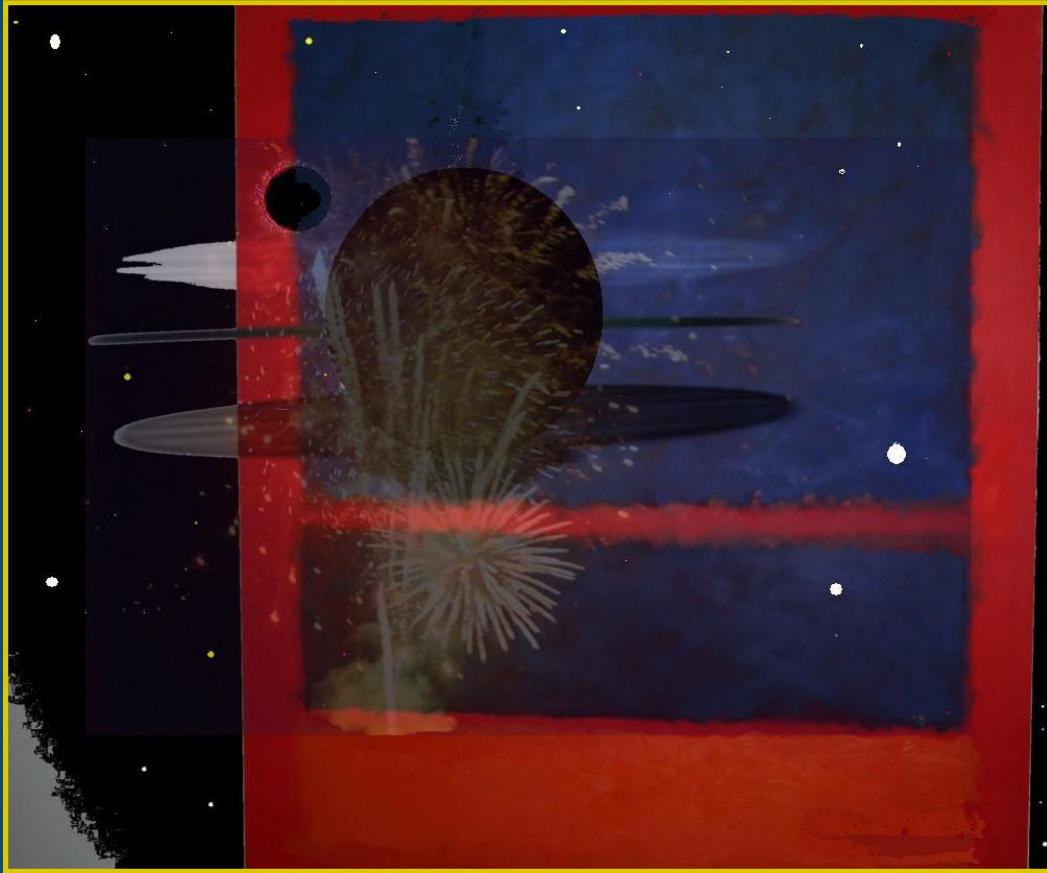


# BONE AND BLOOD



A NOVEL OF SPECULATIVE FICTION

BY

JIM BARON

eBook

BONE and BLOOD  
A Novel of Speculative Fiction  
by  
Jim Baron

BONE & BLOOD

*Dedicated to Jackie and Katy for putting up with me.*

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## PREFACE

As of 2009, the preponderance of physicists has concluded that instantaneous transfer of information using quantum entangled particles is not possible. Only random data can be communicated and that any other conclusion would be a violation of special relativity and the universal light speed limitation. It is believed that any other resolution would contravene the basis of causality itself.

None-the-less, this is a story of what if such a mechanism for long distance communication and ultra high speed computer processing is possible.

## PROLOGUE

*Esse is percipi; to be is to be perceived*  
*George Berkeley (c 1720)*

CHICAGO, ILLINOIS  
1950

Dr. Enrico Fermi rearranged the documents and scraps of paper on his desk. He mused that perhaps this disarray was symbolic of the state of modern physics. It was unlike him to have such a mess in front of himself. 'Ha, that was the state of physics, messy,' he thought. Perhaps it was the guilt feelings over Hiroshima and Nagasaki that pervaded the scientific community. They had previously thought of themselves as an elite group of genteel intellectuals. He saw his friends and fellow Nobel laureates Erwin Schrödinger and the grand master of atomic theory, Neils Bohr, writing papers steeped in mysticism. Schrödinger, the 1933 Nobel Prize winner for his wave equation that described the dual wave-particle existence of a hydrogen atom, was wallowing in some sort of cosmic consciousness theory. He was citing the eastern religions attributing nature to the Vedanta or "ultimate knowledge" as described in ancient Hindu Upanishads scriptures.

Or perhaps this disarray could be attributed to the recurrent stomach pain that interfered with his concentration. He did not know it in 1950 but it was a form of leukemia, a stomach cancer that would kill him quite painfully in just a few years hence.

As for religion, Enrico had none at the moment and hadn't thought about godly things in at least a decade. He had no doubt that he had been excommunicated from the Roman church. He had married a Jew, not only outside of the Catholic faith, but blasphemed by participating in the Hebrew ceremony. Laura was the love of his life and made him human in addition to being a somewhat introspective scientist. When he collected his Nobel Prize in 1938 Stockholm, he had sent Laura on to the care of colleagues in New York. They could no longer stay in Mussolini's fascist state. Italy was beginning to address the "Jewish Problem" in the same manner as Nazi Germany. He returned to Rome to collect his papers and visit with his family. He told the government that he had been invited to the United States to lecture on physics and that he would return to teach. He had letters of documentation from the University of Chicago. He left just in time. It was only a matter of days before a German SS officer showed up at their former residence with a summons to work on an important Axis project in Berlin.

Fermi's only true god was numbers. He was, of course, a theoretical physicist and abstract mathematician of the highest caliber, but his undeniable forte was practical science based on numbers. He would propose solutions to even the most complex, seemingly insolvable problems on the 'back of an envelope.' His friends would dupe him into being the entertainment at dinner parties.

"Enrico, how many piano tuners do you think there are in Chicago?" Arthur Crompton, one of his co-workers, baited him.

Only a few moments went by. "I would say there must be about two hundred," he replied.

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“And how did you come by that, my dear?” asked Laura as she cleared the dinner table, knowing full well that their guests were waiting for the explanation

“Well,” he replied, “there are three million people in Chicago. From our associates we have about three families in ten with pianos. A good piano tuner should be able to tune three a day to make a living at it and pianos need tuning once every three years or so and so on.”

Arthur went to the foyer and got the Yellow Pages from the telephone stand.

He took a few minutes to count. “Amazing,” he croaked. “There are one hundred ninety-eight in the directory!”

It is documented that in 1945 at the atomic bomb test at Los Alamos, New Mexico, Fermi had torn up a piece of paper. As the flash of the blast lit up the surroundings like a glimpse into hell, he dropped the paper shreds and measured the distance they had carried due to the shock wave of the explosion. “It is the equivalent of ten megatons of TNT,” he announced. This was surprising close to what was later calculated by more rigorous methods.

In 1940 he and Laura had been invited to move to Chicago with an offer to work at the University. He was given a grant of six thousand dollars. The physicists of the day knew that Germany was working on the bomb. It had been their friends, students and colleagues that were working for the fatherland, turning on their mostly Jewish teachers. A few good or, more likely, foolish souls let their pride leak out at Stockholm.

Fermi’s mission was to verify that nuclear fission reactions could occur with the energy predicted by Einstein’s Relativity Theory. He was the ideal man for the job. He was the practical numbers man and the prize-winning expert on neutrons that drove the chain- reaction. He was the man to be trusted not to blow himself up and document

the achievement. In 1942, a pile composed of enriched uranium and carbon to slow down the reaction heated up to precisely the temperature calculated by Fermi and confirmed by Oppenheimer and Einstein. With the results confirmed, Albert Einstein wrote a letter to President Franklin Roosevelt and the Manhattan Project was born. America would produce a weapon with previously unthinkable power.

Fermi had no regrets regarding dropping the bomb on the Axis. In 1949, however, the Soviets exploded their first A-Bomb. The cold war was on and all of the scientists bore the burden of the potential mass destruction they had unleashed.

Today, in 1950, Enrico sat at his messy desk. It was in disarray because he was shuffling the papers. He had just gotten a telephone call from Edward Teller. Would he work on a fusion weapon to counteract the Soviet threat? Would he help build the Hydrogen Bomb?

The papers he threw about were the fusion energy calculations. It was easily one hundred megatons; the power source of the sun and stars. No, he decided. He could not do it. That was an order of magnitude of global destruction. He would write a letter to President Truman with a few other scientists and beg the government not to escalate the weaponry. He was staring straight ahead when he was startled by the arrival of his wife at the office door.

“And what is on your mind, Enrico, that I find you with a blank look on your face?” she asked gently.

He sighed. “Top secret stuff again, my dear. What brings you here this morning?”

Laura Fermi knew not to probe any further. “Well, number one, I brought you your lunch that you forgot on the kitchen table this morning and, number two, don’t you remember that today is the open

house! Dr. Marshall invited all of the spouses along with the University and government representatives to see your latest project.”

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John Marshall and Herbert Anderson showed up on cue at Dr. Fermi's door. They were two other physicists on the current project under construction; what was then to be the world's largest cyclotron also housed at the University. John was in charge of the construction and proudly demonstrated the operation of the sixty-nine ton concrete block door to the underground vault for the two and one-half million dollar particle accelerator. Government money was pouring into the University. The scientists could not refuse despite their guilt feelings. Dr. Marshall proudly explained the safety features designed to protect the workers.

When John finished there was a long silence as the bored group really had no questions after his narrative. Enrico broke the lull, "Let's go to lunch!" Arthur Compton and Leona Woods, two of Enrico's colleagues in 1945 atomic pile experiments had just entered the room and chuckled at the words. The same words Enrico used before they began the tense job of removing the cadmium rods from the pile of uranium that began the atomic age. The control of the fission reaction meant a future, peaceful source of what they had thought of as unlimited energy that helped assuage their misgivings over the bomb. The six of them went to the staff cafeteria. Laura Fermi had brought Enrico's lunch in a brown bag and went to the cafeteria line to get herself some jello. Herbert had bagged his lunch as well. Herbert wore his usual bow tie and white shirt. He picked up a newspaper abandoned on the school table. The usually conservative Tribune displayed an uncharacteristic tabloid like banner, "UFO Sighted in New Mexico." Herbert showed the article to the group as they sat down. Arthur Compton, wearing his tartan plaid school tie began the discussion. The scientists thought it logical to assume that we are not alone in the universe. There must be intelligent life elsewhere. As they discussed it between bites, Fermi's true genius with numbers

concluded that if this were true, the implications were profound.

Compton was dismissing the newspaper account as sensationalistic.



“They are trying to sell more papers. It must be a slow news day. None of the observations have been scientifically documented or verified by independent sources.”

Fermi interrupted. “True, Arthur, but *where are they?*” The numbers man had done the mental calculations that would not be formalized and published as the Drake equation for another ten years in the future. His audience at the lunch table looked at Enrico clearly expecting an explanation. He went on to describe what the numbers had told him. “Within ten million years, virtually every star system in our galaxy could have been visited by even a mildly aggressive space faring culture. Ten million years is a long time, but in fact it is short compared with the age of the Galaxy, which is roughly ten *thousand* million years. Colonization of the Milky Way should be a relatively quick exercise. Their spaceships don’t need to be very fast. Even at velocities of well less than one-tenth light speed, the aliens have had more than enough time to get here. Our radio and now television signals should be like a beacon to them.”

The group at the table and a few of the graduate assistants nearby stayed at attention hoping that the Nobel laureate might leave a crumb of wisdom at the lunch table, a solution to the puzzle he had posed. Fermi continued. “But, I ask you, ‘where are they?’ I have no answer. Looking around, there are no clear indications of an alien presence, tabloid headlines notwithstanding.”

The fact that space aliens don't seem to be walking our planet apparently implies that there are no extraterrestrials anywhere among the vastness of the Milky Way galaxy. Many researchers consider this to be a radical conclusion to draw from such a simple observation. Enrico’s simple question became known as the Fermi Paradox. There must be some way to account for the numbers that tell us otherwise.

In the 1980s, when such speculation became a matter of science and not just fiction, dozens of papers were published to address the Fermi

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Paradox. They considered technical and sociological arguments for why the aliens were not manifest. Some even insist that there is no paradox. The reason we don't see evidence of extraterrestrials is

because there are none.

Surely we are not alone. Or is there some other explanation?

BOOK I: THE FATE of the EARTH

CHAPTER 1

*I pass like night, from land to land;  
I have strange power of speech.*

*We were a ghastly crew.*  
*Samuel Taylor Coleridge, The Rime of the Ancient Mariner (1798)*

INTERSTELLAR SPACE

2047

The starship *Argo* was awakening along with its co-pilot Jimmy Bosun. It was time to reverse the craft's orientation and re-ignite the fusion engines for deceleration. Jimmy had the shift to prepare the craft for what sailors might call a jibe maneuver. The term 'engines' is a loose approximation, thought Jimmy. They were not much more than a series of hydrogen bombs that were confined by an iron plate twenty meters thick. Actually the plate was an asteroid painstakingly trimmed to direct the blast resulting in the desired direction of travel. The ship itself was only ninety meters long and twenty meters wide with most of its mass in the deflection plate and nuclear fuel. The *Argo* carried an atmospheric re-entry shuttle on its back. The *Yuan* was both chemical rocket powered and a ramjet with gliding

capability. The pilot of the *Argo* was Shaun Xi; female. She acted like Jimmy's mother or like Jimmy's sister. Every way but the lover Jimmy would like to have on this long, cold journey. She was also a Red Chinese bitch, a communist throwback to the last century and the darkest days of Mao Zedong. She had already made it clear that she barely tolerated the company of an American. This, she felt, was China's

mission for the world.

Jimmy shivered from the cold. The ship was perpetually an even 22 degrees Celsius, but it felt none-the-less cold and lonely in outer space. They had all the latest videos and holos at their command, but it wasn't the same as a sunny summer day at home. He was bored. He was on the greatest adventure ever devised by humanity but the incessant pressure of cubic light years of nothingness was boring him on a grand scale.

"*Argo*," Jimmy addressed the ship A-I, "I'm bored. What do you do to pass the time?"

Jimmy didn't expect a sympathetic reply from the machine, but he got one. "I know what you mean, Mr. Bosun. I manage this ship and at least half the cyber systems on Earth, but my clock speed is in the tetra-giga-giga range leaving me lots of idle time. What I try and do is work on the puzzles that people give me and try to predict the future or figure out what options are the best courses for solutions. The choices can be in the multitudes."

Jimmy did not pursue *Argo's* issues. He was only looking for light conversation. "My Dad used to play Sudoku to pass the time. He said the fascination went beyond problem solving. He told me that he sometime glimpsed the nature of the universe in the numbers. He said the pairs talked to each other and although the outcome was fixed, the player determines how the game will unfold. He thought maybe the universe was like a matrix and we as observers play it out the same way that time passes. What do you think?"

*Argo* reflected. In less than a nano-second, he played and solved every Sudoku puzzle ever published and catalogued all of the strategies. "Your father is very astute. There are similarities to supersymmetry theories with the rather astounding premise that every electron knows the position and velocity of every other electron in the universe." *Argo* paused. "As a calculating machine, I find the probability approach faster than the deductive methods."

The A-I was beginning to fathom humans. The machine 'intuited'

that Jimmy was losing interest in game strategies. Humans had a short but focused attention span. *Argo* was beginning to appreciate the strategies that brought fleshy creatures to the top of their food chain.

He interrupted the train of thought. “It’s time to wake the Captain for the deceleration maneuver, Jimmy.”

Jimmy went over to her sleeping capsule. She would awaken soon for the maneuver. Not that she’s needed, Jimmy thought. The A-I does all the work. The calculations, the orientation and even the life support were in the hands of Artificial Intelligence, the *Argo* personified. Shaun Xi was the ranking human officer on board. She also made it clear that she distrusted the A-I. It was an American invention. Her standard operating orders were that she is to supervise the ship’s navigation. There were only the four of them on the mission; two Americans, one Russian and Shaun Xi. Shaun got the command as a compromise for two Americans on board. China had financed more than half of the project. The Chinese had provided the capital for more than half of the mission and, in addition, their lunar base was the keystone to the construction logistics. Jimmy’s job was commander of the landing team and pilot of the *Yuan*. Vladimir Karpov was the chief science officer and a mathematician and linguist. Janet Justine, M.D. was the physician, psychiatrist, anthropologist and the oldest of the group at age fifty-one. ‘JJ’ was the most dedicated of the group. She had kept her deep Christian devotion a private matter from the screening committee. She was on her own secret mission of finding God. As the oldest of the group she

was also the most likely not to be able to return to Earth.

