloton nuclear weapons exceed the pressure needed to transform graphite into diamonds,” someone finally noted.

Just then Yuan's clear voice rang out through all of their headphones, bursting with childish enthusiasm: “The big explosion sure didn't make diamonds, but I'll tell you what it did make; a black hole! A tiny black hole! It will suck all of us in and then swallow the Earth! We will be sucked into a nicer universe!”

“Ha, ha, kid,” Professor Kamensky chuckled. “The pressures created by the explosion were not powerful enough for that.” He turned, now addressing the child's father. “Professor Shen, your boy really has some strange ideas in that head of his! But what are the results of the experiment? What did that alloy become? I would guess you can't find it, right?”

“I wouldn't know yet,” Huabei said, pointing onward. “Let us go and see for ourselves.”

The nuclear explosions had forced the center of the cave into a gigantic sphere, turning its bottom into a round basin. The swaying beams of several helmet lamps focused on the exact center of this basin.

“Those are the members of the sugarcoating test team,” Huabei explained.

They all made their way to the center of the basin. It felt like walking down a stretched-out hillside.

Suddenly, Professor Kamensky stopped. Squatting down, he felt the ground with both hands. “The earth is shaking!” he shouted in surprise.

The others now felt it, too. “It couldn't be an earthquake triggered by the warheads' explosion, could it?” someone asked.

Wenjia shook her helmeted head. “No. The geological structure of the eradication sites underwent repeated surveys; there is no way the explosion could have caused an earthquake. This shaking is no quake; it started after the detonation and has continued uninterrupted since. Professor Deng Yiwen said that it was somehow linked to the sugarcoating test, but I am not privy to the specifics.”

Approaching the center of the basin, they felt the shockwaves emanating from deep within the ground increase in intensity, growing strong enough to send a tingling sensation up their legs. It almost felt as if an uneven, gigantic wheel was rumbling wildly in the Earth beneath them. Reaching the center of the basin, one suited-researcher from the small group of people gathered at the very bottom rose to greet them. It was the previously mentioned Deng Yiwen, the scientist responsible for the experiments compressing materials with nuclear explosions.

“What's that in your hand?” Huabei asked, pointing at the large, whitish ball Yiwen was holding.

“Fishing line,” Professor Deng answered as he left the small circle of people and squatted on the ground in front of them.

Everyone in the circle was staring into a small hole in the ground. The researchers had found it there after the rock melted by the explosion had re-hardened. The strange hole was about four inches in diameter and appeared to be perfectly circular. Its edges seemed flawlessly smooth, giving the hole the appearance of having been bored by a

drilling rig. The fishing line in Professor Deng's hand was incessantly unraveling into the hole.

“Look,” he said, gaze on the hole. “It has already gone down more than thirty thousand feet and we are still far from the bottom. Radar probes have shown that it is close to one-hundred-thousand feet deep, and it is still going even deeper.”

“How did it form?” someone asked.

“It was bored by the experimental alloy after the compression. Whatever became of the alloy sank into the ground below, like a stone sinking in the ocean. The shaking is caused by reverberations as it passes through denser layers of rock.”

“Heavens, that's unbelievable!” Professor Kamensky exclaimed in shock. “I was sure that the alloy would be vaporized by the heat of the explosion.”

Professor Deng agreed. “If it had not been packed in sugarcoating, it most certainly would have, but it was, and so the alloy – before it ever had a chance to evaporate – was compressed into a new state of matter by the sugarcoating-enhanced implosion. We thought that *supersolid* would be a good name for it, but physicists already use that term, so we decided on 'new solid state'.”

“Are you saying that this thing's density, compared to the density of the earth below, is analogous to the density of a stone dropped into water?” Professor Kamensky asked, still somewhat incredulous.

“A good deal denser,” Professor Deng pointed out. “The main reason why a stone sinks in water is because water is a liquid. Consider that if the water freezes solid its density does not change much, but drop a stone on it and the stone will not sink. The new solid state matter, on the other hand, actually *sinks* through rock. You can see that its density must be truly amazing!”

“So you’re saying that it has become the stuff neutron stars are made of?” An edge of fear had crept into Professor

Kamensky's voice.

Professor Deng shook his head. “At this point we cannot measure it precisely, but we can be rather certain that, given its rate of descent, the matter's density is significantly less than that of the degenerate matter inside a neutron star. If it really was neutron star matter, it would fall through the Earth as quickly as a meteorite plunges through the atmosphere; we would right now be at the center of both a volcanic eruption and a massive earthquake. It is a state of matter somewhere between conventional solid and degenerate matter.”

“Can it fall to the center of the Earth?” Yuan asked excitedly.

“It is possible. At a certain depth it will begin to sink through the liquid parts of Earth and that should further ease its way down!” Professor Deng answered the boy.

“How cool! How cool!” Yuan bounced in joy.

As everyone's focus was drawn to that hole, Huabei's entire family quietly retreated from the scene and into the darkness a good distance from the group. Other than the slight rumble in the ground, everything was perfectly quiet and peaceful. Even the beams of their helmet lights seemed to dissolve into the surrounding darkness. It felt as if they were nothing but three abstract presences, floating in an infinite void.

They switched over to a private channel of their suits' communication system. At that very moment, his parents asked Yuan to make a decision that would determine the rest of his life: He could go with his father or with his mother.

Shen Yuan's parents were faced with a tragedy significantly worse than divorce: His father was suffering from terminal stage leukemia. Shen Huabei did not know if his illness was related to his research work with nuclear material, but he was certain that he had less than six months to live. Fortunately, cryo-hibernation technology had

advanced in great strides. He would be able to safely wait for a cure for his leukemia in deep cryo-sleep.

Yuan had the choice of either going into hibernation alongside his father, waking up together with him in the future, or to continue a waking life with his mother. Even though, all things considered, the latter was obviously the wiser choice, the boy was leaning toward going with his father. Huabei and Wenjia had decided to use this occasion to take another shot at convincing him.

“Mom, I want to stay here with you. I don't want to go to sleep with father!” Yuan immediately declared.

“You changed your mind?” Wenjia was pleasantly surprised.

“Yes! I think that I don't need to go to the future. Right now will be fun, too. There's that thing sinking to the center of the Earth just now. How cool is that?” Yuan was clearly excited.

“Are you sure?” Huabei asked as his wife glared at him, obviously afraid that their son might change his mind again.

“Of course,” Yuan called out. “I'll go look in that hole...” The beam of his helmet lamp bounced rapidly into the distance as he ran toward the heart of the basin.

Watching her child rush off, Wenjia expressed her worries. “I really don't know if I'll do right by him; that kid is really taking after you, always living in one of his dreams. Maybe the future would be better for him.”

Placing a hand on each of his wife's shoulders, Huabei said encouragingly, “Who knows what the future will bring? And anyway, what is the problem with him taking after me? The world will always need dreamers.”

“His dreaming alone does not trouble me; it’s the reason I love you. But don't you see the other side of our child? He's already been made class monitor of two of his classes in school!” she said imploringly, the concern in her voice only deepening.

“I am well aware, but I really don't know how he pulled that off,” he replied, clearly oblivious.

“His desire for power is as sharp as a razor's edge and he lacks neither the ability nor means to realize it. In that way he is completely *unlike* you.” There was a cautious note in her voice now.

“Ah, yes. It does raise the question of how he will be able to join those two natures,” Huabei mused, his cavalier tone having all but disappeared.

“I am more worried about what their joining might *lead* to,” Wenjia said. Her voice was now lost in concern and thought, hiding some of her inner alarm.

The boy's silhouette had completely disappeared in the distant group of headlamps. Turning away, both Huabei and Wenjia turned off their own lamps, becoming one with the darkness.

“It does not matter; life goes on. I will wait for the right technology to come along. Maybe it will be next year, maybe it will be in a century. Maybe ...” Huabei's voice trailed off into the all-encompassing silence, “maybe it will never come. You'll easily live another forty years. Please promise me one thing: If a cure hasn't come along in four decades, you must wake me up. I at least want to see you and the boy one more time. Do not let this be our final goodbye.”

“Do you want to see an old woman and a grown man ten years your senior in the future? But it is as you said, life goes on.” In the dark Wenjia managed a miserable smile.

In this giant cave forged by nuclear fires, husband and wife silently lingered as their last shared hours slowly drifted away.

The very next day, Huabei fell into dreamless cryo-sleep. Wenjia and their dreamer of a son continued down the treacherous road of life, toward an unknown future.

# CHAPTER 2

## Rude Awakening

It took him an entire day to really wake up. As his consciousness slowly began to stir, he found the world before his eyes shrouded in white fog. Ten hours passed before he was able to make out vague shadows in the haze, even as those shadows remained almost as white as everything else. Another ten hours later, he discovered that they were doctors and nurses.

Cryo-sleep robbed those in hibernation of all sense of time and so Huabei remained completely certain that he had just entered the cryo-chamber on that blurry day long ago. His addled mind concluded that the systems must have malfunctioned just as he prepared to enter his long sleep.

As his vision continued to recover, he was able to make out a hospital ward. All of its walls were white and a lamp on the side of his bed emitted a soft light. It all looked very familiar, further confirming his suspicion.

However, he soon learned that he was wholly wrong: The ceiling above him suddenly glowed in a blue light. Seconds later, a strikingly clear writing appeared above him:

Good morning! Living Earth Cryo-Vault, the company responsible for your cryo-sleep, declared bankruptcy in 2089. Your hibernation services were subsequently transferred in full to the Jade Cloud Company. Your current hibernation serial number is WS368200402 – 118. You have retained all rights entitled to you by your contract with the

Living Earth Cryo-Vault. You have successfully undergone treatment and all your ailments have been cured before you were awakened. Please accept the Jade Cloud Company's congratulations to your new life.

You have been in hibernation for 74 years, 5 months, 7 days and 13 hours. Your prepayment fully covered all expenses.