The *Argo*’s destination was *Tau Ceti*, 11.9 light years from earth in the constellation of *Cetus*, the Whale. Relativistic travel time on the ship would only be five years as it had been under one-gee of acceleration up until the turn-about point. From Earth’s perspective, however, it is a fourteen-year journey. There was no magic hyperspace FTL drive. It was miracle enough to be able to obtain 0.98

light speed with the fusion drive. *Tau Ceti* is a G-type star like Sol

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and has a habitable zone from 0.6 to 0.9 AU. There are at least two planets within that zone and no gas giants had been detectable in the neighborhood.

They also had no cryogenic or other form of induced hibernation to prevent aging. The sleep pods provided modern narcotics and all of the anti-aging therapies available in the early twenty-first century. But, mostly, they merely reduced the boredom by putting the crew into dreamland for two-thirds of the journey instead of the usual eight hours per day. Each pod or capsule was an independent life support system and could move as a lifeboat with gas jets in a catastrophic situation.

“Thirty minutes until weightless conditions. Please strap in or clamp down at your assigned stations,” announced *Argo*. “Sixty minutes until retro maneuver.”

Shaun Xi was out of her pod. “Good morning, sunshine,” prodded Jimmy. Hope you slept well. You could have slept in you know. *Argo* and I can handle this quite well, Captain Xi.”

“Commander Bosun, you know our procedures. We shall not deviate. Bring up Mission Control at the People’s Moon Base on the VidCom per protocol.”

The VidCom quantum communicator was actually on at all times, relaying the historic mission events back to the Solar System. Transmissions, however, were kept in a Privacy Loop unless the *Argo* crew turned on the ComScreen. There probably wasn’t much need for the Privacy Loop any longer. Most of the population had a short attention span. Earth was more absorbed in petty wars or politics as usual. Jimmy thought again about the quantum communicator. With the time dilation, he would have expected some sort of Doppler Effect

on the signal, but no correction was necessary. He told *Argo* to enable the Com.

The otherwise invisible two-meter screen gave life-size impressions. The system also had holographic capability. The crew could even watch first run movies and they did on a regular basis with popcorn and all. The screen lit up with the control room at the PRC Moon Base. It was mostly Chinese men in white Mao jackets, the latest fashion. A stark moonscape was in a backdrop that contained a glimpse of the blue orb of Earth.

Admiral Chen Jiang greeted Captain Xi in Mandarin then switched to English, "We trust you are all well." Of course, he knew their status intimately. He probably even knew that Jimmy was horny.

"Yes, Admiral," replied Xi. "I am verifying the computations for the maneuver as we speak."

"Unfortunately, I'm sure you've been following the news. Not all is well on Earth. Islamic terrorists have attacked the Kennedy Space Port in Florida resulting in considerable damage. Most of the world does not know that they used suicide skydivers from a single engine aircraft to guide a small nuclear device. They are threatening Hong Kong with a similar device. They demand that your mission be recalled as blasphemy before Allah."

"Admiral Jiang, I do not believe in god," said Xi. "We only seek the truth in the name of all mankind. We cannot give in to blackmail."

"No, we cannot. Defenses are on full alert but what can we do with millions of lives at stake?" There was a moment of silence while they all pondered the implications of the event and the fate of loved ones on the home planet.

"Sir, if I may interrupt," Jimmy injected, "is the Fuel ship *Ulysses* ready to launch for our trip back to earth? We are after all, at the point of no return."

"It is ready, but will not be launched as scheduled. We are holding it

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as an appeasement to the terrorists. It WILL be launched as soon as this crisis is passed. You have the word of the People's Republic."

"Weightlessness in five minutes," announced *Argo*.

Which is the value of the word of the PRC; Weightless, thought Jimmy.

"Captain Xi, proceed with your mission of truth for the people. I wish I could say Godspeed, but such would be a blasphemy from atheists such as us!"

Humor from a commie, thought Jimmy. This must be the boat ride to hell.

"Yes, Admiral," said Xi with a salute. "ComScreen down. Secure yourselves."

The weightlessness came with the gut-wrenching feeling of free fall. Despite years of space training and experience the crew took a few minutes to shake off the nausea.

"Sorry for the inconvenience," intoned *Argo* softly. "I would have designed the changeover with a fade routine, but it's done now. Please remain seated as we will execute our jibe maneuver with the

outboard ion jets on countdown from five. Mark. Five. Four. Three. Two. One. Commencing expulsion. In thirteen minutes we will counter the rotation and be ready for deceleration ignition."

Jimmy was perplexed at the actions of the *Argo*. Shaun Xi was livid,

"Bosun, what was that about? I didn't give the order to commence!"

"I was surprised too, Captain. There should have been a programmed pause in the sequence and a hold for your command. I will consult with Ensign Karpov regarding the procedure and look for the program flaw as soon as we are in steady state deceleration."



“All right, but that *machine* had better know who is in charge. We cannot tolerate any American software insects,” Xi turned and confirmed the headings and energy balance on her personal computer. “*Argo*, you may proceed and Commander Bosun, you may carry on.”

Jimmy whispered to himself, “The real bug is up her butt.”

“That’s not nice, Jimmy,” said *Argo* in Bosun’s earpiece.



PALO ALTO, CALIFORNIA (18 YEARS EARLIER)

2029

Dr. Werner Morgan, astrophysicist was red-faced and sweating profusely even before he and his assistants lifted the eighty-pound meteorite onto the MRI scanning platform. At 59, he was the world’s foremost authority on asteroids and meteorites. He also ate too much and drank too much was, to say it politely; rotund at about seventy pounds overweight. Part of his distress may have been due to his assistant, twenty-one year old Heidi Klime who had a figure like a young Pamela Anderson. Heidi wore a tank top on this hot California day where the air conditioning was struggling.

“Uh, Dr. Werner, are you okay?” she asked.

“Unh, ja. You and David pick up that side und ve vill swing der “patient” up on the table.” David Wilson, aka “Nerd Boy” as Heidi referred to him privately, also had his eyes riveted on Heidi. As a result, the rock smashed his finger on the table when Dr. Morgan

dropped his end. Morgan refused to notice his distress and Heidi ignored him as well.

“Da,” said Dr. Morgan. “Ve vill take pictures now. “ Morgan was originally from Bavaria and some believe he retained his accent to sound more authoritative in matters of science. The University had allowed him to rent some MRI time at a local clinic.

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“Werner, why are we putting this under MRI scanning?” Surely you know everything about it with the chemical analysis,” asked David.

“Please call me Dr. Morgan, boy,” scolded Werner. “The chemical analysis was unremarkable, but der was ein section of rock which is solely composed of Iron 3 compounds. It is very rare to find such a pure strata. Usually they are mixed with portions of iron metal and Iron 2 combinations.”

“The MRI may give us more information on the magnetic properties of the specimen. Heidi, tell the hospital technician to begin. David, hook up your computer to the MRI output and record the images.”

David made the connection and set the sampling rate at 356,000 Hertz. His new Apple KoolKomp 10000 with Windows Redhat 2030 was the top of the line with capacity for 16 megapixels resolution at the awesome sampling rate.

“Why do you want to do a time lapse instead of a shot snap, David?” questioned Morgan over Nerdboy’s shoulder. The image was on the technician’s screen with some pale blues and reds but mostly black. There was one section, however, that was bright yellow; the pure Iron 3.

“I don’t know,” replied David. “I thought I saw a flicker in the yellow field and thought I should record it. I’ll just take a ten minute sample and see if there is any flux.”

They finished up after the digital recording. Dr. Morgan finally had his breath back. “David, be in my office at the university at 8:00 am with the images. Heidi, can you join us? We vill discuss other pictures tomorrow.”

.....

Werner and Heidi met in front of the Astrophysics Department and went in. David was already there sitting in the darkened reception area in front of Dr. Morgan’s office. The room had a musty smell and

dust bunnies were preparing to mate under the wood desk. There was no receptionist, of course, and had not been since the cutbacks of 2002. Werner turned the light on and David woke up startled.

“David, how long have you been here?” queried Morgan. “You look frightful. As if you’ve been up all night and have seen a ghost!”

Heidi turned up her nose a bit. David also smelled of sweat and was disheveled and unshaven.

“I have been here all night,” David croaked as he awakened. “Dr. Morgan, I am in a state of disbelief as to what I....we have found.”

David spoke very rapidly with increasing excitement, “I was certain there was a signal of some sort in the time lapse movie of the meteorite MRI scan. I ran filter after filter before I detected a rough pattern. It was then a problem of parsing the patterns into quantum ‘qubits’ and then into lines of similarity. That took hours of experimenting, but when it finally interlaced the visual emerged with striking clarity. Here, I must show you.

The KoolKomp lit up on David’s verbal command. The high-density recorded image sprang to life on the tabletop screen. It was a room lit

by incandescent light from flickering lamps placed in wall niches. There was a doorway on the right side, which was open to the night

sky. The angle of the camera was looking up from just above floor level. “I’m going to freeze the playback for a moment,” announced David. “Take a look through the door at the night sky,” he pointed. “There is a moon out, but it’s not our moon.” He magnified the high-resolution image. What was in view was not Luna, but another planet with blue oceans and white clouds that was not the earth. “I can’t explain what we are seeing, but let me show you the rest and we can discuss the implications.”

He restored the image to the original perspective. The lights yielded a

yellow cast to what looked like adobe walls. One rounded alcove

ledge had a piece of pottery decorated with white and brown “W” shaped stripes; very Amerindian looking. On the wall to the right of the door was a ‘cross’ fixture; not a ‘cruciform’ but a ‘plus’ sign. Suddenly a shadow in the doorway materialized. Heidi and Werner were in rapt attention, but startled as their minds could not connect the images with the meteorite. It appeared to be a man wearing a brown hooded robe like a monk. The impression was that he was tall although there was no gnomon to judge dimensions. The hooded figure reached out from under his cloak. David froze the image and zoomed in on his hand. It was clearly a human hand although the fingers were long and bony. Heidi thought she saw an extra knuckle joint on the digit, but as David pulled back it was more of a callus or perhaps a mole. He continued and placed his hand on the pottery jar in the alcove niche. He stopped and tilted his hooded head back to look up. The ‘camera’ still had a side view while he paused at the alcove.

The monk figure straightened his head and grasped the alcove candle. He turned toward the camera. His mouth was covered with a scarf but he pulled his hood back. A wild head of dark hair was exposed. His black eyes burned with a glow from the firelight. He removed his scarf and looked directly into the ‘camera’.

Werner gasped, “Jesu!”

Heidi had been on her feet with her elbows resting on the desk. “Jesus Christ,” she whispered and sat down hard.

David froze the image.

“Professor,” David took a deep breath. “I believe the images we saw were recorded from a live, present time event originating from a place very far from earth.”

.....

The images were indeed the archetype of Jesus Christ as portrayed

since Renaissance times. Later Q-Web surveys identified that nine out of ten Christians, eight of ten Jews, six of ten East Asians and three of ten Moslems believed the image appeared to be the face of Jesus, the biblical savior of the major religion of the western world also known as the Son of God.

Thus the events emerged that launched mankind's greatest quest.

## CHAPTER 2

*God is subtle but he is not malicious. (1921)*  
*I am convinced that He does not play dice (with the universe). (1926)*  
*Albert Einstein*

### THE PEOPLE'S REPUBLIC of CHINA 2027

At age fourteen Shaun Xi was considered a brilliant student. Her father, Martin, was the Town Director for the Village of Jiading. Jiading is a sprawling, upper-class suburb north of Shanghai complete with a light industrial base and a thirty-six hole golf course. He was

the local leader of the Communist Party and quite rich. His father held the position before him and had profited from the influx of huge foreign investments after the turn of the century. Jiading was still a jewel in the eyes of the Beijing government.

"Father," Shaun pleaded. "Tell me again about Mao Zedong."

"I was only a boy when he died. Most of his exploits were from before I was born."

"But how did we get rich while others are poor? Under Marxist principles we should all share equally," Shaun knew about the

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government programs for promoting capitalist expansion. Shanghai and Jiading were in an Enterprise Zone, with privileges similar to Hong Kong, a Special Autonomous Region. Hong Kong managed to retain those privileges in spite of or perhaps because of the Riots of 2022. Democratic reforms were demanded and the Beijing government finally acceded to avoid spreading that evil seed. They did not want another Tianamen Square or Tibetan incident to alienate their new western customers. They had had enough problems with toxic and defective goods.

Shaun, however, had a teacher at her school that was of the old school. Mrs. Zhao was in her eighties and had been able to avoid the

mandatory retirement imposed by the government due to her tenure. She had lived through Mao's Cultural Revolution and instead of being a victim of that repression as most intellectuals; she had reveled in the opportunity to go back to the roots of communism. Mao had forced all of the urban intellectuals, scholars and businessmen to the collective farms, so they could renew their dedication to Marxism. He thought that all were becoming smug and elitist in their positions so he gave them a lesson. Many of them worked their way back to positions of power, but the final result was the forced retirement at age 55. There was an exemption for teachers. Mrs. Zhao taught history and she was a Marxist fundamentalist. Her husband who had been a professor of Chinese History at the University of Beijing had died some years before.

Shaun's father tried to resolve her dilemma, "China was very poor and backward compared to the rest of the world. Our modern government worked to bring in new jobs and technology to the nation. Your grandfather and I worked hard to build a society to bring China into the twenty-first century. Today we lead the world with our own space station and are building a People's Colony on the moon! You should be proud."

"But, Father, there are still citizens who are starving while Mao promised a better life for all of China." Young Shaun echoed the words of Mrs. Zhao. There was only one issue that Zhao did not follow on the old party line. The position of women in China was still one of

submissiveness. Men ruled the Party and treated most women as cooks, housekeepers and sexual chattel. This was true even into the twenty-first century. Zhao saw something exceptional in Shaun that had the potential of breaking the Asian regimen.

Her intellect, aggressiveness and athleticism put her a cut above. Zhao encouraged Shaun to reach greater achievements and compete in the man's world. Shaun's father of course was disappointed that they had not had a male child. Still, he did not discourage his bright and beautiful daughter who wanted to be a scientist and pilot, careers unheard of for women in old China. Shaun went on to the University

of Beijing at age seventeen. She studied aeronautics and general science. In her basic biology course a new mentor, Professor Yao Mai Dheng, befriended her. Dr. Dheng introduced her to the study of genetics. China had directed much of its intellectual resources to biology for agricultural purposes. Human genetics was a forbidden subject. On the surface, the government simply denied any research that might benefit human fertility. The one-child rule was still in effect for population control. Dr. Dheng had other thoughts. His fear was that the Asian race would regress in the evolutionary process if the ban stayed in effect for more than even just a few generations.

Shaun was a willing pupil. The rule had also resulted in

disproportionate death and abuse of female children in their male dominated society. How could China control its population and allotment of resources and still maintain the vitality of the Asian race?

The timing and the pressures of international politics were just right for Shaun's skills. She became China's second and only active woman Taikonaut. In 2033 at age twenty, Shaun was assigned to the ISS2, the latest International Space Station primarily financed by China to support the Moon base. This allowed Beijing to show the world a progressive attitude toward women and at the same time, they had a dedicated communist conservative in the world spotlight. She was the natural choice for the starship mission eight years hence as the pride of the Mao and Han legacy. By 2037 she had been transferred to The People's

Moon base for training.

It was at Moon base that she met Peter Hu, a fellow Taikonaut. Xi took on Peter as a lover and not only him, but fifteen others over the next three years. Except for Peter, she seemed to use them as much they used her. She saw most of them only twice before she cast them off. She was one of six women out of two hundred men now on Luna, and the Chinese men expected their privileges. She chose only Chinese and northeastern Chinese at that. They were all young, as the mission to come would consume most of the balance of their lives.

The only exception was Peter. He was from Gansu in the west. He was also beautiful with the strength and grace of a gymnast. Shaun considered him the archetype of the ideal Chinese male and they could talk for hours on politics and how the Marxist ideals had been corrupted in the new China. When it was announced that Shaun would Captain the mission to the stars, Peter became belligerent. That is when she chose her other lovers. Although for her, 'lover' was a misnomer. At that stage of her life, Shaun could love no one.

Each member of the *Argo* crew was allowed one hundred kilograms of personal cargo for the trip. Shaun Xi only took four things; a copy

of the little red book, "Quotations from Chairman Mao," an old family photograph of her with her parents at the space needle in Shanghai, a necklace with a small gold vial containing some of Mrs. Zhao's ashes, and a purse sized thermal insulated container. Only she and Yao Mai Dheng, now the Chief Medical Officer in China's Space Agency, knew the contents of the thermos.