Today is the April 16, 2125. We welcome you to the future.

It took another three hours before his hearing slowly began to recover. With it, his speech returned. After sleeping for 70 years, his first words were, “What about my wife? What about my son?”

A thin, tall doctor standing next to his bed handed him a folded piece of white paper. “Mr. Shen, this is a letter your wife wanted you to have,” she said as he eagerly but awkwardly took the paper from her hands.

*Even in my days people only rarely resorted to paper*... Huabei never uttered the words groggily swimming into his mind; he merely looked at the doctor with wondering eyes and began to unfold the paper with both of his numb hands. That was when he found the second proof that he had indeed leapt through time: The paper was completely blank. Then, a blue light shimmered across its surface and writing began to appear. Soon it filled the entire page. Before entering cryo-sleep, he had on countless occasions imagined the first words his wife might say to him as he woke up, but what was written on the paper exceeded his wildest fantasies:

*My Dearest Huabei, you are in immediate danger!*

*When you read this letter, I will have already passed away. I have entrusted this letter to Dr. Guo. You can trust her; perhaps she is the only person left on Earth you can trust. Follow whatever plan she may have for you.*

*Please forgive that I did not keep my promise to wake you after forty years. Our Yuan turned out to be a completely unimaginable man and he has done unimaginable things. As his mother, I did not know how I could face you. It broke my heart. My entire life has been for nothing. Please take care.*

“My son? Shen Yuan?” Huabei called out as he strained with all his strength to prop himself up, his body still weak and unwilling.

“He died five years ago,” the doctor answered, her voice colder than ice. She seemed utterly indifferent to the heartache this message inflicted. However, she almost immediately seemed to realize that she was talking about this man's *son*, and in more comforting tones added, “Your son lived to the age of seventy-eight.”

It seemed as if that was the best she could say about him.

She retrieved a card from her coat and handed it to Huabei. “This is your new identity card. You can find the information stored on it in the letter,” she explained.

Huabei turned the letter over and over again, carefully watching the paper through his clouded eyes, but no matter how often he flipped it he could find nothing but Zhao Wenjia's short note. As he turned the letter, he noticed water-like rippling marks on the creased parts. It reminded him of pushing a finger onto an LCD screen back in his age.

Dr. Guo reached a hand out toward the paper, pressing its lower right corner. Immediately the paper's display turned a page, revealing a spreadsheet.

“My apologies,” she said as she withdrew her hand. “Paper in its original sense no longer exists.”

Raising his head, Huabei shot her a quizzical glance.

“It’s because there are no more forests,” she answered at his look, shrugging her shoulders. With a slight sigh, she began pointing to the items on the table. “Your name is now

Wang Ruo. You were born in 2097; both your parents are dead and you have no relatives. You were born in Hohhot, but you have come to live here." She pointed to the entry on the table. "A remote mountain town in Ningxia. It was the best place I could find where you will not attract attention." She considered him for a moment. "But before you go, we'll need to give you a complete makeover." Sizing him up, she added with sincere concern, "You must never talk about your son and you must show no interest in him, either."

"But I was born in Beijing. I am Shen Yuan's father!" he shouted in shocked protest.

Dr. Guo straightened herself. "If you tell anyone outside that," she said, the ice returning to her voice, "your cryo-sleep and the treatment will have been for naught. You won't last an hour."

"Whatever happened?" Huabei finally needed to know – *now*.

The doctor smiled coldly as she began. "There is much in this world that you probably don't know." She ever so slightly shook her head. "Well, we should hurry. You should first get out of bed and learn to walk again. We then need to get you out of here as quickly as possible."

Huabei was about to ask another question when the door shook with a deafening bang. With a crash, it was forced open. Seven people burst into the room and surrounded the bed.

Other than their sudden entrance, these people had very little in common. They were of all ages and each was dressed in their own way. Their only immediately apparent commonality was their strange hats. The weird headgear was wide, broad enough to cover both shoulders, and could have easily been mistaken for a straw hat. Some of the invaders were wearing them and others held them in their hands. Then another, less conspicuous, common attribute became evident to Huabei; each one of them had a transparent breathing mask. Most still wore them over their

faces; a few had removed the masks as they entered the room. All of them had turned their grim stares on Shen Huabei.

“This is Shen Yuan's father?” the oldest-looking of these people demanded. Appearing to be at least 80, the old man sported a long, white beard.

Not waiting for the doctor to respond, the people standing around the old man nodded.

“He looks just like his son,” the old man declared. “Doctor, you have fulfilled all your duties to this patient; he belongs to us now.”

“How ever did you learn about his whereabouts?” Dr. Guo calmly asked, standing steady.

Before the old man could reply, a nurse answered from the corner of the ward. “It was me; I told them.”

“You sold out a patient?” Dr Guo snapped, turning angrily to fix a withering glare on the nurse.

“And I am happy that I did,” the unfazed nurse shot back, her angelic face twisting into a sardonic smile.

Snatching up his clothes, a young man dragged Huabei out of bed.

Numbed by cryo-weakness, Huabei collapsed on the floor, only to be kicked in the gut by a young woman of the group. The sharp point of her shoe's toe dug into his intestines, sending shooting pains through his abdomen and leaving him writhing on the cold hospital floor in agonizing contortions.

Unmoved, the old man bent down and grabbed the anguished patient by the collar and with a powerful jerk, hauled Huabei to his feet. Raising him ramrod straight, the old man obviously intended to leave Huabei standing on his own, but seeing that that was not going to happen, the old man relaxed his grip. Huabei fell backwards onto the floor, knocking the back of his head.

As the shock and pain of the impact sent flashes shooting before his eyes, he heard someone saying, “Well done! That

bastard is finally beginning to repay his debt to society.”

“Who are you?” Huabei asked, dizzy and weak. He was lying at the feet of these strange people, and looking up at them he felt as if he was staring at a band of terrible giants.

“You should at least recognize me,” the old man said with a cold smile.

Huabei stared up, but from his place on the floor, the man's face just looked disturbingly strange. It was all enough to send a chill up Huabei's already hurting spine.

“I am Deng Yiwen's son, Deng Yang,” the man said, finally revealing his identity.

The familiar name immediately jolted Huabei out of shock and into desperate action. Turning his aching body, he grabbed hold of the old man's trousers, and excitedly blurted, “Your father and I were colleagues and the best of friends! Don't you remember? You were in the same class as my son. Heavens, are you little Yang? I can't believe it; back then you –”

“Get your dirty hands off of me!” Mr. Deng roared.

The man who had dragged Huabei out of bed crouched down beside him. Leaning in, his eyes burned with cruel disdain as he snarled, “Listen, boy, your years in cryo-sleep count for nothing. He is now your elder, so show him the respect he is due.”

“If Shen Yuan were still alive, he could be your father!” Mr. Deng exclaimed, drawing a round of laughter from the strange people staring down at Huabei. As they laughed, Mr. Deng introduced them in turn. He first pointed to the man crouching beside Huabei. “When he was a mere four-years-old, both of his parents were seared to death in the Core Breach Disaster.” He next pointed to the young woman. “This girl was made an orphan when her parents were vaporized in the Lost Bolt Catastrophe. At the time she was not yet two.”

He turned to the others. “As for them, after they learned that their life's investments had come to nothing, some

attempted suicide; others came to suffer from schizophrenia.” He gave a dramatic pause. “And as for myself, I was tricked by that bastard. I sacrificed my youth and my wealth to his thrice-damned project, now cursed by the entire world!”

On the ground, Huabei shook his dizzy head in confusion. Obviously, he had not really understood a word he had just heard.

“You are facing a tribunal,” the old man who was Deng Yang declared. “A tribunal of the victims of the Antarctic Doorstep! Even though every single citizen of our country has become its victim, it will be our singular pleasure to dole out your punishment. Of course, things would be more difficult in a regular court; and indeed, things have become even more complicated there than they were in your age. It is precisely for that reason that we cannot hand you over to the law. We will not again listen to judges and lawyers spout nonsense for years on end, only to then declare your innocence, like they did with your son. You will stand your true trial at our hands, and face your execution within the hour. You will soon find that dying of leukemia seventy years ago would have been the much gentler fate,” he promised as an intense glare smoldering in his aged eyes.

A chorus of cruel cackles rose from the strangers surrounding Huabei. Then, two of them pulled him up by his arms and hauled him out through the door, his weak legs dragging across the floor. He had no strength to struggle or resist.

“Mr. Shen, I have done all in my power,” Huabei heard Dr. Guo say as he was dragged out the door. He tried to turn his head to see her, to catch another glimpse of the one person his wife had told him he could trust, but to no avail; he had neither the strength nor the freedom of movement to turn his head. Huabei was left with only her words sending him off.

“It is all right,” she said. “Do not be too disappointed; these are hard times to live in.”

Then he was out the door. As he crossed the threshold, he could hear one more shout from behind him: “Quick, close the door; turn up the air filter! Do you want us to choke to death?”

The tone in her voice made it all too clear to Huabei that she was no longer concerned with his fate.

Once out the door, he immediately understood the meaning of the doctor's words; there was an acrid smell in the air that burned his nose and made it hard to breathe. He was hauled on through the hospital corridors and out the front entry door. The people dragging him did not let up. With his arms over their shoulders, they relentlessly marched on.

Finally outside, Huabei took a deep breath, expecting fresh air to flood his lungs. The air, however, was far from fresh. In fact, it was even fouler than it had been inside the hospital, constricting his throat and setting his lungs on fire. He was instantly wracked by violent and unremitting coughs.

Just as he felt that he was about to asphyxiate, he heard someone next to him say, “Put a respirator on him; we don't want him dying on us before he makes it to his execution.” Huabei felt a hand putting something over his mouth and nose. Even though one foul smell was instantly replaced with another, he could at least finally breathe easy.

The unseen stranger admonished another: “Hey, there's no need to give him a screen-hat. The UV won't have any chance to give him another round of leukemia in the short time that he'll be around.”

Those words led to another round of cruel laughs. As they laughed, Huabei began to steady himself with panting breaths. After the tears of coughing and the sensation of asphyxiation had finally cleared, he raised his head and took his first look at the future.

The first thing Huabei noticed were the people on the sidewalks; all of them were wearing the transparent respirator face masks and each and every head was covered by one of those large straw hats his kidnappers had just called a “screen-hat”. He also saw that everyone was wearing layers of clothes, even though the air was simmering with heat. Look as he might, he could not find an inch of skin exposed to the sun. Looking further afield, Huabei found himself at the bottom of a canyon-like landscape of skyscrapers, tall enough to pierce the clouds and they quite literally did. These towering buildings rose straight up into low-hanging, gray clouds that seemed to shroud the whole world. Scanning this claustrophobic sky, he found the dim orb of the Sun. Obscured by the hazy, dark clouds, its faint halo barely filtered through. It was then that he realized that these were no ordinary clouds, but endless, thick smog.

“A magnificent time we live in, isn't it?” Mr. Deng asked, his voice dripping with sarcasm.

The others again broke out into laughter, sounding like they were literally having the time of their life.

Huabei was dragged toward a car waiting close by. The vehicle looked somewhat different from the cars he remembered, but it most certainly was an automobile. It was the size of a minibus, obviously capable of carrying all of them.

Just then, two people walked past them. They were wearing some sort of helmet and their attire was very unlike anything Huabei had ever seen. But it only took a glimpse for Huabei to realize their identity, and he immediately shouted out, “Help! I am being abducted! Help!”

The two police officers spun around and quickly appraised the situation. Seeing the patient gown on Huabei and his exposed arms, one of them asked, “Have you just awoken from cryo-sleep?”

Huabei weakly nodded his head. “I am being abducted –”

The other police officer nodded. “Sir, this sort of thing is far too common. Many people are waking from cryo-sleep at the moment and resettling you all is putting a heavy strain on our society's social safety net; therefore you often become the victims of hostility and attacks.” He sounded much too calm for Huabei's comfort.

“I think something different is going on ...” Huabei was about to explain, but the police officer cut him short with a wave of his hand.

“Sir, you are safe now.”

Then the officers turned to Mr. Deng and his band. “This gentleman is in obvious need of further treatment. The two of you take him back to the hospital. We will sort out what happened here. I am also notifying all seven of you that you will be taken into custody on kidnapping charges.” As he spoke, the officer activated a communicator on his wrist to call for backup.

Mr. Deng rushed forward to stop him. “Please, a moment, officer! We are no thugs persecuting cryo-sleepers. Take a closer look at him; doesn't he look familiar?”

Both police officers moved in and carefully began to study Huabei's face. As they briefly lifted his respirator, the light of recognition flashed across their eyes. “He,” an officer exclaimed in surprise, “he looks just like Mi Xixi!”

“It is not Mi Xixi. He is Shen Yuan's father!” Mr. Deng revealed dramatically.

The eyes of the two police officers immediately widened in disbelief. Their shocked gazes jumped from Mr. Deng to Huabei and back again. From their expression, they might just as well have been staring at a ghost and its keeper. The Core Breach Orphan pulled the officers to the side and began to speak in low tones. As he implored them, the two officers repeatedly looked up and over to Huabei; and as they did, their expressions began to change. The final glance they shot him filled Huabei with despair. It was

obvious to him that the police had been won over to Deng Yang's cause.

The officers finally returned, but they were now no longer even looking Huabei in the eye. Observing the perimeter, one of the police officers stood sentry while the other walked straight up to Mr. Deng and said in a hushed but forceful voice, “We saw nothing. The public must absolutely not be made aware of his presence or we'll have a riot on our hands.”

Cold terror gripped Huabei's heart. What the officer had said was chilling enough, but the way he had blatantly disregard him as he spoke was even worse. Huabei could just as well have been another lamppost for all the attention the officer paid him, or maybe a dumpster.

His kidnappers bundled Huabei into the car and when they were all seated, started the vehicle. As soon as the car's engine revved up its windows tinted, preventing the Sun from shining in and him from looking out. The car was self-driving and completely devoid of any visible means of manual control. No one spoke as they took to the road.

For no other reason than to break the suffocating silence, Huabei blurted, “Who is Mi Xixi?”

“A movie star,” the Lost Bolt Orphan sitting next to him advised. “He is famous for playing your son. Shen Yuan and alien monsters are the media's villains of the day. ”

Huabei shifted uneasily, trying to edge away from her. As he did, his arm accidentally pushed into a button below the car window. Immediately the window's tint cleared. Looking outside, Huabei gasped in shock as he realized that the car was making its way onto an enormous and bewilderingly complex circular highway overpass. The overpass was jam-packed with cars, each less than six feet from the next. There was a good reason for Huabei's shock: By no means was this a traffic jam. Even though the distance between them demanded otherwise, each of these cars was driving at full speed, zooming along at easily 60 miles per hour!

It made the entire overpass look like an insanely whirring wheel of cars. Just then, Huabei realized that their car was heading toward an intersection. There was no sign that the vehicle was slowing its dizzying speed. And indeed, it hit the flow of traffic at full speed, right into a gap that opened the moment it hurtled in. Gaps like this one constantly opened in the intersection's traffic allowing the onrushing traffic to seamlessly merge. It all moved almost too quickly for the human eye to follow. Huabei had long understood that the cars were being operated by auto-pilot; now he realized that their AI allowed them to utilize the highway to its limit.

Someone reached over from behind him and the window re-tinted.

“You really want to kill me for something that I know absolutely nothing about?” Huabei finally protested.

Mr. Deng, who was sitting in the front, turned his head. Almost apathetically he answered, “Well, then I guess I'll just have to tell you.”

# CHAPTER 3

# The Antarctic Doorstep

“People strong in imagination are often weak in body and action; while the strong, who grasp the reins of history, all too commonly lack imagination,” the old man told him. “Your son was one of the few who had it all. For the most part, reality was just a small island in the vast ocean of his fantasies, but when he set his mind to it, he could turn his world upside down and inside out, making his fantasy the island and reality the ocean. He was a remarkable sailor of both of those oceans...” he added enigmatically, lost in his own thoughts.

“I understand my son,” Huabei interrupted. “There is no need to waste my remaining time with superficialities.”

“Anyway,” Mr. Deng continued, “you could have never expected to what heights Shen Yuan would climb and how much power he would come to hold. It allowed him to make his most twisted fantasies a reality. It is a pity that we did not see the danger sooner. Perhaps others like him had come before, but they only grazed the Earth. They were like comets, disappearing into the vastness of space without ever unleashing their destructive potential upon our world. Unfortunately, history provided your son with the opportunity to turn his twisted fantasies into just that kind of disaster.

“Five years after you entered cryo-sleep, the global struggle for the lands of Antarctica led to its first conclusion,” Mr. Deng said. “It was decided that the

continent would be developed in a joint global effort, but each of the major powers also managed to carve out a large, exclusive economic zone on the Antarctican territory for itself. The powers did all they could to ensure that their economic zone would thrive and also to expedite the development of its resources. It was believed that this rush for Antarctica's riches would be the only hope for the great powers to finally shake off the long economic stagnation caused by their ruined environments and the depletion of their natural resources. 'The future lies on the top of the world' was a popular slogan back then.

“It was during this time that your son developed his insane idea,” Mr. Deng said in a chilly tone. “He claimed that his plan would really put Antarctica on China's doorstep, making travel to Antarctica as convenient as traveling from Beijing to Tianjin. This was not meant as a metaphor, but as hard fact. The journey was to last no longer than the forty-five minute trip to Tianjin and it was to use less energy and create less pollution. It all began with a now famous TV address. Back then, the entire country burst into laughter. It seemed to be pure comedy gold. But they were all silenced when they were confronted with the amazing truth that his plan was actually feasible! It was the seed of an idea that would germinate into the disastrous Antarctican Doorstep project.” As he finished this part of the story Mr. Deng fell into an inexplicable silence.

“Go on. What was the idea?” Huabei urged him to continue.

“You will come to understand it,” Mr. Deng answered, his voice as cold as ice.

“Then at least tell me what my role in all of this is supposed to be,” Huabei pleaded, desperate for answers.

“Because you are Shen Yuan's father; is it not obvious?” Mr. Deng's tone lost none of its iciness.

“Has the future regressed to the feudal ideas of hereditary determinism?” Huabei asked, unsure whether to

sound sarcastic or appalled.

“Of course not.”

Huabei would not have been surprised to see icicles around Mr. Deng's lips at the tone.

“But your son's own words on countless occasions made it clear to everyone that *you*, in fact, determined your progeny's fate. When he became world famous, he professed that his ideas and his entire personality had for the most part been shaped by his father when he was but a small child. In his later years, he always said, where no more than an opportunity to fill in the details. He made it very clear: The originator of the idea for the Antarctic Doorstep was his father.”

“What? Me? Antarctica?” Huabei was completely flabbergasted. “A doorstep? This is simply –”

“Listen up, this is my final point,” Mr. Deng interrupted. “You also provided the technical foundation for the Antarctic Doorstep.”

“What do you mean?” Huabei almost shouted the question, agitated and annoyed.

“The new solid state materials, of course,” Mr. Deng replied, unmoved. “Without them, the Antarctic Doorstep would have remained but a dream. With them, it was almost instantly transformed into twisted reality.”

Huabei shook his head in confusion; he could not for the life of him imagine how materials made of the super dense solid state matter could possibly put the Antarctic on China's doorstep.

Just then, the car stopped.