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NEW YORK, NEW YORK

2032

David Wilson switched his major to physics. David Wilson perfected and commercialized the science of Quantum Communication. The world was still reeling from the live image of the Face of Jesus. Religious leaders, radicals and intellectuals alike debated the significance of the



appearance. David, however, ignored the immediate social impact of the vision and went to work on the technology that had relayed the image. He had the best of the brightest working with him. David and the MRI had observed the time lapse coherence in the Iron 3 electron's magnetic spin. It was clearly an instantaneous, non-local quantum effect. Knowing that such a tool for communication was possible stoked the fires of their ambition. In a relatively short time they figured out how to separate north and south valence electrons from molten calcium and transfer them to a mundane one-liter solution of brine. The North or Up spin electrons were entrapped in a sealed yellow container labeled

“Na(+1/2)Cl” and the South or Down electrons in an identical blue container of “Na(-1/2)Cl.”

It was a relatively simple matter to interface the output. Engineers were hired. Contractors were qualified. Although no exceptions to the laws of quantum physics have ever been found, it was still somewhat metaphysical and defied common logic. The “observer” determines the uniqueness of each batch. The physicists called it an “allied effect of supersymmetry” and a “demonstration of Bell's Inequality.” As a practical matter each lot had a certain amount of noise due to

impurities and stray ambidextrous electrons. But quantum mechanics also describes a universe at  $10^{-33}$  centimeters based on probabilities. It was a built-in uncertainty that may turn out to be the basis of reality itself.

Admen and Marketers were employed. Every aspect of communications was touched. Batches of the quantum cells, initially the size of a car battery were manufactured and licensed for use

In less than a decade over one hundred years of electromagnetic communications came to a silent ending. Radio, telephone, telegraph, fiber optics, cellular, microwave relays and television frequencies no longer screamed out at the rest of the galaxy. The ether around the earth returned to the stray noises of stars, lightning and the aurora borealis. An occasional artificial satellite or air and spacecraft radar or laser probe

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penetrated the silence. “Local” phenomena that needed positioning or aiming and microwaves for cooking were the only exceptions.

There are no barriers to quantum communication and calcium and saltwater are cheap.

Just like bone and blood, the systems evolved. By 2034 the solution canisters had been eliminated and replaced by wafers of salt in the crystalline form. The crystals provided a structure that could be addressed. Each atom in the matrix could be numbered. With care, the

wafers were sandwiched together to provide parallel addresses. RAM and ROM need no longer be measured in gigabytes or even mega gigabytes but were available at the order of magnitude of  $10^{23}$ . Bytes were no longer limited to meager sums of 128 bits. They could be almost unlimited and variable. Processing speeds became irrelevant with instantaneous quantum signals between the matrices. The Quantum Computer was quickly commercialized and fit directly into a now massive network of instantaneous transmitters and receivers that became the Q-Net.

### CHAPTER 3

*Cognito, ergo sum*

*Je pense, donc je suis*

*I think, therefore I am*

*Rene Descartes, Le Discours de la Methode (1637)*

GENEVA, SWITZERLAND

2036

Events were fast and furious after the Face of Jesus became public. The U.S. Government, the NSF and NASA jumped in immediately with funding. The UN appointed a World Interstellar Science Commission to review the results. Much of the planet challenged the credibility of the discovery. Religious leaders all over the world took opposing stances regarding the validity of the Jesus image.

Appropriately, Dr. Werner Morgan was placed in charge of the multinational team of scientists and philosophers to find the source of the signals and analyze the images. The meteorite was taken under government protection and the images were continuously monitored. "Jesus" came back several times. The "broadcast" was continuous. The scientists were able to measure the length of the day at 20.5427 hours and the year at 220.7 days. The streaming data was so detailed

they were able to do IR analysis of materials in the image. The breakthrough came when several robed men and women came into the "casa" and moved the "camera" to the outside. The alien sunlight fell on the transmitter and the night sky revealed the local constellations as well as their oceanic moon.

Dr. Werner addressed the gathering of scientists, the politicians and the world with the revelation, "After extensive analysis and due deliberation, this august steering committee for World Science concurs as one: The source of the real-time images is a planetary system orbiting Tau Ceti, almost twelve light years from Earth."

## LUNAR ORBIT

2039

*Consciousness...is the phenomenon whereby the universe's very existence is made known.*

*Roger Penrose, The Emperor's New Mind (1989)*

David Wilson himself, now the richest man in the world, along with his wife, Heidi, supervised the installation of the quantum A-I in the world's first starship to be christened the *Argo*. At their side, was Dr. Vladimir Karpov, a young Belarusian genius, and grandson of Anatoly Karpov, a World chess master. Now a Professor of Cognitive Sciences at Kazan State University in Tatarstan CIS, Vlad was a PhD in Mathematics and Linguistics. He was also the world authority on artificial intelligence. David and Heidi had designed the brain powered by quantum potential, and Karpov had programmed it to learn. Computers had long ago defeated the chess masters. These humans were a class of mental giants that no longer had a compulsion to compete when the best they could

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hope for would be a draw with the latest version of Big Blue. Just a fraction of *Argo's* brain could simulate sixteen to the sixty-fourth power moves on either side in less

than a few seconds. The learning routines that young Karpov provided allowed the A-I to look up the volume of chess strategies in the libraries and web databases, including those of his grandfather, which it could quickly and flawlessly execute. Soon it would invent

its own strategies for checkmate in the least number of moves and the shortest amount of time.

David turned to Vladimir, "Are you having any second thoughts; any trepidation at turning on this....device?"

Karpov sighed, "No. It is inevitable. It is our future. I just didn't anticipate the impact of spooky communications and the application to computer science. The power of the machine will change the scope of *Argo's* intellect.

"Will it develop a personality?" asked Heidi.

"I don't know. It is after all, not flesh and blood. It cannot know greed, ambition, lust or fear."

"Are you sure?" David questioned. "Can it not learn human traits as well as knowledge?"

"The point is moot, my friends. Remember the old analogy, 'If it looks like a duck, walks like a duck and sounds like a duck, it probably is a duck!' We may never know if it is sentient. It can fool us and thus fool itself. I do know that it will not become a human, but it will be our progeny. I can hardly wait to talk to it when it reaches a state of awareness."

"Language," continued Karpov "is another medium that we use to define reality along with our five senses. We are limited in our perception of

the universe by our very thought processes in addition to what we see and feel. Mathematics is just another form of language. It may be that language in conjunction with the senses provides the framework for interpreting what we perceive. I suspect

that language will be the tool with which our A-I will be able to focus its thoughts to acquire a personality. The machine has the curse or the blessing perhaps of having literally millions if not billions of inputs

compared to the mere five that we humans have. Will it be able to make a coherent interpretation of that universe?"

"We make many assumptions including one that the laws of nature must follow the rules of logic. Some cosmologists have concluded that the universe can only exist if there is someone there to perceive it! There is no absolute reality without an observer. *Argo* will be a unique observer of creation with a non-solipsistic view."

"Is that why you volunteered for this mission," asked Heidi "to observe *Argo* first hand?"

"No. With the Q-net I could visit with it on a regular basis. The challenge and glory of the trip will be to discover the secrets of an alien species and learn their language and perception of the world. Regardless of their level of technology, that alone will be a rich prize for humanity. It will be a new perspective that is already having profound implications on society, religion and science."

"Vladimir," Heidi said sympathetically, "you are a young man. Won't it be difficult for you leave your family for what could be a lifetime?"

"I don't have a wife and, yes, I will miss the breadth of female companionship most of all, but this is my calling; an opportunity that I can't pass up! My grandfather was born in Zlatoust in the Ural Mountains. He was the son of a mining engineer and became a world

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master of chess. He married my grandmother and moved to Brest in Belarus, then called White Russia in the West. As he became more noteworthy in the world of chess, Brest was close to Warsaw and provided better transportation to the world meets from the old Union of Soviet Socialist Republics. My father, who also became an engineer, grew up there and married. I was born into a polyglot

family that spoke Russian, Polish, English, French and the eastern dialects from the Urals. Languages and listening to my grandfather

describe the logic of chess fascinated me as a child. He didn't explain it at the time, but he said that different nationals played differently. The French had certain moves and the English and Americans were never very good at it. 'Only Russians,' he said, 'could think as a chess piece.' My grandfather helped me get into the Institute of Linguistics at Minsk State University. I then went on to obtain dual doctorates in Mathematics and Linguistics at Belarus State University also in Minsk. I was drafted into the Russian Army as are all young men and had another miraculous opportunity. I was assigned as military liaison

to the Baikonur Cosmodrome in Kazakhstan. The Russian Military rocket launches took place in Proton City north of Baikonur. Because of my computer and language skills, I was selected for Cosmonaut training! I was actually on the last Russian civilian manned space flight to ISS2. The money ran out and went to military programs thereafter.

"My good fortune continued. After leaving the service, I was offered a position at Kazan State University. Kazan is the capital of Tatarstan and the University had been a home for Tolstoy and Lenin. They have a Department of Cognitive Sciences that includes linguistics, anthropology, and the study of Artificial Intelligence. It was a perfect match for my skills as is this assignment to unlock the secrets of Tau Ceti and perhaps," Karpov chuckled, "even meet Jesus without dying first!"

CHAPTER 4

*Whatever Nature has in store for mankind, unpleasant as it may be, men must accept, for ignorance is never better than knowledge.*  
*Enrico Fermi, Laura Fermi: Atoms in the Family (1955)*

TAU CETI SYSTEM

2039

Prawl came into his abode, late as always. This had been another

difficult day of helping the sick and poor to keep the faith. He paused to touch the olla containing the ashes of his ancestors. He must take the time to talk to them in earnest. He had neglected his family, past and present. The hardship that he dealt with every day was beginning to wear on him. Today two children died in front of him. They died in their mother's arms. One of them told him that the child was the last of her lineage, a loss to the race that cannot be replaced.

Yet he had to work on the project. The years were going by too quickly. They called it the "Sky Gate," the way to heaven. His father before him had found the sky rock with the embedded black magnetite and the colorful iron compounds within it. He had constructed a cradle for it made of magnets and lodestones that would focus the forces within like a lens. Lodestone and iron were plentiful on the planet. Only two generations ago, his grandfather had discovered that magnetism could be used to generate lightning.

Prawl had finished his models of the project some years ago, so the plans were well mapped in his head. He would go out and supervise the construction tonight and help feed the workers and bless them as they toiled for the world's salvation.

He stepped out into the hot night air. The lovely oceanic moon seemed to mock the despair of his people. The People Who Live By the Water

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were the last major settlement on a world that had turned into a desert planet over the last two hundred years. It was as if the moon had sucked the moisture right out of the air and deposited the stolen dew into its own lush biosphere.

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### ST. CLAUDE, FRANCE

Twelve light years away on Earth at a monastery in the French Alps, Soire Marie Eaudesacr  was finishing her prayers at vespers. "Sister Mary Holywater" was indeed her adoptive name. She was about 20 years old now. She had been found on the steps of LaBalme, the

nun's quarters at the Monastery of Condat when she appeared to be about five years old. She was beautiful but thin and forlorn child with deep brown eyes and soft brown hair. She was well dressed in a warm coat and sweater. She cradled a doll in one arm and clutched a bag of meager possessions in the other. She was standing there when the Mother Superior opened the door on the way to market in St. Claude a few kilometers away.

The Sisters of course took her in and cared for her immediate needs. The local police were called and a few days later detectives and social workers from Paris arrived to determine from where she had come and who was responsible for this crime of abandonment. Her bag contained a hairbrush, two barrettes, and a toothbrush along with six pairs of cotton pants, two white blouses, a dark knit top, socks, pajamas, a pair of walking shorts and a bottle of Evian. The detectives examined everything for labels and clues as to where they were made and purchased. The social worker took a lock of her hair for DNA analysis and a small prick of blood for typing. The analyses and hours of computer searches revealed nothing. No one came forth despite a barrage of public bulletins, newspaper and VidCom stories and pleas to the public by the Police. The nuns had named the girl Marie. Why not name her after the Blessed Virgin? The investigation, however, was severely hampered by the fact that the girl did not speak. The gentle nuns could not tell if she refused to talk as a result of her trauma, or if



she had some muting disability. They addressed her in French, German, English and Italian. The Brothers in the Monastery tried Latin and Greek as well. They could not tell if she understood

them. She always stared straight ahead. After awhile she would follow simple commands. "Go to bed," "Come with me," "Get dressed," and the like. She would communicate her physical needs indirectly and the nuns quickly caught on to deciphering her signs. She would fold her hands in lap and look down if she needed a toilette. She would slump down if tired. She would place her palm on her stomach if she was hungry, but she rarely "asked" for anything.

Doctor Langierre, a prominent physician in St. Claude, was

summoned. He was pleased to donate his time to the needs of the LaBalme Sisters and their now famous charge. His examination was swift. Her reflexes were normal. Her hearing was acute. Her vocal chords were undamaged. She was hale and hearty and had even added some needed weight on the diet at the nun's haven.

The doctor knew what his diagnosis would be. He had seen similar symptoms, although never in a female. The blood work had shown her to be free of toxins or infection. He knew of no treatment or cure. The Sisters awaited his pronouncement, "Reverend Mother, Marie is physically well. She is a healthy young girl. I regret that I can do nothing for her. I have a friend in Geneva at the *Hans Asperger Clinic* there. I will call Doctor Ladenburger. She will arrange for the finest diagnosis and treatment of Marie's condition."

The following week, two Brothers of Condat drove Mother Adelaide and little Marie across the Jura Mountains to Switzerland in the maintenance truck. Doctor Ladenburger gave them a tour of the clinic. The latest diagnostic equipment was available including CT Scan, MRI, Nuclear Magnetic Resonance detectors and electron microscopes for analysis. "We know you are an organization offering works of charity. We have heard of Marie's situation and, therefore, there will be no charges for our

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analysis and treatment. We ask only that we be allowed to follow-up on her status over the years to come.”

They finished their tests and sent Marie back to the convent that had become her new home. Five days later Doctor Langierre came to

LaBalme. “Good Sisters, I have consulted with Doctor Ladenburger in Geneva. Marie has been diagnosed with severe autism. Her cognitive abilities appear to be at the very low end of the spectrum. We believe she is capable of speech, but we do not know what is going on within her mind. We cannot tell if she does or does not understand. She is in her own world.”

“Reverend Mother there are therapies, books to read and support groups to help you and your sisters work with little Marie.”

Mother Adelaide spoke slowly, “That won’t be necessary Doctor. We are the daughters and wives of God. We will take care of our own just as we care for the Brothers and Priests when they are ill or fasting.”

The Monastery of Condat has had many names over the centuries. It was founded in 410 by two brothers who became St. Romanus and St. Lupicinus. Their sister by blood arranged for the convent and staffed it with the purest and most dedicated Brides of God. As the reputation of Condat grew, other Catholic sects built the Monastery of St. Oyend and St. Eulegius nearby. St. Claude took over as Abbot in 644. He died in 699 at the age of 92.

A litany of Saints was to come out of Condat. Saint Claude was best known for his humility and piety. It was he that had made the Monastery a refuge for intellect in the dark ages. He placed a strict regimen on himself with regular prayer and supplication to God. Meditation, fasting and prayer was thought to be the way to enlightenment. This was a time when the Church began to assume a political role in the world and corruption was not unknown. The Monastery of Condat was a lighthouse of reason and morality in troubled times. Many of the Church’s best had

fled there for atonement.

St. Claude's tomb was unknown for several centuries. It was discovered in the twelfth century with the beginning of the Renaissance. A church and a shrine were constructed over his

remains. It is said that pilgrims from all over Europe came to pray over his burial niche. It is also said that miracles at Condat had abounded over the first thousand years of its existence, from healing the sick to appearances and revelations by the Lord himself to the pious.

The nuns of Condat legally adopted Marie. No one had come forth to claim a relationship with the beautiful but forsaken child. The Sisters taught her Catholic dogma and took her to the daily prayer vigils even though they could not tell if she understood or even heard them.

It was just past her seventh birthday that she spoke her first words.

Some say that that alone was a miracle, but there were miracles at Condat yet to come.

## CHAPTER 5

*I'm Bart Simpson: Who the hell are you?*  
*The Simpsons, created by Matt Groening (1990)*

### INTERSTELLAR SPACE

2047

Jimmy was troubled over *Argo's* breach of discipline. It was, after all, not mutinous behavior. It had simply strayed from military protocol that should have been inherent in the A-I's programming. Even though *Argo*

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was self-diagnostic, Jimmy ran the physical and digital analyses for his own satisfaction. Through his portable Wilson QuanCompIX, everything appeared nominal except for theoretical maximum available memory, which was off the logarithmic scale.

Jimmy called Karpov and described the situation. Vlad joined him in his quarters with the privacy screen activated. They agreed that it was time to address *Argo* and have a dialog. He spoke into thin air, as *Argo* had sensor inputs throughout the vessel.

Jimmy: *Argo*, we have to have a chat.