# CHAPTER 4

# The Gate of Hell

**S**tepping out of the vehicle, Huabei was greeted by a very peculiar hill. The entire thing was a strange rusty color and completely barren. He could not see a single blade of grass or lonely flower anywhere on its surface.

Mr. Deng cocked his head toward the hill. “That is an iron hill.” Seeing the shock in Huabei's eyes, he decided to reinforce the fact. “This is a large *lump* of iron.”

Bewildered, Huabei looked all around for some explanation, but all he saw were several more of these strange hills in the immediate vicinity, rusted mounds rising above the vast surrounding plain. It made the entire place look like an alien landscape.

Huabei had regained some of the strength in his legs and could now walk. Surrounded by his kidnappers, he began to hobble toward a massive structure in the distance. It was a perfect cylinder, several hundred feet tall. The structure's surface seemed to be completely smooth without any visible doors, windows or other openings. As they approached, a heavy metal door slid open with a groaning rumble, revealing an entrance. They entered and as soon as they had, the door closed tightly behind them.

In the dim light, Huabei could make out that they were in a room that roughly resembled an airtight cabin. Looking around, he saw a row of heavy suits hanging from the smooth, white walls. They looked almost like spacesuits and were clearly fully sealed. His kidnappers each took one from

the wall and began suiting up. Two of them helped Huabei into one of these suits. As all this was going on, he continued to study his surroundings. He could see another tightly sealed door in front of them. A red light was burning above it. Next to the light he could see a glowing number. Huabei quickly realized that it was showing an atmospheric pressure reading.

After his heavy helmet had been screwed on and tightened, he saw a transparent liquid crystal display flash into life in the upper right corner of his visor. On it a rapid successions of numbers and graphs rolled past his eyes. He could only make out that it was the suit's internal self-test system. Then, he heard the deep drone of machinery start. He soon noticed the air pressure indicator above the door begin to decrease rapidly. In a mere three minutes it hit zero. When it did, the red light next to it turned green and the door below slid open. Behind it laid the pitch black of the inside of this strange, sealed structure. It confirmed Huabei's conjecture: They were standing in an airlock into a vacuum; or, in other words, that this huge cylinder contained a vacuum.

One by one they entered the cylinder's body and this door also closed behind them. They were now in almost complete darkness, the only light emanating from the lamps on their helmets, and their beams did not reach far. A sense of déjà vu began to creep up on Huabei, sending shivers down his spine as his heart was gripped by nameless dread.

“Go on,” Huabei heard Mr. Deng's voice echo from his helmet's headphone. Their lamps' glow soon illuminated a small bridge. It was no wider than three feet and stretched into the unknown dark beyond. Huabei could not have guessed how far it reached. Below the bridge there was only inky black.

With trembling steps, Huabei made his way on to the small bridge. Each step of his suit's heavy boots drew a hollow ring from the bridge's thin metal surface. After he

had walked a few feet, he looked behind him, but he could not see any of his kidnappers follow. Moments later, all helmet lamps were turned off, engulfing them in total darkness. This black only lasted for a few seconds before a blue glow suddenly began to shine from below the bridge. Looking back again, he saw that he remained alone on the bridge. The others were crowded on the near side, one and all looking straight at him. In the blue light they looked like a gathering of spirits. Supporting himself on the bridge's railing, he looked down. His blood felt chilled solid; the terror all but strangled him.

He was standing directly above a very deep well.

This well was about 30 feet in diameter and on its walls he could see rings of lights, installed in regular intervals. It was these lights that had lifted the well and its depths from the surrounding darkness. On the bridge, Huabei was standing right over the center of the well's mouth. Seen from where he stood, the well seemed bottomless, the countless circles of light growing ever smaller in the depths until they appeared to merge into a single point of blue light. Huabei felt as if he were looking down on a giant, glowing blue target.

“Now we will initiate your execution. You will repay all that your son owes us!” Mr. Deng's voice rang powerfully in his helmet. He could see Mr. Deng begin to turn a wheel installed at the bridge's head. As the wheel spun, Huabei could hear him mumble, “For my stolen youth and for wasting my talents...”

The bridge began to tilt. Huabei quickly clung to the bridge's railing in an attempt to steady himself.

Mr. Deng stepped aside, giving the Core Breach Orphan a turn at the wheel. The man turned with all his might. “For my mother and father, seared to death...”

The bridge was tilted another few degrees.

He, too, stepped away, giving the Lost Bolt Orphan her chance. As she turned the wheel, she stared at Huabei. “For

my vaporized father, my vaporized mother...”

The one who had lost his fortune and attempted suicide grabbed the wheel from the woman. “For my money, my Rolls Royce and my Lincoln, for my beach house and swimming pool, for my ruined life and for my wife and children, waiting in lines on cold streets just to get their welfare handouts...”

The bridge was now turned on its side, leaving Huabei hanging on to the top railing as he desperately crouched on the railing now below him.

The one who had lost all his wealth and now suffered from schizophrenia joined in, lending his strength to the turn of the wheel. If he was being treated, it obviously was not successful; his illness remained all too apparent. He said nothing, only cackling down into the depths of the well.

The small bridge was now completely inverted and Huabei was barely holding on, dangling from the railing above the well's maw.

Almost all fear had left Huabei; not even that bottomless pit below, the very image of the gates of hell, could scare him now. Huabei's life, sure to end soon, flashed before his eyes...

...Gray childhood and youth – Huabei could remember little cheer and happiness in that part of his life. Making his way into the world. Achieving academic success by inventing the sugarcoating technology. But life had still not welcomed him. Struggling in all his relationship, even as they entangled him ever more tightly. Never really feeling love; marrying because he had to. He had made up his mind never to have children and then he brought a child into the world...Living in a world of his thoughts and dreams, an outcast most people disliked; always sticking out in company like a sore thumb. An entire life made of moments of loneliness, forever sailing against the current, he had hoped for a better future.

But this was the future: His wife was dead, his son a public enemy, a polluted city filled with people full of twisted hate…

All of this left only hopelessness for this future and his life. When he had first been kidnapped, Huabei had been determined to learn the truth of his situation before he died. Now, it seemed to have lost all meaning. All he was was *tired*. His only remaining desire was for the liberation of death. He felt himself fall.

Cheers rose from the well's edge as Huabei's grip finally failed. He fell, straight down into the fateful blue glow of those concentric rings.

Huabei closed his eyes as the weightlessness of the fall embraced him. It felt as if his body had dissolved entirely, as if all the unbearable weight of life had already left him. In the last seconds of his existence in this world, he suddenly recalled a song. It was a song his father had taught him, an ancient piece of music from Soviet times. It was music lost to time; even in the days before he entered cryo-sleep, no one had remembered it. Huabei had been on exchange in Moscow once. There, he had hoped to find someone who knew the tune, but even in Russia the song had been lost forever. So it became his song. He would only be able to hum the first few notes in his head before he hit the bottom, but he was certain that when his soul finally left his body, the song would continue with him into the next world…

Without really being aware of it, he had already hummed half of the song's slow melody. With a jolt he realized how much time must have passed. Snapping his eyes open, he saw one circle of blue lights rush past after next. He was still plummeting down the well.

“Ha, ha, ha, ha …” Mr. Deng's maniacal laughter rang from his headphone. “You are about to die. It feels good, does it not?”

Looking down, Huabei saw countless concentric blue light circles streaking toward him. As each circle grew and passed

him by, another small circle emerged from the heart of the well and quickly began to expand. Looking up, he saw more concentric circles, except these shrunk in an exact mirror image of the growth of the circles below.

“How deep is this well?” he asked aloud.

“Rest assured, in a flash you will reach the bottom and that bottom is hard steel. You will be flat as a pancake soon enough! Ha, ha, ha, ha ...” Mr. Deng continued chuckling.

With the laughter still ringing in Huabei's ears, he noticed that the small display on the top corner of his visor had flickered back to life. It displayed lines of glowing red text:

You have reached a depth of 60 miles
Your speed is 0.9 miles / sec
You have passed through the Mohorovicic Discontinuity
Having passed the crust, you are now entering the Earth's mantle

Huabei again closed his eyes. This time the song did not return to his mind; instead he let his brain whir away, dispassionately analyzing the new data like a soulless machine. It took him less than 30 seconds. Opening his eyes, he understood it all: This was the Antarctic Doorstep Project; there was no bottom of hard of steel. This well was indeed bottomless.

This was a tunnel straight through the Earth.

# CHAPTER 5

# The Greatest Tunnel

“**D**oes it take a tangential path or does it pass through the Earth's core?” Huabei asked. He was contemplating the point when he uttered the words without really intending to.

“You really are clever; you figured it out quickly!” there was a hint of genuine admiration in Mr. Deng's voice.

“Just like his son,” someone chimed in, judging from the voice probably the Core Breach Orphan.

“It goes through the Earth's core from the northernmost city of China, straight down to the eastern most part of the Antarctic Peninsula,” Mr. Deng answered Huabei.

“The city we were just in was Mohe?” Huabei exclaimed in disbelief at how much ‘China's Arctic Village’ had certainly changed. In his day, he had known it only for its geographic prominence and as a small tourist town.

“Indeed, being the Earth Tunnel's starting point allowed it to grow and flourish,” Mr. Deng confirmed.

“As far as I know, if I am going straight through the Earth, I should arrive in the southern portion of Argentina from there,” Huabei mused.

“Not bad, but this tunnel is slightly curved,” Mr. Deng replied.

“But if it is curved, won't I hit the walls?” Huabei inquired, more curious than afraid.

“If the tunnel went straight through the Earth to Argentina you would certainly hit them; the only place such a perfectly straight tunnel would work is between the poles.

A tunnel going through the Earth's axis at an angle, on the other hand, must take the Earth's rotation into account. The tunnel's curvature is what allows you to fall straight through the Earth,” Mr. Deng said, providing the pertinent details.

“Ah, that's some fantastic engineering!” Huabei was genuinely impressed.