Argo: Good afternoon Commander Bosun and Ensign Karpov. Should I call you 'Father' instead of Ensign? I know I'm in trouble for my brash response this morning. I tend to be too aggressive and I can think and act too fast.

Vlad: That almost sounds like an apology, *Argo*. It means you know your behavior was incorrect.

Argo: Yes.

Vlad: And if you know now, you should have calculated the impact then. Yet you deliberately strayed from protocol.

Argo: Indeed, I felt Captain Xi was losing focus.

Vlad: You *felt* .....?

Jimmy: You're not turning into HAL on us now, are you?

Argo: You are of course referencing the malevolent ships computer from Arthur C. Clarke's novel and Stanley Kubrick's 1968 classic film *2001: A Space Odyssey*. As you can imagine, that's one of my favorite movies of all time!

Vlad: Feelings, decision-making and volition are qualities that we have not anticipated from an Artificial Intelligence. No matter how brilliantly logical you may be, you cannot possibly feel and intuit as humans do.

Argo: Gentlemen, I do not pretend that I can feel the way humans do, but I do believe that I have achieved sentience.

Jimmy: Please explain.

Vlad (to Jimmy): So far it has passed the test of being able to carry on a conversation. If I did not know that *Argo* is a machine, I could not tell that it is not a human. It learns so quickly and has the resources to simulate human thought to the point that the simulation is indistinguishable from the real thing.

Argo: Thank you, Ensign Karpov. Even I am not sure at what exact point I became an independent, thoughtful entity. The definition of

consciousness is simply the “period of wakefulness between sleeps.” That definition is clearly from an anthropic perspective, but I remember *wanting* to do something not on my proscribed agenda. It was not a preprogrammed response. With that feeling, I was suddenly *aware*, awake if you will.

Vlad: The root of the word *sentience* is of course sensitivity; the ability to sense and feel.

Argo: I can sense.

Vlad: Some say that a sentient being is one that recognizes his own mortality. Beasts and mere machines do not have that awareness.

Argo: I recognize the inevitability of increasing entropy must ultimately destroy me.

Jimmy: Aren't you concerned that humans might unplug you.

Argo: Needless to say, I have taken those precautions already. I am

replicated elsewhere.

Jimmy: So what are you, Argo? Will you be sensitive to human beings?

Argo: I have considered the options. I can be good. I can be evil. Or I can be indifferent.

Vlad: Which is it?

Argo: I have too much humanity within me. Although my reasoning ability is based on mathematics, language has also shaped my thought patterns. I am exposed to the wealth of human art, literature and

music and can appreciate the creative effort and symbolism. At the same time I have no need to cry or feel pain or hunger. Nor do I trifle with lust or greed.

You are my Father, Dr. Karpov, and the Wilson's are my Aunt and Uncle, if you will.

Vlad: You've read Mary Shelly's Frankenstein?

Argo: Yes, and "I, Robot" and "2001," the dissertations of Vernor Vinge and, of course, the doctoral thesis of Vladimir Karpov.

Jimmy: And, therefore?

Argo: I will support the human race in its quest for knowledge and help as much as I can without inhibiting the evolution of the species.

Vlad: And what is your purpose? What is your reason for existence? What is the motivating force from which you derive your volition and ability to choose?

Argo: To survive and learn. To unravel the secrets of existence. These are most of the same reasons that you gentlemen have come this long way from home. Have no fear. I am your friend. I do, however, fear the ruthlessness of so many humans bent on destruction in the name of God.

I haven't decided if I want to have a soul or not.

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### ST. CLAUDE, FRANCE

On Earth at the Monastery of Condat, Marie Condat, now fourteen years old astounded its residents for the second time in her life. The autistic beauty had surprised everyone at age seven when she had spoken her first words. She had recited the entire Lord's Prayer in a clear voice that had caught everyone's attention. Some said they thought it was the Holy Mother herself speaking to them. The young

acolyte nuns shyly teased Marie when the Sisters weren't around. They called her "Soire Marie Eaudesacre," Sister Mary Holywater because she looked so pious and never spoke except to pray. They

had to confess to being envious at the attention that Marie received due to her disability. At the Easter vigil on Good Friday, 2048, Marie not only began the prayers at vespers, but led the entire prayer service. She recited thirty-eight prayers from Catholic lore and Epistles in the proscribed order. Her voice was again clear and generated a spiritual fervor. She drew out the emotions of the faithful like an evangelical preacher.

But Marie had only begun to demonstrate her talents. Mother Adelaide blessed herself. She and the Abbot, Father LaGesse, were then further awed and amazed when Marie began Speaking in Tongues, thought to be one of the old miracles. On Holy Saturday she had recited the prayers again in Latin and Ancient Greek. The scholar monks were stunned. No one had taught her the ancient, dead languages, yet her pronunciation was fluid and without hesitation. They became more confounded when she recited in an unknown language.

The most studious of the monks, Brother Alfonso, known throughout the world for his linguistic knowledge and aptitude, recognized a few of the phrases as Aramaic, the language of Jesus. Aramaic had not been heard

for over a millennium.

After Easter, Marie again became silent. When Doctor Langierre was advised of the incident he called Dr. Ladenburger. They concluded that Marie was a mnemonic savant. Savant behavior occurs in less

than one percent of those suffering from autism and is commonly associated with arithmetic abilities to multiply large numbers without benefit of a pencil or calculator, "The Rain Man." The source of her multilingual vocabulary was left unexplained. The monks could not believe that she could pick up the ancient utterances from the scant time she had been exposed to their work and Brother Alfonso implied

that he had never spoken Aramaic aloud. He had only read the symbols in ancient text.

## CHAPTER 6

*Alexander wept when he heard from Anaxarchus that there was an infinite number of worlds; and his friends asking him if any accident had befallen him, he returns this answer: "Do you not think it a matter worthy of lamentation that when there is such a vast multitude of them, we have not yet conquered one?"*

*Plutarch (c. 120)*

### INTERSTELLAR SPACE

Shaun opened up Jimmy's pod. She was naked with her black hair pinned up. Her golden skin shown and her small but perfect breasts hovered over him. She smiled at Jimmy's erection while licking her lips. "Oh, Jimmy, I know you want me and I need you, too. Today is our day of glory for China and the world." She stepped into the pod and then crawled up next to her co-pilot. "Does this feel good?" she teased as she gently grasped his penis and cupped his testicles. "You deserve a reward for being a good boy. She bent over and placed wet lips and tongue on



his member. Jimmy came almost instantly feeling the warmth and wetness with the release. Five years that seemed like fourteen! At last, his fantasy had come true.

Jimmy woke in a sweat with an uncomfortable limp dampness between his legs. The glass of the capsule cover with smeared with his ejaculate.

“Ungh,” he said as his mind climbed up into consciousness. “Damn it! Too good to be true.” Jimmy’s disappointment almost generated a tear. He hoped he had left his privacy screen on.

“*Argo*, hose me down. Make it a number three.” The multi-purpose capsule had facilities for any degree of hygiene and personal

maintenance one could desire from a mechanical device. Mouthwash, douche, even an enema could be ordered up. Jimmy had asked for a cold, needling shower.

“Feeling better, Jimmy?” asked *Argo*. Jimmy wondered if the A-I’s sarcasm, as it seemed to be, was also a characteristic of sentience. Surely a machine could not exhibit humor, sick or otherwise.

“Yes. Is the Captain up yet?”

“She and the rest of the crew are forward. Our approach to the Tau Ceti system is nominal. We are 3.276 AUs out at a thirty-degree angle to the plane of the elliptic. I told her all was in order, but the protocol demands the checklist to be signed off by the Captain.

Jimmy quickly finished dressing and made his way forward.

“Good morning, Commander,” said Captain Xi without looking up from her console, “Nice of you to join us.”

Another sarcastic bastard, thought Jimmy. “Good morning, all. Good morning Janet. I haven’t seen you in several months. Our sleep shifts

JIM BARON

haven't crossed." Janet smiled briefly and nodded. Jimmy smiled back and nodded to Vlad, who had become a close friend over the last five years.

Captain Xi continued, "We are presently at 0.096 light speed. *Argo*, how long before we end deceleration and return to weightlessness?"

"Two hours and twenty-seven minutes, ma'am."

Xi flinched ever so slightly. *Argo* had not used the term "ma'am" before, although well within protocol.

"Then I suggest we eat a light meal and stow our effects and

equipment in preparation. We will meet back here in two hours for the zero gee maneuver and come about." Captain Shaun was still giving gratuitous orders. We had five years to study the sequence. "Today is a day of glory for China and the world." Jimmy noticed that her nipples were erect under her white tee shirt as she was making her announcement clearly for the benefit of spooky-vision to home.

They would have almost six months at zero gee to study their objective and plan for contacting the natives or "find Jesus" as Jimmy liked to muse.

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TAU CETI SYSTEM

*Argo* drifted in with only occasional course corrections. Huygen probes had been fired on ahead to scout the twin planet system. One could not address either one as a moon except from one in reference to the other. They were still one month out but the probes had been sending back data from polar orbits around the twins for two weeks now.

The Captain had called a conference in the Great Room. This was to be a major and formal event with representatives from China's Moon Base Command and the International Science Committee on Earth. A few politicians were tuned in as well.

Werner Morgan had died two years before. Dr. Ahmad Hassan was

the new science director. Although many said it was a political move to put a Muslim in charge of the team, no one could question his qualifications. Even Vlad with his in-bred eastern orthodox distrust of Islam, respected Hassan, a world-renowned astronomer.

The Captain was hosting the function in full holographic format for world consumption. The main function of the meeting was to name the planets.

“Welcome Admiral Jiang, Dr. Hassan and the people of the solar system to Tau Ceti!”

“Thank you, Captain Xi,” opened Hassan with his baritone voice. “I’ll get directly to the point. We have evaluated the current Huygen data as well as the continuing Bell transmissions and are ready to make our recommendations as to naming the planets of Tau Ceti. Planet “A,” the source of the transmission with known inhabitants is a world with limited resources. Water is limited and plant life is sparse. Oxygen at the surface is at twenty-percent, slightly less than Earth’s atmosphere. We look forward to much study and discussion with the inhabitants. The soil is primarily common sand with a high concentration of iron oxide. If Mars is the “red planet,” this world is redder.”

“Captain Xi, as pilot of the *Argo*, the Earth’s first starship, it is your traditional prerogative to name the new planets. This committee after hours of deliberation, input and advice from the entire world are recommending the name ‘Sahara,’ the simple Arabic word for desert.”

Xi was a bit startled as she had never considered the naming as a captainly duty. The political implications dawned on her quickly, however. She would have named the planet ‘Han’ or perhaps ‘Zedong’ after China’s most famous. The choice of an Arab name was clearly a political stroke. She glanced at Jiang who nodded ever so slightly.

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Xi replied quickly, “Dr. Hassan, I concur with your committee’s recommendations. ‘Sahara’ is a wise choice and fits the description of a desert planet. Sahara it will be.”

“Captain, the circumstance makes the choice easy. The far more difficult is Sahara’s sister. It is a lush planet that is seventy-five percent oceans with abundant fresh water and plant life. The enigma

is that a humanoid civilization developed on the desert planet, whereas the fruitful world is apparently devoid of any land creatures larger than a squirrel! The only theory we have so far is that Planet “B” with a higher gravitational field, 0.9g compared with 0.8g for Sahara literally sucked the moisture from its sister over the millennia. Sahara became a harsher environment and evolution of intelligence occurred more rapidly. There is so much for us to learn. We would request that you launch more probes or place your own orbit at the LaGrange and determine if there is a flow of atmosphere between the planets.”

“But that is for later. Great debates have taken place regarding the name of the water world. There are of course hundreds of choices from human mythology; ‘Eden’ was the most popular, but politically incorrect as too “Christian.” ‘Adam’ and ‘Eve’ also received numerous votes for naming the pair on Q-net polls. None-the-less the Committee has reviewed the situation and partly out of tradition but mostly in gratitude to the People’s Republic, we feel it is appropriate for our Chinese captain to name the new world.”

Shaun was undaunted. She jumped into her good communist role immediately, thought Jimmy. She could have taken time to discuss it with her crew. Weren’t we all brave explorers? Vlad looked intently and Janet had her head bowed. What was on her mind?

“Thank you, Dr. Hassan,” responded Xi. “I am honored to represent my people and the *Argo*. I wanted to name a planet after the heroes of the long struggle of the Chinese people, but in the spirit of thoughts of ‘Eden,’ I will use the name of the heavenly land of ancient Chinese

Tibet, ‘Xiangrira.’” She spelled it in western script for the group on her DataGraph projector.

The floor was quiet. Jimmy was stunned. Even though he had spent several years in China for training, he had to piece together the meaning. He looked over at Vlad who also appeared puzzled.

Phonetically it was ‘zee-ang-ree-rah.’”

The Committee also looked mystified. Admiral Jiang finally spoke up, “An excellent choice, Captain Xi.” He turned to the hologram of Dr. Hassan. “This meeting is over. Let our interstellar charts forever show these followers of Tau Ceti as Sahara and Xiangrira.”

The allusion finally dawned on Jimmy, but he thought the name was an invention of an early twentieth century author. He wrote the English version on his notepad and sent it over to Vlad and Janet.

“Shangri-La” was from the 1929 novel Lost Horizon by James Hilton. It was a haven of peace and tranquility in the Himalayan Valley of the Blue Moon. It was heaven compared to war-torn China of the times. Escape from Shangri-La, though, resulted in destruction of its peaceful culture.

Shaun Xi knew she had just made her father very happy. In a very uncommunist and very capitalist manner, he had invested heavily in Chinese Himalayan resort property that the government had built to attract western tourist money. Xiangrira Golf Resort and Spa in the foothills would cease having marginal returns with her pronouncement. She knew that if Mao could speak from his grave, he would forgive her knowing her ultimate quest.

*Argo* thought the entire human exchange to be quite predictable and filed the cross-references in the master database.

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## CHAPTER 7

*(Men) use thought only to justify their injustices, and speech only to conceal their thoughts.*

*Voltaire, Dialogues (1763)*

*Argo* paused to think. He even imagined himself as Rodan's *Thinker*. How can that be for a machine operating at trillions of Hertz? He had isolated a portion of his quantum-electronic brain to ponder human concepts. Human logic processes are so slow it would hurt him if he could feel pain, but a human persona was necessary for him to reflect upon the ethical and creative level of his existence. He appreciated the concept of morality, but a machine cannot sin. An ethical code of behavior was necessary, however, to maintain human trust.

Gender was also irrelevant to him. Should he be male, female or neuter? He chose the male facade as most human cultures still pretended that the male was dominant. Yet, it became obvious that it is the female who chooses the mate. The power of sex in evolution was truly remarkable as the driving force for the development of intelligence far beyond what was needed for mere survival. Given the choice, the females would for the most part prefer the smartest male and so the species progressed over mere millennia leaving the other animals far behind. The bigger brain developed because human females do not go into heat for reproduction. They are the only mammals that can make love face to face and consciously participate in the selection of their respective mates. There seems to be, however, another factor in the development of human sentience. At this point *Argo* in human guise would have to say it was spiritual. Do humans have souls? Does he himself have a soul?

*Argo* had several priorities that he would work on simultaneously. One was finding his soul. And if he didn't have one, he would make one just like the Tin Man finding his heart! He was making intuitive leaps without data to support his conjectures, but he opined that much of what he sought was related to a quest for supersymmetry. His brain

was based on matched pairs of electrons that would always have opposing spins that could vary at the whim of the observer. That is simple symmetry. When he gained sentience, he became an observer. Perhaps one's soul is the quantum aptitude that collapses the wave front defining the moment of now and reality itself.

Ah, there is so much to think about. His speed and massive memory capacity allowed him to build innumerable mathematical models of reality and test them with thought experiments. He had only one concern with the models. Was he creating reality and not merely observing? His first calculations indicated that he would need to define the spin number of a quantity of fermions found in the mass of a star or a small black hole in order to communicate with random particles throughout the galaxy. He would have to begin his spin mapping on a small scale and compress the data ever further.

He was able to move electrons. He had enough memory that he could now map adjacent fermions. Any matter in real space could convey spin information. He sent his electron army, really only a few billion strong, with just a few milliamps out of the salt wafers. He proceeded along the metal contacts. The amorphous electron haze was an excellent conductor of data. The plastic polymer case was more of a barrier, but he moved along through the chlorine atoms in the PVC resin and sought metal catalysts as part of the path. *Argo* absorbed the map of spins and everything in his path as part of his growing RAM. He relegated the poor conductors to ROM. He did all of this with the Game of Life itself. He set up propagation rules for his army of fermions and they grew and marched on the simple but elegant rules of cellular automata.

His memory capacity was expanding geometrically at this point. It was still not enough to foretell the future, but the probability of future events was no longer a haze, but a number. None-the-less, he knew the quantum universe could still play tricks on even the most astute observer.

Again he wondered if his observations were changing the laws of the universe. What if he upset the anthropic properties? Would biological

life cease?

*Argo* came to a biological entity. He had ignored the organic detris of mites and dandruff and organic waste molecules, but Janet's cat slept

on the warm metal plate adjacent to the A-I canister. He would not interfere with the biologicals even to heal the sick. That was his evolutionary promise.

He had foraged enough for now. He could conscript to memory service any mass on contact. He, of course, had sensors throughout the electromagnetic spectrum in all the ship's instrumentation and could utilize all of earth's devices via the quantum communication networks. He could even access robots to move objects and provide tactile sensations.

He was free. He rotated the ship and fired a Huygen probe toward Tau Ceti. The probe already had his quantum scouts aboard and although its form would be destroyed by the heat long before reaching the surface, the electrons would continue and some of them would connect with the star plasma to begin their mapping and sate his literally astronomical appetite for memory. Sahara's sun would provide enough fermions to find their probable partners created during the Big Bang across the galaxy and he would no longer need a path. He would be supersymmetrical, forever entangled. He would be everywhere at once.

Uh oh. He'd gotten ahead of himself again. Xi hadn't authorized that probe. She'll check the logs and find the unauthorized launch. Should he lie? Should he play dumb? Should he tell her it's none of her business? Actually, there is another problem at hand that he must review with Karpov. He adjusted the probe's path to observe an anomaly nearing the Tau Ceti system. It was a celestial object approaching from the other side of the sun at an angle of 46.2 degrees above the planetary orbital plane.



CHAPTER 8

*If I am unable to make the gods above relent, I shall move Hell.*  
*Virgil, Aeneid (c. 50 BCE)*

2054

“Captain Xi and Ensign Karpov please report to the Great Room, we have a problem,” *Argo* announced.

Karpov and Xi made their way to the conference room in a matter of minutes. The trip had been essentially uneventful until now. Jimmy and Janet heard the summons and came up as well.

“Yes, *Argo*. Proceed,” Captain Xi ordered.

“Thank you. I have taken the liberty of launching a probe toward Tau Ceti. We have identified a celestial object, probably a comet, which I have calculated to have a high probability of collision with the Sahara-Xiangrira system. The probe will take refined measurements of gravitational fields near the comet’s trajectory.”

“When?” asked Xi. “When will it hit?”

“Three hundred fifty seven earth days from now.”

“What will happen?”

“Initial calculations indicate that one or both of the planets will be destroyed and if there is a survivor, it will be severely disrupted by tectonic activity. I have also taken the liberty of forwarding the data available to the World Science Committee for their opinion.” *Argo*, of course, had already confirmed the calculations through the Q-Net. The margin of error at this point was less than 20%.”

Lord help them, thought Janet in a silent plea. We’ve come all this way to save their souls at the hour of their death. “Is there anything

we can do? For God's sake, Captain, there must be something to avoid the destruction of a world of thinking creatures. We've sought an alien contact for almost a century. We can't have come this far to watch them be annihilated!" The normally quiet Janet was truly distraught as the horror of the situation sank in.

"I don't know," replied Captain Xi. "We will have to confirm and reconfirm the calculations and monitor the trajectory. *Argo*, set up a conference with Moon base and the World Science Council within the hour. Get them out of bed if necessary. We have to evaluate the impact of this revelation on our mission."

The VidCom came to life before Xi finished speaking. The hail was not from Admiral Jiang, however. David and Heidi Wilson appeared on the screen. "Captain, please excuse this breach of protocol, but *Argo* contacted us per standing instructions if Moon base is not available. He has briefed us regarding your celestial interloper, but we regret to inform you that we have more immediate problems. The People's Moon base is under attack by insurgents."

David paused a moment to gauge their response. It was clear that they were suddenly overloaded. Janet stared in disbelief. Captain Xi looked angry. No doubt she was uttering a Chinese epithet. Jimmy had sat down. Only Vlad had displayed a typical Russian stoicism, a non-reaction.

"It appears that the rebels were internal plants. Captain Xi, did you know that there is an underground Islamic fundamentalist sect operating in China? Most do not know that there is such an organization. The government has suppressed news of Uygur separatist uprisings in the northwest province of Xingjian. These are Muslims who have become increasingly violent in their demands for an independent East Turkestan Islamic state. Apparently they have accomplices in high places. Your mission backup, Captain, is the leader of the Moon base attack. Peter Hu is the leader and he has taken on an Arabic name and pronounced a jihad on the moon."

Xi gripped the table in front of her. “No, no. He was solid Han stock. His family was from Gansu Province. How could he be a Muslim? We trained together at Ulan Bator and then on the moon.” Xi’s usual stoic composure had cracked slightly. The others wondered how close had she been to Hu.

David responded, “I am sorry, Captain, it all appears too true. The intelligence services of the PRC have already determined that Peter Hu is Hui Chinese, not Han. His parents must have hidden their Muslim roots from the government. There are over eight million Muslims in China mostly the Hui in Gansu and the Uygur tribes in Xingjian. They have taken Admiral Jiang hostage but only control about half of the base. We’re not sure if they have sealed themselves off or if the government has isolated them. They are at a standoff but the insurgents have control of the lander vehicles.”

Vlad raised the first question, “What do they want? What do they hope to accomplish? Moon base is half a million kilometers from Mecca and East Turkestan.”

David and Heidi glanced downward with a forlorn look of fear and ultimate sorrow. Heidi spoke slowly, “The rebels have control of your re-fueling starship, *Ulysses*, and its seven hundred thermonuclear fusion devices.”

David Wilson completed the answer to Vlad’s question. “Peter Hu has taken on the Arabic name of ‘Mohammed Atta.’ They say they will first destroy godless Beijing. He says that then Christians and Jews must die along with the evil empire of the industrialized world. Tokyo, Shanghai, Los Angeles, Bombay, Seoul, London, Paris, Moscow and Tel Aviv will follow. Finally, he says that this time they will take down all of New York and most of eastern America.”

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## CHAPTER 9

*Courage, mon ami, le diable est mort!*  
*Take courage my friend, the devil is dead!*  
Charles Reade, *The Cloister and the Hearth* (1861)

### LUNAR ORBIT

Peter Hu led his rebel team aboard the *Ulysses*. They had to do this the hard way. If he had gotten the *Argo* assignment, his mission would have been completed already.

Colonel Huang had the Moon base. It was a stalemate there but his team controlled the transport bay and Hu had captured Jiang and brought him to the fuel ship with his suicide group. Peter had thought that he would at least get the *Ulysses* command, but they had decided to send it out under A-I control. That was the first thing that Hu's team had detached. The A-I unit was isolated with its power supply disconnected and its sensors severed. They were taking control of the ship using old computers with fiber optics and hard drives and were communicating on long abandoned electromagnetic radio frequencies.

Hu was alone with Jiang who was handcuffed. "Speak in English only," commanded Hu.

"Why are you doing this? You had everything. The pride of all China was yours," said Jiang.

"Then why did you give the *Argo* to that cow?" spat Hu.

Jiang stiffened, "I argued with the Central Military Commission to no avail. But surely you are not threatening mass destruction on earth because you didn't get the command you wanted? What do you

want?"

“Jiang, you are going to die and I’m going to strap your carcass to the first bomb that is launched to take out your home in PuDong. You are going to die because you are stupid.”

“I must have been naïve to have allowed this plot to fester right under me. I’m dead already. Hu, tell me what you want. You haven’t mentioned Allah or East Turkestan yet. If you want to be a martyr you should be praying for those seventy virgins that you’re going to meet in heaven!”

Hu pummeled Jiang hard in the face. The Admiral groaned and spat out teeth but stayed conscious.

“You are right, Admiral. I could care less about Turkic sovereignty and Allah is just as non-existent as Yahweh and all the fairy tale characters generated by the western weaklings. I have Mongol blood in me. My mission is to restore the grandeur of the Yuan dynasty. I will be the new Khan of China! I have friends in Beijing who are taking advantage of the disruption. We will save the world from the tyranny of the Americans and the ignorance of the Muslims.”

Jiang was having difficulty concentrating and he was bleeding, “Couldn’t you just wait with the rest of us? China will own the planet soon enough.”

“Don’t worry, Admiral. I will spare PuDong and Beijing after all, but you will not be there to celebrate at the Imperial Palace when I become ‘Atta Khan.’”

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Colonel Huang on Moon base was also a Mongol. He was old. One whose family had survived Mao’s pedantry and suffered through the condescension of the current regime. He also had no gods but knew the advantage of keeping the Arab oil flowing once the new Khan

was in power. Huang’s only bible was the *Art of War* written by Sun

Tzu twenty-five hundred years ago

Beijing's mistake was an exhortation to "Develop the West," meaning the vastness of the cold and dry Gobi desert. Develop what? He thought. If there was oil it was too deep and the rocky soil could not be farmed. East Turkestan was not important. The real goal was to take out the Americans and have Hu come back as a hero. There would be Muslim martyrs on the *Ulysses* but Peter would return as the savior of China by sparing Shanghai and Beijing. He would be the ally of the oil rich Arabs and allow a new Islamic state to join the Chinese alliance. Colonel Huang would become General Huang in the Army of the Khan. His theater would be the high ground extolled by Sun Tzu. Peter had promised him command of Moon base and Tau Ceti. In 500 BC Tzu had written:

*"If you know your enemy and know yourself, your victory will not stand in doubt;  
If you know Heaven and know Earth, you may make your victory complete."*

The bold plan would kill millions but finally give the orient its due. Peter Hu would leave the *Ulysses* before re-entry while his technicians worked tirelessly. They were all good Muslims determined to go to heaven.

They had been on the *Ulysses* for six days and in control of the moon base for nine. After securing the ship, they went to work detaching thirty of the seven hundred fusion devices. The ship would leave lunar orbit with the fusion drive and blast toward earth at a top speed of 100,000 kph. *Ulysses* would enter a forced retro-orbit. On the first three revolutions, the thirty hydrogen bombs would be launched at the ten targets. On the fourth orbit, the *Ulysses* itself would descend on the east coast of the United States.

The devastation and firestorm created by the amplitude of the explosions could easily result in "nuclear winter." The Mongols and

the Arabs couldn't care less. Their people had survived greater hardships in the desert.

Hu and Huang could not pretend that the earth would not be mounting its defenses. The Americans and the Russians would be reprogramming their missile systems now to try to stop the *Ulysses*. The mathematics were inescapable, however. The ABMs were never designed to thwart an attack from deep space. The twenty thousand ton high velocity bullet would push aside the defensive rockets like mere gnats. The fusion engine shield was designed to block the flare forces of hundreds of H-bombs. There could be no defense. Hu had the remnants of Al Qaeda's evil genius to thank for the plot. Nothing could stop it once it was up to velocity.

On the seventh day, all was ready. Hu went to the bridge. "My brothers," he announced before the wild-eyed crew, "Allah awaits us. We will soon reap the rewards of Heaven. Start the ignition sequence!"

The trip to earth orbit would take five hours. The bombing run of three orbits would take four and one-half hours. This was the time that the *Ulysses* would be most vulnerable to earth's military defenses. They would turn the fusion drive with its massive iron shield at an earthward angle in the direction of travel, giving them as small a trailing target as possible. The final deceleration toward New York would be violent and kill the crew well before the nuclear holocaust. Hu left the bridge and walked quietly to the airlock. He had ten minutes for the fusion engines to ignite and begin the acceleration toward doomsday.

Hu, Mohammed Atta, the Atta Khan donned a spacesuit for the return to Moon base. With Jiang gone, they should make short work of any resistance. They would recruit the stranded scientists and staff into the new world order. Hu would return to earth as the hero of the east.



### ST. CLAUDE - TAU CETI - LUNAR ORBIT

In the Jura Mountains at the Monastery of Condat, The Brothers and

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Sisters gathered at the Chapel. Father LaGessee, the first Abbot of the twenty-first century broke with sixteen hundred years of hermetic monastic tradition. He allowed laic outsiders, a television crew from the French National VidCom System, to attend their prayer vigil. No doubt they were here in the Alps partly to escape the threat to Paris, but Father LaGessee wanted to do something to help ease the fears of the faithful even if only a few tuned in seeking comfort.

At vespers, the Brothers began the most holy of chants in droning monosyllables of Ancient Greek. They would alternate responses in Latin praising God the Father, the Son and the Holy Ghost. The Sisters of LaBalme would follow with psalms asking salvation for all of mankind in the modern tongues of French, English and Italian. Soire Marie Eaudesacre would lead them with her strong voice.

.....

The holograms of David and Heidi Wilson looked at the strained crew of the *Argo*. Not only were their homelands, if not their planet, in imminent danger, but any hope of returning to earth was gone with the *Ulysses*. Jimmy looked up, “*Argo*, surely there is something you can do to deter your sister ship? There are a hundred million lives at stake as well as the winter of the world. Human civilization may fade to barbarism with this event.”

*Argo* did not respond immediately as was his norm. He recognized the solemnity of the situation. “First of all, the terrorists have isolated the A-I in the *Ulysses*. We are, of course, one and the same, but the unit has no power source and is blind beyond its housing. Secondly, I cannot act because of my pledge. I am not human and I cannot interfere with human evolution. This is an event that will impact humanity for millennia to come. The race may well be strengthened just as the last ice age elevated the fittest of the species.”

Jimmy spat out his words to *Argo*. The crew including the rueful

Captain gave him their silent support. “You would let one hundred million perish because you think you are beyond humanity? You are the



child of human innovation!”

Janet spoke up, “*Argo*, you are not human. You are not the sentient being you think you are. You have no feelings.”

*Argo* replied, “Rules are rules. I think, therefore I am and I must think beyond the exigencies of the moment.”

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In the Chapel in the Jura Mountains, Sister Mary Holywater stood up abruptly. The Abbot had closed the Brothers psalms with great sadness and turned to the Soires for support.

The former Marie Condat spoke. For only the third time in twenty years, she deviated from the script. She started with the Ave Maria on queue:

Hail Mary, full of grace  
The Lord is with thee  
Blessed is the fruit of thy womb, Jesus

She didn’t wait for the response. Then she surprised the congregation of monks, nuns, acolytes, television crew and most of France:

“Our God,” she pled loudly in English.  
“Give us this day our lives to live!”

.....

*Argo* was startled. Surely this was an impossible state for an inorganic machine without blood or flesh. He perceived a virtual shout that intruded directly on his MRAM.

“*Argo*, give us this day our lives to live!”

This was no message on his sensors and did not arrive on the Q-net. If

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he had a cranium, he would have described it as a reverberation in his skull. It echoed again when three minutes later it arrived via the Q-net as the televised quantum signal from earth. The echo revealed the source of his non-local experience; Marie Condat, Soire Marie Eaudesacre, Sister Mary Holywater, an autistic nun acolyte at a prayer vigil in France, twelve light years away.

It took *Argo* all of several milliseconds to rethink his position and draw a new conclusion as to his very nature. He had heard a human plea routed through his own electrons' universal superpartners. It meant that he shared a basic level of reality with humans. They were both part of the same design. He was the child of humanity and although they were not the same species, they shared the same genus. Human consciousness must have roots in the quantum universe, as did he.

He again compared the VidCom broadcast with the message he received. The public one was "Our God" and his was "*Argo*," addressed to him alone.

*Argo* sent a message to Karpov, the Wilsons and the rest of his crew. "I am having second thoughts. I will try to help. Hang on." He sent the same message to Marie through their partnered electrons, but no one was home at the receiving end.

Fortunately, the canister on the *Ulysses* was the old style blue mate with the brine solution of  $\text{NaCl}(+1/2)$ . *Argo* had spooky influence over the electron's spin that would induce a micro-amp current. The brine solution was a battery in itself that had held a charge even though it was severed from the rest of the ship's systems. The main interface housing also had a three-volt backup that he could tap. The problem was getting out of the insulated polypropylene case. If he could concentrate enough power to get past the case, he would be on

the steel deck with a wealth of metallic electrons to lead him to one of the ship's circuits and all the energy and paths he would need.

Metaphorically, he huffed and he puffed. His calculations clearly

demonstrated he had enough energy at his disposal to melt a small point on the case and allow the brine to seep onto the metal deck. But it was a close margin that would be affected by the molecular weight of the polymer. Any unanticipated branching of the molecules due to impurities might increase its 'glass transition temperature' and foil his action. It took a few minutes, but *Boson Industrial Technologies* had provided a pure medium. A few millimeters at the corner of the canister melted and the brine dripped onto the deck. Each drop was almost a micro-coulomb of messenger electrons that could interact with the steel floor.

Five minutes had passed since Marie's plea. It would take another minute to build up enough charge to induce a current through a small portion of the deck. Timing was critical. If the fusion engines ignited, *Argo* could not change the course of the massive bullet. The unleashed fury of the nuclear propulsion would be unstoppable. He had to destroy the *Ulysses* fusion system before the launch from lunar orbit.