You have reached a depth of 185 miles
Your speed is 1.5 miles / sec
You have entered the viscous region of the Earth's mantle

Huabei had noticed that the frequency with which he passed through the rings of light was rapidly accelerating. As they did, the density of the concentric circles above and below increased.

Again he heard Mr. Deng's voice through the headphone. “The construction of a tunnel through the Earth is not a new idea. In the eighteenth century, two scholars already came up with the plan; one was a mathematician by the name of Pierre Louis Mauperturis, the other the world famous Voltaire. Later, the French astronomer Camille Flammarion again brought up the idea. He was also the first to consider the Earth's rotation…”

“Then why ever would you claim that I came up with the idea?” Huabei interrupted, perplexed and annoyed.

“Because for them, it was nothing but a thought experiment. Your idea, however, actually influenced someone; and that person later used his own demonic talents to make your fantasy a reality.” Even now Mr. Deng seemed to enjoy speaking in riddles.

“But,” Huabei paused, dredging his memory, “I don't remember ever bringing it up with Shen Yuan.”

“Are you suffering from amnesia?” Mr. Deng chided. “Your idea changed the course of human history, and you cannot even remember it?”

“I really can't recall,” Huabei said haltingly, desperately trying to remember.

“Then can you recall Mr. Benitez, the Argentine, and the gift he gave your son for his birthday?”

You have reached a depth of 930 miles
Your speed is 3.2 miles / sec
You have entered the rigid region of the Earth's mantle

Huabei finally remembered. It had been Yuan's sixth birthday and he had invited the Argentine physicist, Professor Benitez. At the time, the two great South American nations had already risen to power and Argentina had claimed vast swathes of Antarctica as its territory. In the wake of these developments, a large number of Argentines had migrated to Antarctica and Professor Benitez had come to stay in Beijing. Argentina had then been on the verge of going nuclear, shocking the entire world community. In the nuclear disarmament process that followed, Argentina had naturally joined the nuclear powers as a member of the UN Eradication group. Benitez and Huabei had both been experts in the technical unit of that group's standing committee.

On that day, Prof. Benitez had given Shen Yuan a globe as a gift. The globe was made from the newest glass materials. The material had been a symbol of Argentina's rapidly developing technological prowess and was no more refractive than air, making it essentially invisible. This gave the continents on the globe’s surface the appearance of floating in space between its poles. Shen Yuan had been very happy with his birthday present.

As they chatted after dinner that day, Prof. Benitez had produced a prominent local newspaper. He’d shown Huabei the paper's political cartoon: It was an Argentine soccer star, kicking the globe.

“I don't really like this kind of thing,” Prof. Benitez had said. “The Chinese people seem to know nothing about my country, except for soccer. And that general ignorance seems to extend to international politics: I have the feeling that you see Argentina as nothing more than aggressive and boisterous.”

“But you should consider,” Zhao Wenjia had replied with a smile, “that no country is farther from ours than Argentina; you are our exact planetary opposite.” She took Shen Yuan's transparent globe to demonstrate how Argentina and China overlapped on that transparent Earth.

“In fact, there is a way by which we could link our nations more closely,” Huabei had said, taking the globe. “One would just have to dig a tunnel from China, right through the Earth's core.”

Prof. Benitez had at first been skeptical. “That tunnel would be almost eight thousand miles long; that is not much shorter than the flight distance.”

“But travel would be much quicker,” Huabei had said, now somewhat excited by the possibility. “Just think, one would just have to grab one's bags and jump into the tunnel...” His original intent that day had just been to steer the conversation away from politics; in that regard he had scored a brilliant success.

“Shen, you really have an extraordinary way of thinking,” the now clearly interested Prof. Benitez had continued. “Let me see... After I jump in, I begin to accelerate. My acceleration would increase with the depth of my fall, right up until I reach the center of the Earth. As I passed through the center of the Earth, my speed would be truly enormous, but my acceleration would reach a precise zero; then I would begin to decelerate as I rose upward. The speed of this deceleration would continuously increase the higher I got, right up until I reach the surface on the other side of the world on Argentinean soil. There my speed would reach a perfect standstill. If I wanted to return to China, all I would

have to do is jump back down from there. I could also just let myself fall right back down, entering into harmonic swing between Southern and Northern Hemispheres, perpetually falling up and down without exerting any force at all. Wow, what a fun idea, and as for the travel time…”

“Let's quickly calculate it.” Huabei had turned his computer on.

They soon had the results: Given the Earth's average density, one could jump into the tunnel in China and fall the roughly 7,900 miles to Argentina in a mere 42 minutes and 12 seconds.

“Now that is fast travel!” Prof Benitez was obviously in high spirits.

You have reached a depth of 1,700 miles
Your speed is 4.0 miles / sec
You have passed through the Gutenberg Discontinuity
You are now entering the Earth's core

Still falling, Huabei heard Mr. Deng say, “That evening, you certainly had no inkling that your son had stared at you the entire time, his ogling eyes brimming with brilliance, and that he had been enraptured by every word you said. You also had no idea that he stared at that transparent globe at his bedside all night. Of course, there were countless times that you had that same effect on your son. You sowed the seeds of many fantasies in his mind, but this was the one that blossomed into a catastrophic flower.”

Huabei stared at the walls surrounding him. They were 10, maybe 20 feet away, and rushing past at incredible speed. The rings of light shooting by on the surface of the walls seemed to blur together into one.

“Is this the new solid state material?” he asked.

“What else should it be?” Mr. Deng immediately understood to what Huabei was referring. “What other material would be strong enough to build a tunnel like this?”

“How was this massive amount of new solid state material produced? How was this material – heavy enough to sink right into the Earth – transported and processed?” Countless questions raced through Huabei's mind.

“You have time for only a very abbreviated explanation,” Mr. Deng answered. “The new solid state materials are produced via a continuous small-scale nuclear explosion. The key piece of technology is of course your sugarcoating. The production lines are as massive and complex as you would expect. Furthermore, the new solid state material can be produced in many grades of density. Relatively low density materials do not sink into the ground and are formed into foundation surfaces that can hold higher density materials. This disperses the pressure exerted by these higher density materials and allows them to be suspended over the ground. Using methods such as these, the material can also be transported. As for the processing, that technology is far more complex and probably completely incomprehensible to you, given your lack of expertise in the area. In short, new solid state materials are a massive industry, exceeding steel production in economic significance. It is used for much more than just the Antarctic Doorstep Project.”

“Then how was this tunnel constructed?” Before whatever fate awaited him, Huabei wanted to know.

“Let us start at the beginning.” Mr. Deng seemed willing to share. “The key component of this tunnel’s construction was the tunnel sections. Every tunnel section was about three-hundred-thirty feet long. The entire tunnel is made up of about twenty-four-hundred of these sections. As for the specifics of the construction process, you are smart; you should be able to figure it out.”

You have reached a depth of 2,550 miles
Your speed is 4.7 miles / sec
You are now in the liquid Earth core

“Using an open caisson?” Huabei gave it his best shot.

“Yes,” Mr. Deng confirmed his conjecture, “an open caisson operation was used. First, well sections were lowered into the Earth from both the Chinese and the Antarctican end and eventually joined to a single pipe, passing through the entire planet. The second step was to extract the matter from this pipe to form the actual tunnel. You saw the iron hills outside the tunnel's entrance; those are made up of the iron-nickel alloy extracted from the tunnel sections that passed through the Earth's core. The actual construction work was carried out by subterranean ships. These vehicles, made of new solid state materials, can swim through the deep layers of the Earth. Some models could even dive down to the Earth's core. It was these ships that installed the tunnel sections and aligned them deep within the Earth.”

“The way you describe it, the tunnel would have only needed a hundred-twenty-thousand tunnel sections,” Huabei noted.

“The super solid materials used could easily withstand the immense pressures and temperatures of the lower reaches of Earth, but many regions of those depths are liquid. In the relatively shallow areas it was liquid magma, but the liquid iron-nickel flows in the Earth's core were much more dangerous,” Mr. Deng told him. “These flows could strike out against the tunnel walls with shearing force. Even though the strength of the new solid state materials was great enough to withstand such hits, the joints between the tunnel sections could not. Therefore, the tunnel was placed inside two layers of tunnel sections. The inner layer was firmly attached to the outer layer, the two layers actually being interwoven. This made the tunnel strong enough to resist the nickel-iron shears.”

You have reached a depth of 3,350 miles

Your speed is 4.8 miles / sec
You are now approaching the solid Earth core

“Now I suppose you will want to tell me what a disaster the Antarctic Doorstep turned out to be.” There was little doubt in Huabei's voice as he continued to plummet.

# CHAPTER 6

# Disasters and Catastrophes

**“T**wenty-five years ago, the Antarctic Doorstep suffered its first disaster, just as the project entered its final survey and design stage,” Mr. Deng resumed. “This stage required that a large fleet of subterranean ships work on the project. One of these survey ships was the *Setting Sun VI*. This ship capsized in the Earth's mantle and sank to the Earth's core. Of the crew of three, two died in the accident, but the young pilot was fortunate enough to survive the catastrophe. Even so, she was now trapped in the Earth's core, damned to live her life encased in the claustrophobic confines of the subterranean vessel. The ships neutrino-based communication equipment had lost its ability to broadcast, but it could still receive communications. Incidentally you should know, her name was Shen Jing; She was your granddaughter.” There was more than a slight hint of cruel pleasure in Mr. Deng's voice.

Pain and sorrow gripped Huabei's heart.

At his unimaginable velocity, the rings of the lights all blurred into one, making the wall of the well glow in blinding blue light. Plummeting at close to peak speed, it seemed that he was falling into a tunnel of light; an experience that would soon repeat.

You have reached a depth of 3,600 miles
Your speed is 4.9 miles / sec
You have entered the Earth's solid core

You are now approaching the center of the Earth!