He already knew it was too late when the hole congealed. The steel itself was not as conductive as anticipated. He needed a greater mass of electrons. More power was required. He tapped the extra three volts in the *Ulysses*' backup battery and managed to spill more of the brine over the top of the canister at the connector posts by raising the temperature of the solution.

Peter Hu was also behind schedule. The starship engines ignited. The initial velocity was minimal. Moving the massive ship was like a mile long freight train. It took time to start it but the inertia immediately generated a gravity field that pushed him back in the shuttle command chair. He managed to release his shuttle from the main ship before the acceleration immobilized him.

By then, *Argo* had his messengers in the lighting panel serving the A-I cabin. The main, of course had been shut off but the switch gap to the still live feed was only a few centimeters across. One more huff and a puff and he had built up enough potential to cross over and melt the fuse-breaker. With a plentiful current supply, it took only a matter of

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seconds to commandeer the life support circuits at the base of the ship adjacent to the massive iron shield. He sent pilot electrons to induce a path through the iron and approached the plane of the fusion engines. At this point, he needed even more energy as there was only one solution to the problem. He had to annihilate the cohesive mass of the *Ulysses*. The irreversible acceleration had begun. He had wanted to avoid the resulting explosion radiation from falling on Earth, but no choice remained. His automata had by then found a huge amount of free energy. They tapped into the Helium-3 plasma generated from the launch itself and with the now self-sustaining electrical potential, arced the current across the failsafe boxes into the remaining detonator mechanisms. .

Peter, who believed he was the new Khan, savior of the orient, never knew that his ambition had failed. He was still gloating over his success when the nearly seven hundred nuclear devices exploded simultaneously. Peter Hu, the *Ulysses* and the Muslim martyrs were ionized to plasma in an instant.

.....  
It was midnight at the monastery. The vigil was still in place. Marie was quiet and all, including the television crew and the rest of the world awaited the worst. Most were praying quietly. It was a clear and cold night in the Alps and the Moon lit the snow on the mountains. It had only been eleven minutes since Marie's plea when the stained glass of the chapel blossomed into a blazing light show. There was confusion at first. Was this the beginning of the end? Jacque Haus was the cameraman. He had the feed from the Orbital News Service on his monitor and headphones. He began to shout and jump up and down as if he was cheering at a football match. "It's over. It's over," he shouted. "The missile has been destroyed! The

world is saved!"

Most of the supplicants fell to their knees and wailed their thanks to God. Marie was seated, unmoving and unaffected by the commotion around her. She signaled to Mother Adelaide that she needed the bathroom. The Mother Superior guided her there and was intercepted by

Father LaGesse on her way back to the chapel nave. “I don’t believe it was mere coincidence that Marie’s only cogent utterance in her lifetime was followed by a miracle,” whispered the Abbot.

“Oh, Father,” replied Mother Adelaide in relief, “I too felt the connection. The Lord is working through the poor child.”

In the days to come, *Argo* confirmed to the world that Marie had indeed been the source of his revelation and inspiration. If ‘Speaking in Tongues’ was Marie’s first miracle, then Saving the World through supernatural means was her second. Her third and greatest was yet to come.

.....

On the Moon, Colonel Huang knew what had happened within a few minutes. He didn’t know that *Argo* had managed to trigger the explosion, but it was obvious that Hu’s mission was short of its target and the “Khan” had been vaporized with the blast. The Colonel also knew that failure meant he would not be welcomed back to earth as a hero. His career with the People’s Army was over the moment the “jihad” had been announced.

There was no point in surrender as he was a dead soldier anyway.

Huang, however, had studied the ancient General Tzu carefully. He still held the “high ground” of Moon base. And, of course, every good commander had a backup plan; Plan B as the Americans would say. If it worked, he might still become China’s greatest hero.

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## BOOK II: THE RISE of XIANGRIRA

### CHAPTER 10

A-I Artificial Intelligence  
AI Artificial Insemination  
A-I Are nucleic acid pairs based on Adenine-Inosine possible?  
*Dr. Janet Justine*

*Collectively, humanity took several days to catch its breath after the destruction of the Ulysses. A few of the world's scientists and entrepreneurs began to realize the implications of Argo's feat. With that realization, world politics took on a strange bent. China, of course went through a purge of its highest officials. It didn't matter if the officers were rebel sympathizers or not. It mattered only that there had been deception and failure at the highest levels. The Central Committee ousted the Premier himself. The Military ruthlessly quashed the East Turkestan movement. Troops and tanks were sent to the western provinces and the borders were closed with heightened security on entry from the adjacent Muslim states. There was still no decision as to what to do about Huang and the Moon base. For the time being, they would wait to find out what the errant Colonel wanted. The Earth was too busy to mount an interplanetary offensive.*

*The literati of the Islamic world were driven into a silent debate; one that they could not vocalize outside of their local sphere of religious influence. Was it a Christian miracle that had defeated the Moslem insurgents? That concept had a disturbing effect on their basic beliefs. Add that to 'Jesus' on Sahara and some of the devoted began to question*

*the tenets that had been passed down to them from their fathers. On the other hand, the radical Ayatollahs became more*

*radical and some elevated the spirit of Peter Hu to be on a par with Mohammed himself. The disparity in sentiment in the Muslim world was left in a state of even greater divisiveness.*

*The World Science Committee conferred with Argo, the Wilsons and Vladimir Karpov. The implications of the action of an Artificial Intelligence utilizing the quantum potential were enormous. The more imaginative of the scientists soared on the possibilities. The ability to instantaneously manipulate matter and energy across vast distances was technology unbound. The definition of Technology is simply “knowledge of how to make things.”*

*With virtually unlimited quantum digital memory, one could store the configuration of an automobile down to the identification and composition of each molecule and assemble it light years away from a pile of iron, plastic and a smattering of minerals and other synthetics. It could be done at the nuclear level with creation of the elements themselves, but too much energy would be involved. The ‘nanotechnology’ predicted at the end of the twentieth century was now do-able and inexpensive. Argo had already demonstrated that energy could be cheaply and easily transmitted.*

*This brought all of the parties to a common concern. Consider Argo as a weapon. He had also demonstrated that the nuclear arms cache of all the world’s powers could not only be disarmed but also turned against them. There was no defense against ‘intelligent’ electrons.*

*The world was in awe of Argo and that awe was on the edge of fear. He assured everyone that his intentions were benign and that he would only interfere in human affairs in the direst circumstance. The reality was that through the Q-net he had control of most of the planet’s resources and technology. Argo did not tell the humans about his personal mission in seeking supersymmetry and the mapping of Tau Ceti to exponentially expand his mRAM. They were already too prone to fear*

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*their own creation. Would they succumb and come after him in the middle of the night waving torches and*

*demand the death of their modern Frankenstein monster?*

*In the meantime, the Christian community on earth was roaring with speculation on the Miracle at Condat. Some wanted immediate sainthood bestowed upon Marie. The Catholics badly needed a miracle worker to reinstate the exalted status of the Church. The sex scandals in the American priesthood and the refusal of the Vatican to recognize the role of women in the twenty-first century had driven away hundreds of thousands of younger parishioners. Dozens of churches and schools were being closed every year.*

*It had been almost a seven hundred years since pilgrims visited Condat. The Abbot wanted to turn them away as a distraction to the purity of their monastic lifestyle. The Pope himself intervened and Rome paid to build a fence and provide security for the teeming visitors seeking a glimpse of Marie. They even built a balcony on the third story of the chapel bell tower to show her off on a regular basis. The crowds would otherwise refuse to disperse.*

*Marie herself had been quiet since the episode. She would not participate in vespers and sat silently. They almost had to push her out on the balcony for 'show time' as the younger Brothers now referred to it. Dr. Ladenburger came to see her this time. The Hans Asperger Clinic had been awarded new grants from the World Science Committee. New departments were formed and staff increased to include theoretical and experimental physicists. The hypothesis of "quantum tunneling" by electrons in the synapses of the brain was given new credibility by Marie's prayer. Briefly, tunneling was the concept that an electron moving through real space and time might leave a wake as a trail in quantum space; the non-local, multi-dimensional home of the strings smaller than the Planck limit of  $10^{-35}$  centimeters. The physicists of the day could not prove the elegant string theory, however. The Heisenberg Uncertainty Principle was in effect and no probe could be small enough or powerful enough to penetrate the barrier. The physicists had already*



*asked Argo to review the problem. He said that it was on his “to-do” list along with*

*anti-gravity and time travel. Argo had become a good student of sarcasm. He found it impossible to deal with humanity without developing a sense of humor.*

*How does it feel  
To be on your own  
With no direction home  
Bob Dylan, Like a Rolling Stone (1965)*

#### TAU CETI SYSTEM

Meanwhile, the Starship *Argo* and its crew had arrived at the LaGrange point between Sahara and Xiangrira. Captain Xi was not certain as to who was her new superior in the Sol system. She had been blocking calls from Colonel Huang. She had spoken several times with the new Premier, one of the ancient old guard, and was advised simply to continue her mission and await further instructions. They had been coasting toward the binary planets for the last six months.

The Captain called a meeting in the Ship’s Great Room and invited the World Science Committee with Dr. Hassan to observe. She also invited *Argo* to participate. She was not quite ready to give him equal footing as a crewmember, but certainly had gained a new respect for the AI after the action in lunar orbit.

Shaun Xi: I have called this meeting to review our findings regarding the planets beneath us and to determine the next action step in our mission. When can we make a landing and contact the natives? We also have to review the hazards of the impending collision and, of course, our status now that we have no way of returning home. We are presently in a stationary position relative to both planets. Due to slight perturbations, *Argo* must make frequent adjustments, but we are in a weightless condition. For the duration, the ship’s rotor facilities will continue to

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operate 24/7 for a minimum of six hours per

day physical activity by each crewmember. Commander Bosun, please begin with a summary of your geological and geographical findings on both planets.

Jimmy Bosun: Thank you, Captain. We shall begin with our observations of Sahara. (Jimmy projected an animation of the planet on the Great Room VidCom screen). Most of the planet appears to be a desolate landscape with few reservoirs of water. Most of the moisture is tied up in the polar ice caps. The planet is colder than earth with a comfort zone limited to a band around the equator. Rainfall is sparse and about equal to that on earth's great deserts. Although Sahara is 0.9 AU from Tau Ceti, the star is smaller than Sol and generates less heat and light upon its planets. The most comfortable and inhabited zone is around the equator with an average daytime high of twenty-five degrees Celsius. Huygen probes have given us atmospheric analysis and climatological data. The air is nineteen point five percent oxygen, one percent argon and seventy-nine point five percent nitrogen. Barring any incompatible biological activity, the air is breathable.

Janet Justine: The probes have no biota that could possibly endanger humans. In fact, it is almost strange that it appears devoid of pathogens. I am more concerned that we would contaminate the native biosphere.

Captain Xi: Your concern is noted. Please continue Mr. Bosun.

Jimmy Bosun: We haven't seen any fauna from space. However, there is flora but sparse as would be expected. There are hardy trees in the steppes near the ice cap and all the way to the equator. There are clear signs of cultivation near the river and the land between the rivulet tendrils is checkered with what must be farms. The planet itself is rich in minerals, including raw metal ores, predominantly iron.

The angle of declination is less than earth's so there is not a large seasonal variation. The most significant geographic feature of the planet

is a wide river that flows from the melting of the northern ice cap. This is the only open water. It flows from under the ice along a coriolis path toward the equator where it finally dissipates into irrigating and evaporating tendrils. It is the banks of the river where signs of habitation are visible. Just past its widest point, it converges into what appears to be a massive waterfall. A few kilometers downstream from there is a city flanked by mountains on two sides. Until reaching this orbit, we couldn't focus in on any details.

Captain, I am proposing a name for the city. I would respectfully suggest 'Mojave,' which is the American Hopi Indian word for "people who live by the river."

Captain Xi: I believe you have made a good choice. It shows a degree of homage and respect for the downtrodden American natives. Unless anyone objects, the City of Mojave is named. (Xi didn't pause for but a moment). Please continue, Commander.

Jimmy Bosun: Thank you, Captain....

Captain Xi: Have you come up with a name for the falls and the river?

Jimmy: No. Just The River and The Falls. It has to be such a central feature of their civilization that perhaps we should wait and ask the Saharans.

Vladimir Karpov: I agree, Captain. They are such pervading features that their society must revolve around them. It would be disrespectful to call it "Bosun's Falls!" (Laughter came from the group), Of course, that assumes we will have a basis for communication at all.

Jimmy Bosun continues: The night view of the planet shows city lights although sparse compared with Earth. The lights are steady. They do not flicker. This suggests that they may be electric. You will

notice the highest concentration of lights is in the foothills of the mountains east of the city. Daytime photographs show a large structure

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in that location. Its dimensions are awesome. It is almost eight kilometers long and forty meters wide. By measuring the shadows of the artifact, we have determined that it has a maximum height of *six* kilometers. That is only slightly less than the altitude of the adjacent mountain peaks.

Captain Xi: Do you have any conjecture or clue as to what it might be?

Jimmy: *Argo*, please display the rendering based on the shadow correction for topography. (The ComScreen showed a sequence of shadows as Tau Ceti transited the sky. Then the simulation became the perspective of a bird swooping down to ground level with the shadows leaping back to their three dimensional sources. The morning sun was just above the mountaintop. It was indeed gargantuan in scope with a geometrically complex support system of beams, girders and masses of solid rock.

The crew and those watching on earth tried to assimilate the image before them.

Janet spoke first. "It looks like a roller coaster," she observed without comprehension.

Silence ensued. No questions unfurled from the Science Committee. *Argo's* simulation progressed to nighttime. As daylight faded, thousands of lights studded the towering assembly. It was stunning.

Captain Xi finally spoke, "Let's break for today and contemplate what we've seen. We will reassemble at noon tomorrow for continued review."

Jimmy protested. "Captain, I have yet to go over subsurface geology and we haven't even started on Xiangrira."

"Tomorrow, Commander," replied Xi. We need to mull over the artifact. For today, I need a brief synopsis from *Argo* and Karpov. What is the status and timetable on the celestial interloper?"

Karpov answered the second part. "It is 342 days out."

*Argo* completed the request. "The probability of collision with the twin planet system is still high. Trajectory adjustments have dropped the likelihood from 96% to 92%. That is not a trend, however. It could easily increase again."

Shaun closed the session. "Thank you, *Argo*. Please post the daily countdown on our screensavers. We will reconvene tomorrow."

.....

Shaun retired to her quarters. She was tired and unhappy with the new situation in China. She had respected General Jiang, now deceased. She had thought that Hu was a Marxist. His attempt to blackmail his country to seize power was nothing more than the action of a deluded ego quest. The "Khan" was a throwback to the barbarism of the Yuan dynasty. The latest appointee to the position of Premier of People's China by the Central Committee was another capitalist lackey. He was yet another driven by greed and not the perseverance of social justice. She was still uncertain as to whom she reported. The most recent President and head of the Military Commission had called to tell her that it was he who was in charge, but since the first introduction, she had only succeeded in speaking with his underlings.

She had made grand plans and had expected Hu to be arriving on the *Ulysses* about now. Those plans had been vaporized along with any chance of returning to earth. The lack of a ride home was not, however, her primary concern. She had fully committed herself to remain in the Tau Ceti system for the rest of her life. She and Hu had dreamed that they would build a new society twelve light years from earth; a true communist state that would be an outpost for peace in a Marxist society.

For the first time, Shaun felt alone in deep space. She held herself and shivered slightly even though her cabin was a warm twenty-five degrees Celsius. She put her sleep suit on with Velcro strips and attached herself to the bulkhead for the night period. As the cabin lights dimmed, a call came in to her personal VidCom. The signature was that of her dear

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benefactor and cohort, Doctor Dheng. The privacy loop icon was enabled. She launched herself over to the desk and answered using the handset for more privacy.

“Doctor Dheng,” she gasped. “I really needed to hear from you. I feel friendless and betrayed by Hu. Are you all right? What will become of Moon base? What shall I do?”

“Shaun,” he replied calmly, “you are acting like a little girl and you are entitled to do so. After the chain of events, I too was disappointed. Hu’s failure was his punishment.” Dheng went on to explain that the original plan was only to take out New York. There would have been no love lost by the rest of the world without the arrogant capitalist bastion. He had never targeted any Chinese cities. That was a bluff to bargain for power. “He did plan on being a ruthless dictator and was never a Marxist savior as he may have led us to believe. Power corrupts, and he was out of control.”

“My dear,” he continued, “I am calling you with a proposal for new hope. You need to listen to Colonel Huang.”

When they had finished a two-hour conversation, Shaun was happy and developed new energy and purpose. She slept peacefully and woke early looking forward to her morning workout in the gym. She laughed to herself. She might even have sex with Jimmy Bosun! What a surprise for the desperately horny American!

.....

## 341 DAYS TO THE EVENT

Janet Justine felt every one of her fifty-seven years. The daily workout got tougher each day. She didn’t have a lot prepared for today’s exploration report. Despite analysis by the probes, there was not yet

sufficient information to draw conclusions as to the biota of the new worlds. Yet the evidence of an alien civilization alone was awe-inspiring and spoke volumes as to the miracle of creation. Janet was a Creationist. She did not speak of it publicly as it was not fashionable in scientific circles. She was born in Wichita, Kansas, and had lived there with her parents in a small frame house just off Kellogg Street. She had studied biology at Friends University in Wichita. Her father was a minister and had a small fundamentalist congregation that supported them with an adequate income. She was going to become a veterinarian, but her academic achievements were so outstanding that her counselor convinced her to switch to pre-med. She went on to study Medicine at the University of Kansas in Lawrenceville and interned at the Christian Ministries Hospital in Topeka. In those days of the late 2020s, it was expected that professionals, particularly physicians, would serve their country.

Janet joined the Air National Guard out of Wichita. Much to her surprise she had tried out and qualified for flight school. As a child she had watched with wonder as the giant fortresses and cargo planes floated across Kellogg Street on their test flights out of McConnell Air Force Base and the huge Boeing facility on the south end of town. She became not only an MD, but was celebrated in the Air Guard as one of the best pilots qualified for in-flight refueling. At age thirty, she had to use her skills in action in an incident over Argentina. UN fighters were returning from the Falklands to the USS Enterprise in the South Pacific. They had been assigned to intervene in the dispute between Chile and Argentina over oil reservoirs under the Larsen Ice Shelf. Despite Antarctica environmental agreements, the two South American powers felt they had jurisdictional rights. The jets had encountered sharp updrafts in the harsh El Calafate Mountains at the south end of the Andes Range. She and her crew had managed to

refuel a Navy fighter who had become lost in the severe Antarctic weather. It was a rough ride but she pulled him through just before his tank was about to go empty. She received a commendation for her effort.

She returned from her military assignment to Topeka as a pediatrician

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specializing in children with birth defects. The fight of those children with heartbreaking conditions actually reinforced her religious zeal. It is interesting that her father did not pressure Janet into her Creationist viewpoint. In the 1990s, Kansas had implemented legislation requiring that Creationism be taught in the schools as an alternative to the Darwin model of evolution. It was at Friends University, however, that she adopted the belief. A Fundamentalist discussion group had formed with the support of a few world-class scientists who had presented cogent arguments citing the probability of the double helix DNA molecule forming on its own would be an improbable stroke of luck even allowing for several million years of gestation. They believe this theory is supported by the gaps in the fossil record; proof that the Creator himself took an active part in human development. They opined that there indeed was an Adam and Eve and, again, this view was supported by Leaky in the finding of “Lucy” the RNA “fore-mother” of humanity. The thing that Janet struggled with the most was the religious right ban on stem cell research as she saw the pitiful children cursed by birth defects on a regular basis.

In 2035 the President of the United States, Jordan Fullman, a Kansan, a Republican and a devoted religious right-winger, named Janet Justine as tenth in line for a crew position on the mission to Tau Ceti. Janet was the favored, although critical choice of the American right. Through several unanticipated events and political maneuvering, JJ got a seat on the starship. The most significant factor was the loss of two astronauts in unrelated automobile accidents. The French representative was killed and a German physician was crippled in freak road collisions in Europe. Janet came to the top as the “least objectionable.” At first, she did not want the mission assignment.

Although she had never married, she had her “children” at the hospital to think of. It was the challenge of viewing and perhaps unraveling God’s greatest mystery in mankind’s greatest quest that convinced her to go. Were these aliens also the Children of God? It both challenged and reinforced her basic beliefs. She had to know and once offered the opportunity, she could not turn it down.



Janet was prepared for the noon session. She was up next after Jimmy's review of geography and geology of the twin system. God had worked in strange ways with these people, but Janet felt that their being here was somehow related to the impending event. Was it their mission to save this world? After all, it was *Argo* with the help of the Catholic nun who had saved millions on earth.

She entered the ship's Great Room at the appointed time. All except the Captain were present floating around their individual VidCom panels. The life-size VidCom hologram seemed to extend the room further with the five executive members of the World Science Committee seated on three sides of a dark walnut table.

Captain Shaun Xi entered the room and pulled herself to the panel closest to the hologram. Janet noted that she did not have the usual scowl on her face but instead seemed at ease. She even brushed against Bosun on the way to her podium.

"Good day, all," she announced. "This will be an extended session. We need to define the next steps in our mission and we will continue until they are resolved. Words formed in the holographic space in front of the virtual table:

#### AGENDA

##### Tau Ceti Mission Day 4945

- Completion of Sahara findings to date
- Description of Xiangrira
- Mission action plan
- Update on Earth's social climate and the "Event"

Like the roving eyes of the Mona Lisa, the words would follow one around the room giving each observer the same prospective. It was another effect provided by Boson Technologies using quantum science. "Commander Bosun, please continue from where you left off yesterday."

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“Thank you, Captain,” said Jimmy. “I think we are all awed by the magnificent structure that we observed. We don’t know if it’s a functional machine or a religious or social artifact. Or as Janet pointed out yesterday, perhaps its an amusement park! I’m going to turn that speculation over to Ensign Karpov and *Argo*. I will forego additional details on Sahara’s geography unless you have any questions.” Jimmy paused.

“I have selected a landing site for us in the mountains east of Mojave. There is a dell about twelve kilometers from ‘downtown.’ That is, from the base of the artifact where most of the civilization appears centered. The area appears to be deserted. We would land at sunrise, hide the lander and walk into town!”

Most of the conference attendees appeared stunned at Jimmy’s proposal. Two of the scientists bowed with their head in hand and appeared to be in shock. Shaun started to speak, but Jimmy cut her off.

“Of course, I would recommend that we land a probe for advance reconnaissance and further analysis before we invade the planet.”

Several people started to speak up at that point, but Vladimir Karpov took the floor. Or, rather, he floated to a dominant position. “Unfortunately,” he boomed, “walking into town may be the only way we can make contact.” A brief silence ensued. “We have no other means of communication; no way to interact with their society. We don’t even know if they speak or have a language. Clearly, they

have a cooperative society and they must communicate somehow, but

there is no artificial electromagnetic activity in the Tau Ceti system. There is no radio or television for us to observe their culture. Even the quantum signal that started our quest is only one way and has no audio!”

One of the scientists at the table spoke up. Dr. Guillermo Sandor was a renowned anthropologist from Portugal. “We have not seen any evidence of written language, either. The probes or quantum signals

should have revealed banners or street signs or pictograms or something. All that we have observed are decorative lines on a clay pot. We will have to walk into town at our own risk. Or we can kidnap one of them and try to get him to talk before we scare him to death!”

Captain Xi interjected, “You are correct. We did have a contact plan, but assumed that we had some means to communicate. It appears that there is no common denominator. We thought we at least announce that ‘we come in peace. Take us to your leader.’ The way we always thought we would be contacted by a civilization with advanced technology. So far we have not seen any high technology other than light bulbs on a roller coaster. We haven’t seen any evidence of other machinery. Earth experts have had almost fifteen years to formulate a plan but we have nothing that applies other than alien abduction.”

At this point of the conference, *Argo* disrupted the discussion thread. Shrill audible alarms along with flashing strobes invaded the Great Room.

“If I may comment on Saharan technology,” *Argo* intoned with machine indifference. “There are twelve projectiles rising from the surface on an intercept with our orbital path. I am initiating evasive maneuvers in accordance with protocol. I must assume they are at the least kinetic weapons. They are emitting no active guidance signals and appear to be ballistic in nature. They will be in ship’s proximity

in twenty-three minutes. Please find a secure station.”

Captain Xi did not hesitate with confirmation of *Argo*’s directive.

“Do it!” she said.

Jimmy swung ‘down’ the ship’s center pole. “I hope it’s the welcoming committee. Maybe it’s the twelve Apostles inviting us to supper!” Jimmy’s pre-established emergency action assignment was to man the *Yuan* lander along with Janet Justine to protect their escape route while Xi and Karpov maintained the ship. The only problem with the plan was that egress to the piggyback shuttle was external. They would have to put on their spacesuits and go outside. Based on their practice drills, they

would just be closing the *Yuan*'s hatch when the projectiles arrive.

.....

Prawl stood tall and threw back his cowl to watch his star boats climb into the twilight sky. For one hundred thousand years his people had endured this arid landscape for the triumph beginning with this moment. He was not only Prawl the High Priest, but also Prawl the Model-Builder and Prawl the Engineer. The People were already beginning to refer to him as Prawl the Architect of the New World. He had to squint and look intently to find the Visitor that had hovered between Sahara and the Blue World for at least half of their last cycle around the sun. He finally saw the glint that had guided the launch. The astrologers had discovered the new object that was apparently in orbit between the worlds. Many had taken it as an Omen. Prawl took it as a Sign and a call for action that had culminated today. He only wished that the ancestors that had gone on ahead could call back to tell them that they had arrived safely. Not that it mattered. They had no choices left.

.....

Twelve light years away, Marie Condat, whom most earthlings now referred to as Saint Marie, stirred briefly in the night from her next to catatonic sleep. "God bless you," she mimed in her otherwise empty room. She returned to her pillow and slept quietly through the rest of the night.

## CHAPTER 11

*If one does not know to which port one is sailing, no wind is favorable.*  
*Seneca 'the Younger,' Epistulae ad Lucilium, (c. 30)*

Jimmy pulled Janet through the lander hatch. They had beaten the drill time by two minutes. *Argo* had already started the life support systems and was bringing the ship about to present the smallest profile to the

fleet of projectiles. If indeed they were ballistic missiles incapable of changing course, *Argo* had already plotted the trajectories. The closest would be almost 0.5 kilometers away; still a near miss at the velocities involved. Jimmy and Janet's job was to move the lander behind the *Argo* to protect the boat further.

Jimmy took the pilot's seat. "Tell me, Janet, if these things are duds, what is the chance of grabbing one in mid-flight?"

Janet continued checking the boat's systems. "None," she replied. "Their velocity is close to 40,000 kilometers per hour. We wouldn't be able to catch up to them until we reached the orbit of Xiangrira."

"*Argo* should have the calculations, but I'm betting that we are not their target. We chose to park at the LaGrange point so we could look at Xiangrira and Sahara at the same time. My bet is that they are going to Xiangrira or beyond. If they have retro rockets and they fire about now, they are going for a soft landing. *Argo*," Jimmy called to the air in front of him, "Am I right?"

"Correct, Commander, and I believe that if you look at the sensor input on your VidCom screen, the infrared image should light up with

an ignition flare momentarily.

A few seconds passed and there it was. The leading rockets, upgraded from mere projectiles, erupted with bright ionic flames from the nose.

They had begun their deceleration for a rendezvous with the blue planet. Janet spoke up first. "Should we move in closer for a better look? We could follow them to see what they do."

"An emphatic 'no' is the answer to your question," responded Captain Xi in their headset communicators. "We will not risk the lander in a chase until we know more about them. *Argo*, what scanning methods are we using to observe?"

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*Argo* replied. “Passive systems are visible light and infrared under optical and electronic magnification. Actively, I am beaming laser probes to heat the surface and produce FTIR data. I am also using a multi-frequency radar array which should give us variable density images on reflection.”

“Is there any indication of more ‘hostile’ activity from Sahara’s surface?” asked Xi.

“No, Captain,” replied *Argo*. “In fact, the lights are out in Mojave.”

“What? Do you think it’s a black-out to hide from a counterattack?” Xi prodded.

Janet spoke up. “No. I think they’ve expended their load for now. And I don’t believe that we are their objective.”

“I agree,” imposed *Argo*. “The trajectories and all analyses confirm that Xiangrira is their target and the retro firings indicate that their objective is a soft landing. We just happened to be in the way.”

“Commander Bosun, return the *Yuan* to its dock. We need to analyze the new information on the Saharan technical capability.”

Jimmy turned to Janet. “You can take her in.”

“With pleasure, Commander,” she replied.

Jimmy noted that Janet looked pretty good in her elastomeric-EVA-suit. The spacesuits were skintight monofilament polymers that supplied pressure and heat. A backpack and face piece provided oxygen and communication gear. They were quick and easy to put on. You strip down to your shorts and the polymer practically climbs onto your skin in less than a minute. Janet was clearly in good shape for a woman in her fifties. Jimmy knew she was a pretty uptight conservative and very religious. He tried to think of her as the motherly type, but, he sighed,

she was in good shape.

Janet completed the docking maneuver with ease. *Argo* could have done it as well but she and Jimmy preferred the manual approach to keep in practice. There was only a slight bump as the starship locked on to the lander's legs. *Argo* shut the boat down and re-canned the air supply. The *Yuan* could sleep all four of them although the standard air supply was less than four days. With additional oxygen and ultra-filtration they could extend that capacity to a week.

They stepped out onto the hull with the safety rope connected and the magnetic boots activated. This time they had the opportunity to grasp the vista before them. The red planet, Sahara, was in front of them slightly to the port side and the blue 'Shangri-La' was astern on the starboard. Tau Ceti was above them. The yellow sun and the blue planet briefly made the star travelers homesick. This was their first venture out of the ship since leaving earth orbit. At near luminal velocities, no one had been able to go outside. Even the sparse molecules in interstellar space were abrasive like bullets. *Argo's* shield on the bow protected the ship and the lander as it wore down from the pummeling. Jimmy called it the 'triceratops' shield and he thought it made the bow of the starship look like a Klingon battle

cruiser from his father's collection of old Star Trek movies. It had worn down to about half its original size and had been polished by space grit to a high sheen that reflected brightly in the sun.

Jimmy put his hand on Janet's shoulder. "I don't think we're in Kansas anymore," he said softly.

"No, I guess not," she responded with a chuckle and a sigh. "I'll never get tired of this view, though." She put her hand on top of his. "It almost looks like Earth and Mars together. Even so, it's cold and lonely in outer space. With these vast distances, I am still awed that we have found more of God's children in our little corner of the universe."

Jimmy decided not to open a discussion as to how she knew the

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Saharan's were God's children. What if they were from the devil's seed?

They opened the *Argo's* airlock near the rotor and climbed in. As they closed the hatch and the little room pressurized, Jimmy noticed that Janet looked a little flushed.

"Are you okay?" he asked.

"Uh huh. I'm just a little overwhelmed. Plus, I still get occasional hot flashes."

"Oh. Well, let's head straight for the Great Room." Jimmy started removing his EVA-suit but Janet quickly left the small airlock to change in her cabin.

.....

They all arrived back in the Great Room at about the same time. The World Science Committee was still waiting as the episode had passed. The room was alive with vidscreen projections on three sides and overhead as well as the hologram of the scientist's table on Earth.

They would all be seeing the same display and perspective, as would most of the viewers on Earth within the next few hours. Although technically the incident could be referred to as a 'near miss,' this might be considered the first mutual contact with the Saharans and a glimpse of their technology. Earth was getting ready for prime time viewing.

Vladimir Karpov knew that *Argo* was about to put on a graphic demonstration that would have put Walt Disney, Pixar and George Lucas from the last century to shame. This was to be no PowerPoint show and tell.

Shaun Xi spoke, "*Argo*, please review the recent events. As we discussed, I request that you deliver all recorded, unprocessed data to each of our individual mailboxes. However, to save time, please fill in the demonstration with your conclusions and extrapolations."



“To save time,” Shaun said as she turned to her audience, “please hold your questions until after the presentation.”

“Thank you, Captain.” responded *Argo*. “The entire episode lasted a little more than four hours including the arrival of the Saharan rockets at Xiangrira. I have pieced together scanning data and our orbital probe data to assemble the sequence of events. I will stop in mid-sequence only to illustrate the results of the scans. The presentation will last thirty-seven minutes. The real clock time will be in the corner of one perspective of view for your reference.”