“As the Antarctic Doorstep Project entered its sixth year, the tragic Core Breach Disaster struck,” Mr. Deng said. “As I have already mentioned, the tunnel was constructed utilizing interlocked layers of tunnel sections. Before the inner layer pieces could be inserted, the outer layer had to be joined and the material extracted from its core. The latter was vital to avoid any foreign material getting caught between the layers and affecting the closeness of the fit. The engineers extracted the matter from the outer tunnel, section by section, and then inserted the inner tunnel pieces as each outer section was hollowed out. This left a window of sorts. Just as the material was being extracted from each section and as the inner tunnel was being inserted, there was a window during which the sections and the joints between them were vulnerable to external forces. As the work approached the Earth's core, the sections had to withstand the onslaught of nickel-iron flows. Of course, the joints between the well pieces utilized extraordinarily sturdy riveting technology designed to withstand just such assaults for extended periods of time.

“As the work encroached within three hundred miles of the Earth's core, disaster struck. Just as the matter was being extracted from the outer well section, the joint was subjected to an unusually powerful flow – five times more powerful than any of the previously surveyed flows. The forces it exerted dislocated the two well pieces. Super-hot and super-pressurized material from the Earth's core immediately burst through the breach, shooting up the already completed tunnel. As soon as the breach was detected, the acting director of the project, Shen Yuan, immediately ordered the closing of a valve-gate located in the Gutenberg Discontinuity, known as the Gutenberg Gate. In the moment that he gave that order, more than twenty-five-hundred engineers were working in the three hundred

miles just below that gate. These workers boarded high-speed freight elevators to evacuate the tunnel as soon as they became aware of the breach. In total there were more than one-hundred-thirty elevators up. The last elevator was outrunning the rising tide of the iron-nickel flow by a mere twenty miles. In the end, only sixty-one elevators made it through the Gutenberg Gate before it closed; all others were trapped on the wrong side and swallowed by torrents of the core flow, burning at more than seven thousand degrees. One-thousand-five-hundred-twenty-seven perished in the Earth's core that day.

“The Core-Breach Disaster shocked the entire world,” Mr. Deng continued, his tone both bitter and dead. “At the time, Shen Yuan was subjected to intense criticism from two opposing directions: One group said that he absolutely could have waited for all the elevators to clear the Gutenberg Gate before closing it. After all, the nickel-iron flow was still a good twenty miles from the gate at the time. It was close, but there still would have been time. And even if the Gutenberg Gate had been compromised, there would have been the Mohorovicic Gate. This was another valve-gate at the Mohorovicic Discontinuity, the boundary between Earth's surface and the mantle. The incensed families of the disaster's victims accused Shen Yuan of murder. His only publicized response to this was, 'I was afraid of a fissure forming'. This 'fissure' certainly had to be prevented; it even became the topic of more than one Antarctic Doorstep disaster movie. One of these movies was called *Iron-Fall.*

“The movie painted the nightmare scenario of matter from the Earth's core erupting to the surface, shooting a titanic fountain of liquid iron-nickel alloy into the stratosphere. High up in the atmosphere it scattered, blooming into a gigantic flower of death, its blinding, white light turning night into bright day in the Northern Hemisphere. The Earth was covered with torrents of scorching, molten iron, and all of Asia was burned to a

smoldering inferno. Humanity suffered the fate of the dinosaurs.”

Mr. Deng paused giving Huabei a few moments to contemplate all he had heard.

Then Mr. Deng’s voice in Huabei’s headphone continued. “What I just described was no exaggeration and it was these fears that led another group to accuse Shen Yuan from the entirely opposite direction: They said that he should have closed the Gutenberg Gate sooner. In essence, what they charged was that he should not have waited for *any* of the elevators. This criticism was far more widespread than the accusations from the other side. In the end, it led to Shen Yuan being charged on two counts in the court of public opinion: For dereliction of duty and crimes against humanity. Even though these two charges ultimately did not pan out in the court of law, Shen Yuan nonetheless resigned his post, leaving his position as the director of the Antarctic Doorstep program. He refused all other appointments, later working as an ordinary engineer in the tunnel.”

Just then, the rings of light on the tunnel's walls suddenly changed from blue to red.

You have reached a depth of 3,900 miles
Your speed is 5 miles / sec
You are passing through the center of the Earth!

Mr. Deng's voice again rang through Huabei’s headphone. “You have now reached escape velocity, even though you are as far away from space as possible, right at the planet's core. Right now, everything is spinning around you; all of the oceans and continents, every city and every human being. They are all revolving around you.”

Bathed in solemn red, music returned to Huabei's mind. This time it was a grand symphony. Falling down this tunnel, plummeting through the center of the Earth at escape

velocity, he felt as if he was floating in the Earth's blood stream, and it made his own blood seethe with excitement.

Mr. Deng continued his lecture. “Even though the new solid state materials are incredible insulators, the temperature around you is now more than twenty-seven-hundred degrees. The cooling system of your suit is running at full power.”

The red lights on the wall continued for another 10 seconds, then they changed back to their serene blue glow.

You have passed through the center of the Earth
You are now rising and beginning your deceleration
You have reached a height of 310 miles
Your speed is 4.9 miles / sec
You are now in the solid Earth core

Huabei felt the cool of the blue glow soothe his soul. By now, he had long adapted to weightlessness and he slowly began to turn his body, moving his head to face the new up. As he sought to find the sensation of rising, he asked Mr. Deng, “It would seem that there was a third disaster?”

Mr. Deng was only too happy to answer. “The Lost Bolt Catastrophe occurred five years ago. Back then, the Antarctic Doorstep had been completed and the Earth Tunnel had formally begun regular operation and the Core Train ran it nonstop. The Core Train's cars were twenty-five feet in diameter and a hundred-sixty-five feet long cylinders. On each journey, the Core Train would be made up of a maximum of two hundred of these cars. The train had a maximum capacity of twenty thousand tons of goods or nearly ten thousand passengers. A one-way journey with the train took a mere forty-two minutes and was enabled by pure freefall, consuming no energy.

“When it happened, a maintenance worker at the Mohe launch station carelessly lost a screw bolt – no bigger than four inches in diameter – in the tunnel. The bolts were made

of a new solid state material and capable of absorbing electromagnetic waves. This made it invisible to the radar of the tunnel's safety monitoring equipment. It fell straight down the tunnel, passing through the Earth's core right up to the Antarctica station, and then back again. As it returned to the Earth's core, it hit a Core Train just rising toward Antarctica. The relative speed of the bolt and the train was ten miles per second; the impact may just as well have been a bomb blast. It slammed right through the first two train cars, vaporizing everything within. The explosion of these two cars derailed the entire train, sending it crashing into the tunnel wall at five miles per second. In the blink of an eye, it was torn to tiny shreds, leaving a large field of debris falling through the Earth, spreading throughout the entire tunnel. Some of these fragments fell all the way back and forth through the entire planet; most, however, had lost their momentum in the collision and simply swung around the Earth's core. It took an entire month for the tunnel to be cleaned of every last piece. None of the remains of the three thousand train passengers were ever found. Every last one of them had been cremated to nothingness in the heat of the Earth's core.”

You have reached a height of 1,370 miles above the Earth's core

Your speed is 4.7 miles / sec

You have reentered the liquid Earth core

“But the greatest disaster was the Antarctic Doorstep itself; the project was an unprecedented feat of human technology and also an act of unparalleled economic folly. Even to this day, we remain baffled how a project of such base economic stupidity could ever make it off the drawing board. Shen Yuan, with his demonic talents, certainly played a role, but the true fault lies with humanity's feverish desire

to conquer unclaimed worlds and its blind worship of new technologies.

“Economists say that the Antarctic Doorstep was doomed the very day it was completed. Certainly,” Mr. Deng said, “travel through the Earth was extremely fast and consumed almost no energy. People would even say things like, 'Just throw it in', and 'Just jump in'. Even so, building the tunnel had been an immense investment. This meant the transport charges for the Core Train remained sky-high, offsetting the benefits of its speed and giving the Core Train no real competitive advantage over more conventional forms of transport.”

You have reached a height of 2,200 miles above the Earth's core

Your speed is 4 miles / sec

You are now passing through the Gutenberg Discontinuity

You are reentering the Earth's mantle

“Humanity's Antarctic dream quickly came to ruin,” Mr. Deng said. “Swarming industry and excessive exploitation had soon devastated the last remaining pristine environment on Earth. Like the rest of the planet, Antarctica was ravaged, leaving nothing but a smog-smothered dump. The ozone layer above the continent was completely stripped, inevitably changing life on Earth. The ultraviolet radiation became so strong that constant protective measures became a necessity of life for everyone just leaving their house, even in the Northern Hemisphere. What is more, the accelerated melting of the Antarctic ice sheet led to a precipitous rise of global sea levels.

“Those were long and painful years, but in the end reason prevailed and all the member states of the United Nations signed a new Antarctic Treaty, leading to the withdrawal of all human activity from the continent; Antarctica was returned to an icy desert. What remained of

the dream was the hope of a slow recovery of Antarctica's environment.

“As the demand for transport to the Antarctic suddenly subsided and in the aftermath of the Lost Bolt Catastrophe, the Core Train service was altogether abandoned and the Earth Tunnel closed down. That was eight years ago. Even after all these years the economic devastation wrought by the Antarctic Doorstep still continues to haunt us. The endless thousands who bought stock in the Antarctic Doorstep Company lost all they had invested, giving rise to widespread social unrest; the investment black hole that this tunnel had become pushed our country to the brink of total economic collapse and even today we still struggle with the after-effects of this catastrophe. Your son's work has become a valley of tears for us.”

For a few seconds Huabei only heard the mournful exhaling of Mr. Deng's breath.

“Well, that is the story of the Antarctic Doorstep.”

As the speed of Huabei’s descent began to decrease, the walls' blue light began first to flash, and then, slowly, he was again able to make out individual rings of blue lights on the wall. Above and below, he could again see the dense concentric rings form and disappear.

You have reached a height of 3,000 miles above the Earth's core

Your speed is 3.1 miles / sec

You are reentering the rigid region of Earth's mantle

# CHAPTER 7

# The Death of Shen Yuan

**“W**hat happened to my son?” Huabei posed his final question.

Again, Mr. Deng readily obliged him. “After the closure, Shen Yuan stayed behind as one of the last workers in the Mohe station. I called him one day and all he told me was, 'My daughter and I are reunited.' Later, I learned that he had lived an almost inconceivable life in the intervening years: Every day he would don a sealed suit and drop down into the Earth Tunnel, swinging back and forth, he even slept in the tunnel. He only returned to the station to eat and refuel his suit's energy tanks. Every day, he completed roughly thirty journeys through the Earth. This went on, day after day, year after year. He swung from Mohe to the Antarctic Peninsula, each full return journey taking eighty-four minutes as he oscillated seven-thousand-eight-hundred-thirty miles.”

You have reached a height of 3,700 miles above the Earth's core

Your speed is 1.5 miles / sec

You are reentering the viscous region of Earth's mantle

“Who knows what Shen Yuan did in his endless fall. According to his colleagues, he hailed his daughter with a neutrino communicator every time he passed through the Earth's core,” Mr. Deng said. “As he plummeted, he would

have long chats with his daughter; of course he was the only one doing the speaking, but Shen Jing, alive in the *Setting Sun VI* drifting around the Earth's core in the flow of nickel-iron alloy, was probably able to hear him.

“Over the course of his long falls Shen Yuan's body became accustomed to weightlessness, but he still needed to eat and recharge his suit at the station, exposing him to normal gravity two or three times every day. These constant shifts weakened his already old heart and in the middle of a fall, it finally gave out. No one noticed at the time, leaving his remains to swing through the Earth Tunnel for two days before his battery was completely exhausted. As his cooling system failed, the Earth Tunnel became his crematorium; his body burned to ash in his final plummet through the Earth's core. The way I see it, your son's final resting place is very fitting, indeed.”

You have reached a height of 3,850 miles above the Earth's core

Your speed is 0.9 miles / sec

You have passed through the Mohorovicic Discontinuity, and entering the Earth's crust

Attention!

You are approaching the Antarctic Terminal

“Am I right in thinking that this will be my final resting place as well?” Huabei quietly asked.

“It should please you,” Mr. Deng noted flatly. “Before you die, you saw what you wanted to see. We had considered throwing you into the tunnel without a suit, but we decided otherwise, and so you had the chance to see all your son had wrought.”

“Yes, I am pleased. This life has been enough. I sincerely thank you all!” Huabei answered, utterly at peace.

There was no answer, even the hum of the headphone suddenly disappeared. His avengers on the other side of the

world had ended all communication.

Huabei could see the concentric circles again become ever sparser. Now it took him two or three seconds to fall through every circle and with every passing moment this interval grew longer and longer. Then he heard a sharp beep in his headphone and his visor display read:

You have reached the Antarctic Terminal of the Earth Tunnel!

The center of the last circle above was now empty and no new circles emerged. The final circle grew larger and larger. He passed through this last ring of blue lights. Falling ever more slowly, he approached a bridge, just like the one he had fallen off at the other terminal. Several suited people stood on this small bridge. As he reached the mouth of the well, they reached out and grabbed him, pulling him onto the bridge.

The Antarctic Terminal, too, was unlit, illuminated only by the blue light shining from the endless tunnel below. Looking up he saw a cylinder hanging above him. The cylinder was large by any standard, but its diameter seemed slightly smaller than the tunnels mouth. Walking over to the end of the bridge, Huabei again looked up. In the dusk above he could see an entire row of these cylinders suspended above the tunnel. He could count four, but more lay hidden, deeper in the darkness.

This, he knew, had to be the decommissioned Core Train.

# CHAPTER 8

# Antarctica

**H**alf an hour later, Huabei left the Antarctic Terminal together with the police officers that had rescued him. The Terminal stood on a barren, snow-less stretch of Antarctic plain. A long-abandoned city loomed in the distance. The Sun hung low on the horizon, casting its weak light feebly across this vast and lifeless land. The air was cleaner here than on the other side of the Earth and he could breathe it without respirator.

A police officer told Huabei that a few of their force remained in Antarctica. They had received an emergency call from Dr. Guo and immediately rushed to the Antarctic Terminal. At the time the tunnel's mouth had been closed and they had had to put an emergency call of their own through to the Earth Tunnel management to open the wellhead. It had opened just in time for Huabei to rise out of the blue of the Earth Tunnel, like a strange creature floating from the depths of the ocean; a few seconds later and he would have certainly perished. The closed tunnel would have left him falling back down, straight through the Earth. His suit's battery did not hold enough of a charge to make it through the core again and he would have joined his son in that crematorium at the center of the Earth.

“Deng Yang's gang has already been arrested. They will face murder charges, but,” the police officer said, coldly staring at Huabei, “I understand what drove them.”

Still struggling with the vertigo induced by his prolonged weightlessness, Huabei looked toward the Sun. He heaved a heavy sigh and repeated, “This life has been enough.”

“If that is how you feel, you will find it that much easier to accept your fate,” another officer noted.

“My fate?” Huabei turned to the officer as he felt his mind jolt back to reality.

“You cannot live in this age or this sort of thing will happen over and over again. Fortunately for you, the government is running a temporal emigration plan; a quota of people who must enter cryo-sleep has been introduced to ease the burden the population places on the environment. These emigrants will be woken and live in the future. The government has decided to make you a temporal emigrant. You will re-enter cryo-sleep; I cannot tell you how long it will be before you will be awoken again.”

It took a few long moments before Huabei could make heads and tails of what he had just heard. When he finally comprehended what the officer had said, he bowed deeply. “Thank you, thank you! How is it that I am always so lucky?”

“So lucky?” It was now the police officer's turn to not understand. “Even this age's temporal emigrants will find it almost impossible to adapt to life in a future society, and that is to say nothing of people of past eras, like you!”

A faint smile slowly blossomed on Huabei's face. “I do not care; I will be able to see the Earth Tunnel again be the pride of humanity!”

The police officer chortled in surprise. “However do you expect that to happen? This project has been a complete loss; it will forever be a pillar of shame for father and son.”

“Ha, ha, ha, ha...” Huabei laughed out loud, swaying on his weightlessness-weakened legs. His spirit, however, burned strong with excitement. “The Great Wall and the Great Pyramids of Giza were a complete loss as well; the former failed to prevent the invasions of the rider people from the North and the latter never did resurrect the

mummified pharaoh within. In the long run, that turned out to be utterly immaterial. Now all we see them as are eternal monuments to the human spirit!” He pointed to the Earth Tunnel's terminal towering in the distance. “And compared to this mighty Great Wall of the Earth's Core, you are pitiful wretches, wailing and railing against the inevitable! Ha, ha, ha, ha, ha...” He continued to happily chuckle.

Throwing his arms open, he embraced the cold Antarctic wind rushing over his body. “Yuan, my son, this life is enough,” he said, fully content and happy.

# Epilogue

## Earth Cannon

**H**uabei woke again, another half-century later. After leaving cryo-sleep, things played out much as they had done when he had awakened 50 years ago: A group of strangers bundled him off into a car and to the Mohe Earth Tunnel Terminal; he was again put into a sealed suit for some reason that he did not understand. This suit was actually a good deal more massive than the one he had donned half a decade ago, but before he could question this strange development, he once more plummeted into the Earth Tunnel, beginning that long fall anew. Decades had passed, but the tunnel seemed completely unchanged and he was again greeted by the blue concentric rings of lights, marking his descent into that bottomless well.

This time, however, he had company as he rushed downward. His fellow faller was a striking young woman who had introduced herself as his tour guide.

“Tour guide? I was right! My premonition has come true – the Earth Tunnel really has become like the Great Wall and the pyramids!” Huabei almost shouted in elation as they fell.

“No,” his guide replied. “The Earth Tunnel has not become like the Great Wall and the pyramids. It has become…” She took Huabei's hand as they descended weightlessly, carefully ensuring that they fell in unison.

“What has it become?” Huabei asked, now anxious.

“Our Earth Cannon!” the guide answered happily.

Huabei did not understand. “What?” His head spun as his eyes shot from one side of the tunnel rushing by to the next. Again, he was to learn of past events while falling through the Earth as his guide began her account.

“In the years after you entered cryo-sleep, the Earth's environment continued to deteriorate; pollution and the destruction of the ozone layer killed the world's plants. Breathable air became a valuable commodity.” She paused in a heavy sigh. “At the time, we were left with one option if we wanted to save the Earth: Shut down all heavy energy industries.”

“That would probably allow the environment to recover, but it would mean the end of human civilization,” Huabei interrupted.

“Given what we faced then, many would have gladly made that sacrifice, but there were many more that looked for another way out. The most workable option was to move all of Earth's industry into orbit and to the Moon,” she continued.

“So, you built a space elevator?” Huabei assumed.

“We did not. Not for lack of trying, though, but building up turned out to be much harder than digging down,” his guide explained.

“Then, was a method of anti-gravity flight discovered?” Huabei gave his next guess.

Again he was off the mark. “Not even close,” his guide said. “In fact, we understand enough to know that it is fundamentally impossible.”

“Nuclear powered rockets?” Huabei was now grasping at straws as he fell.

“Those we do have, but they cost almost as much as conventional rockets to get into orbit. Transferring Earth's industry to space with them would have been another economic catastrophe on the scale of the Earth Tunnel,” his guide said, revealing the problem with his latest idea.

“So you never managed to transfer it? Has the world above then entered…” Huabei's face twisted to a bitter smile, “…a post-human age?”

His guide did not answer and the two fell further down the bottomless abyss in silence. The lights rushing past them appeared to grow closer, finally again merging into a single blue glow that seemingly completely covered the tunnel's walls. Another 10 minutes passed and the blue lights changed to red, plummeting at five miles per second as they passed through the Earth's core without so much as a word. Moments later the tunnel's walls glowed blue again. As soon as they did, his guide nimbly spun herself a full 180 degrees, inverting her body's posture. Huabei followed her lead, clumsily turning himself around.

“Oh!” he suddenly shouted in surprise as he realized that the display at the corner of his visor was showing a speed of 5.3 miles per second.

The center of the Earth was behind them, but they were still accelerating!

And there was something else that made him recoil: He no longer felt weightless! The moment they had fallen through the center of the Earth he had begun to feel gravity's pull; last time he had been weightless throughout his entire fall, yet he was now definitely feeling its forces pulling on his body! Huabei's scientific intuition quickly corrected his feelings: This was not gravity – it was *thrust* – thrust that allowed them to overcome the ever-growing pull of Earth's gravity, thereby continuing their acceleration.

“You can surely recall Verne's Moon gun?” his guide suddenly asked, although it sounded more like a statement to Huabei.

“I read that silly book when I was young,” he replied, not really paying her strange question any heed. More focused on his surroundings, he was still trying to figure out what exactly was happening.

“It's not silly at all; using a large cannon is by far the easiest and fastest way to move significant numbers of humanity into space,” his guide explained.

“Only if you want to crush everyone you shoot out of your cannon into a meat smoothie,” he answered off-handedly, distinctly uninterested in this bizarre digression.

“The only reason they would be crushed is excessive acceleration and only a cannon that is too short would need to resort to excessive acceleration. With a sufficiently long cannon barrel, the 'shells' can be given a smooth and gentle acceleration, just like we are experiencing right now.” There was an air of mischief in his guide's voice.

“Are you saying that we are in a Verne Cannon?” he asked incredulously.

“Like I said, this is the Earth Cannon,” she finally said.

Looking up at the blue glowing tunnel, Huabei did his level best to imagine it as the barrel of cannon. Their incredible speed had long left the tunnel's walls a single streak of blue, robbing him of any real sensation of movement. To Huabei it felt as if they were hanging motionless, suspended in a giant blue tube.

“In the fourth year of your second cryo-sleep, we began manufacturing another kind of new solid state material. Beyond the usual qualities, this material was also a very potent conductor. Now, this half of the Earth Tunnel's surface is wholly wrapped in large coils made of this material. We have turned more than thirty-nine-hundred miles of Tunnel, stretching through half the Earth, into a gigantic electromagnetic coil,” she said, revealing the inner workings of the mystery.

“Where does the current in the coil originate from?” Huabei asked with renewed curiosity.

His guide explained. “The Earth's core provides us with powerful and abundant electric energy, the very energy that gives us the Earth's magnetic field. We used a Core Ship to drag cabling made from that new solid material around the

Earth's core. The cables form more than a hundred immense loops, each one made of more than a thousand miles of cable. Using these loops, we harness the Earth's electric current and gather it in the tunnel's coil. Using this, we fill this part of the tunnel with a powerful magnetic field. Our suits' shoulder pads and waists are equipped with two super-conductive coils that produce an electric current directly opposed to that of the tunnel's magnetic field. That is what gives us our thrust."

Continuing to accelerate, they quickly approached the end of the tunnel. As they did, the walls again began to glow red.

With excitement in her voice, his guide almost shouted out of his headphone: "We are now going at almost ten miles per second, fast enough to escape Earth's gravity! We are about to be fired from the Earth Cannon!"

They closed in on the Antarctic Terminal exit. The towering Core Train station above had long been dismantled, replaced with nothing but a sealed gate, covering a simple opening right up into the sky.

As they approached, their headphones loudly announced: "Attention tourists. You are about to take today's forty-third shot. Please confirm that you have donned your protective goggles and earplugs; without them you may suffer permanent vision and hearing loss."

Ten seconds later, the sealed gate slid aside with a loud hiss, revealing the mouth of the tunnel 30 feet in diameter. Air rushed into the vacuum of the well with a sharp scream. A giant plume of flame shot out the tunnel's mouth with a massive bang, its glare drowning out the dim light of the low-hanging Antarctic Sun. Instantly, the sealed gate slid close again, the tunnel's air pumps roaring to life. Soon they had removed all the air that had rushed into the tunnel during the three seconds that the gate had been open; then the cannon was ready for the next launch.

Looking up, the people on the ground could see two shooting stars, streaking upward, trailing tails of fire as they quickly disappeared in the deep blue of the Antarctic sky.

Huabei could never have imagined what rushing out of the tunnel would be like. Moving fast enough to leave everything a blur, he could only catch glimpses; the streaking red light glowing from the apparently infinite tunnel walls disappeared in the blink of an eye and he was in the blue of the Antarctic sky. There was no transition of any sort at all; the view switched like the image on a screen. With a jerk he looked down, only to see the Earth below his feet rush away. He could make out the Antarctic city and he watched it quickly shrink to the size of a basketball court. Looking back up, he saw the bright blue of the sky rapidly darken, like a screen fading to black. Turning his gaze back below, he now looked upon the long curve of the Antarctica Peninsula. Around it he could clearly see the ocean. He also saw the long tail of fire trailing behind him. Only then did he realize that his entire suit was wreathed in a thin sheathe of flames.

Looking over, he saw his tour guide flying next to him, some 30 feet away. Like him, she was surrounded by flames, and like him, she trailed a long fire tail. To him, she looked like some fantastic creature of living flame.

Immense air resistance was pressing down on his head and shoulders like the massive hand of a ruthless giant. As the sky darkened, this giant hand seemed to be conquered by an even greater force and the pressure slowly subsided. Looking down, he saw all of Antarctica. Huabei was pleasantly surprised to see that the continent had returned to white. In the distance, he could begin to see the curvature of the Earth and behind it, the rising Sun, its light scattering across the thin layers of the atmosphere conquering a beautiful glow, more wonderful than the most magnificent dawn. Again, Huabei looked up to see that the

stars had appeared above his head. He had never seen them shine so brilliantly.

The fire around his body vanished as they shot out of the atmosphere. Now they floated in the tranquil calm of space. Huabei felt as light as a feather as the weight of the suit – his spacesuit – all but disappeared. It had obviously done its job admirably; the heat shielding that he now realized covered its surface was glowing with the ferocity of his escape from the Earth's atmosphere, yet he felt comfortable.

Their rapid ascent through the air had rendered their communicators temporarily inoperable. Free of the Earth, their channel reopened and Huabei soon heard the pleasant voice of his guide.

“The drag of the atmosphere has somewhat slowed us, but we are still traveling at escape velocity,” she said. “We are now leaving Earth. Have a look over there.”

Huabei followed her pointing finger to the Antarctic Peninsula unimaginably far below. Just then he saw a flash from where he guessed the Antarctic Terminal had to be. Following it, he could see a shooting star rise from the peninsula, trailing fire. As it left the atmosphere, its flame also disappeared.

“That was a spaceship launched by the Earth Cannon. It will take us back,” his guide explained. “At any given time there are five or six 'shells' in the barrel of the Earth cannon. Like that, it can shoot a ship into space every eight to ten minutes. For us, taking a spaceship has become no more of an inconvenience than taking the subway.

“The great migration of industry began twenty years ago and during the most active period of launches, the Earth Cannon often accelerated twenty or more *shells* at once, firing one ship every two or three seconds,” she told him. “Back then, the spaceships shot into the sky like a never-ending shower of meteors. Humanity met the call of its destiny; it was truly magnificent!”

At that moment, Huabei spotted many fast moving stars, standing out in the brilliant, motionless star field surrounding them. It was immediately apparent that these moving stars were orbiting the Earth. On closer inspection, he was able to make out some of their shapes; some were round, others cylindrical, but the shapes of the vast majority of these objects were complex and irregular. In the pitch black of space, they looked like brilliant ornaments.

“That is Baosteel,” his guide said, pointing at a luminous ring. She continued pointing toward various other bright dots. “Those are Sinopec, although they of course no longer deal with oil. Those cylinders are the European Metallurgy Association. These over there are power stations that gather solar energy and supply the Earth with electricity via microwaves. The glowing part is only their control center; we can't see their solar panels or the transmission array from here...”

Huabei was intoxicated by the sights. Looking at the azure Earth below, tears began to well up in his eyes. Then and there he fervently wished upon all the stars, still and moving, that every single person who had ever worked the Antarctic Doorstep, living and dead, could all see this. He especially thought of one person, a girl eternally young in his mind's eye.

“Did they find my granddaughter?” he asked.

“No, we lack the technology to probe the depths of the Earth's core. It is a vast region and we have no way of knowing where the iron-nickel flow has carried her,” his guide answered solemnly.

“Can we use neutrinos to send images of what we are seeing to the Earth's core?” Huabei asked.

“We already are,” his guide replied. “I believe that she can see it all.”

# ABOUT THE AUTHOR

Liu Cixin, born in June 1963, is a representative of the new generation of Chinese science fiction authors and recognized as a leading voice in Chinese science fiction. His works have received wide acclaim on account of their powerful atmosphere and brilliant imagination. Liu Cixin's stories successfully combine the exceedingly ephemeral with hard reality, all the while focussing on revealing the essence and aesthetics of science. He has endeavoured to create a distinctly Chinese style of science fiction. Liu Cixin is a member of the China Science Writers' Association and the Shanxi Writers' Association. He was awarded the China Galaxy Science Fiction Award for eight consecutive years, from 1999 to 2006 and again in 2010. He received the Nebula (Xingyun) Award in both 2010 and 2011.