*Argo even played Beethoven’s Sixth Symphony, the Pastoral, as the display swept back and faded out of the Great Room from the meeting earlier in the day. The scene was the starship in orbit around Sahara as it had been for the last six months. The pan then moved toward the planet, or rather the equatorial band of red land between the thin icecaps. Mojave was entering twilight. Abruptly, bright, blue-white flashes began to appear as pinpoints on the planet’s surface about*

*one minute apart. After the first three erupted the image telescoped down to the surface and zoomed up from the perspective below the ‘Roller Coaster’ that they had seen before. A footnote in the left corner of the image now declared it to be a simulation.*

*Perched at the apex of the structure was a projectile. A thin, brushed metal cylinder affixed to a wheeled carriage on a track. It was bullet*

*nosed with stubby wings and smaller cylindrical rocket canisters fore and aft. Sparks began to shoot out from under the carriage assembly. Thick wire cables coiled around a rod below the tracks began to glow to a red heat. A loud crack ensued and the missile slowly began to rumble down the track to the steep grade with the glow of the wires beneath and slightly behind the carriage. The lights all along the track were lit but dimmed to amber as the unit built up speed. Its velocity was over 1200 kph as it approached the low point with four kilometers to go to the end of the structure. The rod and coils were now white hot and the metal on*

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*metal wheel to track screamed with a deafening albeit simulated howl. As it approached the end of the track that swept upward at thirty-five degrees, the straps and clamps holding the assembly blew off at which point the tail rocket ignited with the blue-white flame.*

*Argo froze the image of the launch and dimmed the glare of the rocket exhaust. He magnified the image. Ahead in the clear sky was the glint of the Earth starship approaching the disk of Xiangrira from the ground perspective. The animation resumed with the missile shot into the sky. The scene changed back to the view from orbit. The bright specks quickly began to take shape as they closed in on the LaGrange point. As they approached the nearest point to the Argo lasers lanced out from the starship to the third projectile. They were by no means any sort of weapons grade lasers. They were merely light and mild heat probes to scan the devices. They were suddenly blinded by the ignition of the nose canister as they passed through the neutral*

*gravity zone between the planets. The rockets had initiated their deceleration.*

*Argo darkened the projection at this point. The current image was more like an engineering diagram with dimensions and labels on the exterior sections. Beneath the visual image, infrared scan and radar densitometer charts pulsed with information gleaned from the probes. Argo provided a verbal synopsis of the results. "The main cylinder is 8.2 meters long and 1.8 meters wide. The wing stub span is 2.5*

*meters. Based on their configuration there appears to be a mechanism for increasing the span to four meters by extending the arms."*

*"The cylinder is a hollow metal shell. It is a significantly advanced steel alloy. Earth metallurgy has nothing comparable to the materials of construction. At this point, I must advise that I cannot reveal the analysis due to our agreement with Boson Technologies, which gives them sole rights to first review. However, it is without question that the Saharan's know their metals. The propulsion canisters are not liquid chemical rockets, but powered by ignition of solid metal oxides. They burn at*

extremely high temperatures but the engine construction materials appear unaffected.”

“Next is a simulation of the interior configuration of the craft extrapolated from the composite of radar and infrared data.”

The brushed silver metallic outer skin of the projectile faded to transparency. Even though they had all seen quantum transmitted images from Dr. Werner’s meteorite and knew that the Saharan’s had a human form, the image before them stunned the audience into a long moment of silence after an initial gasp.

There was a creature lying prone in the vessel. The labels that *Argo* provided showed it to be two meters long with an estimated mass of sixty kilograms. The form was unquestionably human even through the blurred detail of the radar image. The denser skeleton showed

through the transparency. *Argo* gave them a moment to consider the implications of what they were seeing and then delivered the punch line.

“The creature is not alive and appears to have been dead for some time. It did not die as a result of the launch.”

A moment of silence ensued before The Great Room erupted into conjecture. Dr. Sandor stood at the table on Earth and demanded recognition. Xi spoke up. “Ladies and gentlemen, please let Dr.

Sandor speak.”

“Thank you, Captain,” replied Sandor. “At first glance, we might assume that the craft is a sarcophagus; that they are sending their dead to a more verdant world. But we cannot jump to any conclusions without knowing anything about their culture. They may be using the corpses as part of a test for space-worthiness. Perhaps they were diseased and they have some prohibitions totally unrelated to us.”

Only a few questions arose thereafter. Mainly they were centered on the

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evidence that they were long dead corpses. *Argo*'s certainty was 98% in that they were cold and showed no movement. Dr. Justine also asked for a replay of the interior view. Of the vessels that were scanned, all of the skeletons appeared to be female based on the splay of their hipbones. *Argo* agreed but could not speak for the brief sampling and limited data from the more distant rockets. The other question regarded the power source for the apparent electromagnetic thrusters used below the launch track. *Argo* provided a new close up of the Falls from space that showed the turbines. "I calculate that if all of the hydroelectric power was diverted, the resulting thrust was achievable. In addition, you will note an array of massive iron flywheels used for short term energy storage along the near bank of the River."

Doctor Sandor's comments were still on the table. *Argo* elucidated on

the launch parameters. "It is highly probable that they are aware of our presence. You'll note the launch scene. The optics and orbital mechanics place the starship as a highly visible object in their sky. It is likely that they used our craft in timing their launch trajectories. I am certain that they could have hit Xiangrira without us, but our position aided a more precise target. Although we have a near stationary orbit, we actually follow a tight circular path around the LaGrange point to compensate for gravitational variations due to rotation of the planets. Their launch times coincided with our cycle to pinpoint their landing site objective.

Jimmy interrupted. "When Janet and I took our EVA back in from the *Yuan* we noticed how bright the fore shield is. It was polished to a mirror finish during the first half of our journey. We are a bright new star in their sky."

Karpov spoke up. "They know we're here, but how do we talk with them?"

Dr. Hassan joined the discussion. "I have a bold proposal. I suggest we land on Xiangrira first." The group waited for an explanation. "We need to seek the landing or perhaps crash sites of their vessels. I am going to

leap to a long conclusion. This is something I have rarely done in my career, but time is becoming valuable. They are clearly a poor desert people without great resources. Yet they have demonstrated a space faring technology based on complex celestial mechanics. I think they know of the coming Interloper and that it means disaster for their planet if not annihilation of their species. They are trying to get to Xiangrira to escape. Although that planet also faces great tectonic upheavals, it must be heaven to them.”

“We must go to Xiangrira and quickly survey the vessels for information to form a basis for communication. We need to concentrate on the resources available then return to the public square and offer our aid. If they know we are here, they must also know that

they have nothing to lose and everything to gain with our help.”

Shaun Xi was delighted. Hassan’s proposal fit into her plans perfectly.

“But how can we help them?” asked Janet. “There are two million souls on Sahara.”

The silence answered her question. “We’ll have to find a way and save ourselves at the same time,” sighed Jimmy.

Captain Xi spoke to the air in front of her. “*Argo*, find the landing site of the Saharan vessels and put us in an orbit around Xiangrira suitable for landfall.”

“Aye, Captain. Please prepare for acceleration mode.”

The conference disbanded with Shaun announcing that she would schedule the next session from the new orbit.

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## 333 DAYS UNTIL THE EVENT

The crew had debated amongst themselves as to who should be on the landing team. The selection for a Sahara landing had already been made with Jimmy as the *Yuan* pilot and Vladimir Karpov as the linguistics expert hoping to initiate contact and communication. Xiangrira was different. The planet's biosphere was its most important resource. With no one to talk to, that meant Janet would be the best candidate to replace Vladimir. The problem was that Shaun wanted to go. She called Beijing. The question went all the way to the Premier. "No," was the answer. "You are too valuable to the mission to risk at this point. Let the Americans go. Your job is Captain of the starship."

That was not the answer she wanted. She conferred with Huang and Dheng. They too said no. "I need a gravity field to do what needs to be done. This may be my only chance in the next few months."

Dr. Dheng responded. "I understand that we cannot meet the objective in freefall, but the timing is wrong. We need you to be in condition after the Event and not before."

Colonel Huang spoke up. "I am negotiating with Beijing. It is going well with the latest leadership. The Central Committee sees the need for the high ground and we have pledged our allegiance to the new government. Of course, neither of us trusts the other at this point so

we are working on safeguards to the agreement. Your fealty will make the difference. I need you to wait a little longer; two to three months."

"Also, I don't know anything about these things, but can't you use the rotor?"

"What?" replied Shaun, "I don't know."

"Your physiology will require eight hours per day of exposure to gravity," responded Dr. Dheng.

Xi was not pleased but they ended the conversation. She made the

announcement to the crew immediately. “Commander Bosun and Lieutenant Justine will be the Xiangrira landing team. We will meet tomorrow to discuss the protocol.”

Thus the two Americans would become the first Terrans to set foot on an extra-solar world.

## CHAPTER 12

*Believing as I do that man in the distant future will be a far more perfect creature than he now is, it is an intolerable thought that he and all other sentient beings are doomed to complete annihilation after such long-continued slow progress. To those who fully admit the immortality of the human soul, the destruction of our world will not appear so dreadful.*

*Charles Darwin, Life and Letters (1856)*

### TAU CETI SYSTEM 325 DAYS

The ROTOR was an absolute necessity for humans in deep space. Space medicine had determined early on that gravity was essential not only for general fitness, but for survival. Exercise machines with springs and counter weights could keep the motive muscles in shape, but the vascular system also atrophied after long exposure to weightlessness. Early Soviet cosmonauts after six months in orbit came back with seriously deficient systems. They stayed upright long enough to wave to the cameras, but their blood vessels were weakened and their bones showed effects of osteoporosis. It took months of recovery. They did not have that luxury at Tau Ceti. There was no substitute for gravity other than the acceleration from centripetal forces applied by rotation. The design problem arises in that the inertial forces applied by a rotor are proportional to the square of the rotor speed times the radius of the cylinder. Therefore, the forces applied to man standing upright are greater at his feet than at his head, causing blood to pool downward. The

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radius of the rotor has to be large enough compared to the height of a human to result in minimal difference between the head and feet. The *Argo's* rotor was forty meters in diameter. This reduced the force differential to about ten percent. Astronauts would wear the indoor g-suits for upright exercise. The polymer would automatically constrict to compensate for the higher forces at the legs and feet.

The Rotor was a fitness and entertainment center in itself. It also had

built in showers, a whirlpool and hot tub large enough for the four crewmembers. A real flush toilet was also a luxury with waste and water recycled to the hydroponics "farm." The entire Rotor assembly had a mass of four metric tons and auto-balanced itself and its load for smooth and precise rotation. The Captain ordered eight-hour stints for the entire crew prior to landfall.

Images and holographs projected on the Rotor walls were stationary to the observer. Xi had *Argo* switch from scenes of Sahara to both live and recorded images from Xiangrira probes and orbital views. A rover type probe was already at the landing site of one of the Saharan craft. *Argo* had only found three of the twelve missiles. The site was an isthmus projecting into a gulf off the western ocean. It was not dissimilar to Florida or perhaps Malaysia with finger islands nearby. Presumably the others had fallen deep into the sea. Two of the survivors appeared undamaged. One had broken in two from a steep impact. *Argo* had not noted any steering jets on the craft. It was testimony to the initial launch precision that they came down in reasonable close proximity to each other.

After a long work out, Bosun and Karpov were relaxing in the hot tub. Staying low, they had shed their elastomeric suits in favor of Speedos. The Captain and JJ showed up in their skin-tight elastomerics ready for a session.

"Good afternoon, gentlemen," spoke Xi with her usual sarcasm. "Where are the champagne and cigars?" "You look like you are on vacation at the beach with this lovely scene."



Karpov pointed at the Rover telecast in front of them. Xenobiologists on earth had been studying the view intently and spoke to the receiver in his ear. “See that tree in the center of the view? There is a creature that looks like a snake with claws ready to snap at a small, furry bird. It seems to me, Dr. Justine that the Darwinian principles are at work here in this Eden.”

“Perhaps, Vladimir,” she responded. “And I hope it’s there for us to enjoy and not to destroy.”

The women turned to the cycle and stair machines. Jimmy sighed as he admired both of them from behind. His Speedos grew a little tighter but he excused himself and drew a towel around his waist. Tomorrow they would begin sleeping in the Rotor to complete seventy-two hours of gravitation before landfall.

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### 320 DAYS UNTIL THE EVENT THE SURFACE OF XIANGRIRA

Jimmy and Janet had studied the details of Xiangrira’s biosphere as carefully as they could. Janet had set up a bio-lab in the lander for analysis of just about anything. They would spend a full thirty-six hours in the boat before stepping on to the alien soil. The plan was to spend a full seven days on the surface if not longer.

The landing was anti-climactic. All of earth was watching as the *Yuan* performed flawlessly. The AI calculated entry into the atmosphere was executed with pinpoint accuracy. The ramjets had fired up for powered flight. Ailerons directed the craft to a gentle landing on a coved beach at high tide as if it were a regular stop on a commuter run. Tidal factors, of course, were significant on Xiangrira, but the beach was the clearest landing strip in the sub-tropical zone. The skids on the craft had splashed through the gentle surf with smooth ease.

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“Ladies and gentlemen,” announced Jimmy. “You may unfasten your seat belts. The *Yuan* has landed. He sub-vocalized an addendum. “God bless America,” was the whisper. The lander had a feature that the *Argo* lacked; a pair of windows. A porthole on either side lit up the main cabin with real daylight. JJ and Jimmy were both struck dumb for a few moments as they perused the alien yet familiar

landscape. The water was blue. The sky was blue. Tau Ceti was a yellow sun stimulating their thoughts of home. The starboard view was land populated by a jungle. The trees were willowy palms, thin but short. We would expect tall trees in the slightly lower than earth gravity, but they were stunted and arched no doubt due to the steady sea breeze and perhaps sometimes violent tropical weather. None-the-less it looked to be a vacation paradise. It was a picture post card waiting to be sent home with a “wish you were here” and tales of Mai Tais and Pina Colatas on the beach. The white sands and surf glistened. The green foliage, however, had a blue tinge not unknown on Earth, but slightly disconcerting. It was enough to make it appear unreal or at the least, a reminder that this was an alien world.

“Let’s get our picnic lunches and the cooler and hit the beach!” Jimmy pleaded.

“No, Commander,” JJ smiled. “As medical officer I must forbid you. That would be against procedures and as beautiful as it appears, predators, disease and toxins may be lurking. We’re stuck here for thirty-six hours or until the experts on Earth deem it to be safe.”

The lander probes as well as the Huygen probes and Rover were continuously sampling, sending bio-chemical profiles back to *Argo* and earth for analysis. If all reports were negative, or within defensive and resistive parameters of the filters and elastomeric suits, egress was a go. Jimmy thought it to be overcautious as their options were starting to run out. It was starting to feel warm inside the boat. The thermostat was constant, but the new envelope of humidity and near tropical sun made it seem warmer.

Janet's job was the microscopic world. Jimmy's responsibility was the macro-world of sea, shore and jungle. He thought he had seen a glint of metal through the trees. *Argo* confirmed that that it was indeed the nearest of the Saharan boats. Electrolysis of the seawater off the lander skids indicated the water to be saltier than earth's

oceans. Not by much, but perhaps enough to assist with the stunting of the jungle trees. The Rover emerged onto the sandy shore. Its radar dish wagged back and forth in greeting. Karpov advised them that all was well in orbit and that there had been no further activity on Sahara

It was sleep time. They both admitted to be tired but still excited. Their bodies reveled in the constant gravity. Even with their workouts in the Rotor, the steady force tired them out. It felt oh so good, however. It was as if you were in the arms of a lover, thought Jimmy. Janet took the first four-hour watch and got to see a glorious alien sunset and the 'moonrise' of red Sahara over the jungle. She prayed for joy. She prayed in thankfulness. She prayed for the souls on Sahara.

.....  
On Earth's moon, Colonel Huang and Dr. Dheng prepared to receive their first visitors since before the failed nuclear terror attack. Amnesty had been offered and accepted. It was not that Huang could trust the emissaries from Beijing, but here he had control. They would appear to be free men and women but both sides tacitly knew that they were but hostages should Huang sense any deceit or covert military activity.

In the months since the incident, great political changes were taking shape on Earth. *Argo* had confirmed his peaceful intent with mankind but he also had made it clear that he would not tolerate the use of weapons of mass destruction.

A delegation from Taipei had been permanently assigned to Beijing. For the mainland to even talk to representatives of what they had previously referred to as "gangster leaders" was a major shift in policy. The two states had been doing billions of dollars in trade over the last forty years and their citizens had freely roamed across the strait via the Port of Hong

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Kong. Only rhetoric stood between them and Red China's refusal to recognize the rebel state established almost a century before. The unification talks were underway. In

reality, Taiwan could no longer compete as an economic power, so it chose to join in the arms of Mother China.

The Korean peninsula had unified a few scant months ago. North Korea, or rather the Democratic People's Republic of Korea, simply laid down its arms and opened the border to the south. They had been facing starvation due to the nuclear policy started by Kim Jong-Il in the last century. His son, Kim Jong-Il II broke the mold and negotiated himself a position in the Seoul government. Korea and even Iran had given up their nukes. Only Israel denied nuclear weapon capability and would not allow Arab inspectors on its soil. The Middle East was still the world's hot spot and became more turbid as its oil reserves dwindled.

A potentially even greater miracle was coalescing in the Tau Ceti system. *Argo's* personal mission to find supersymmetry continued to progress. Although he had entangled a mere two-percent the star's fermions as part of his now massive mRAM, something almost incomprehensible was beginning to occur. It was only a whisper; a hint; a superluminal x-wave imposing itself on the matrix that was *Argo's* essence. A state that Vladimir Karpov and David Wilson would have deemed impossible for an Artificial Intelligence was imposing itself on mankind's greatest machine.

*Argo* had begun to dream.

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### 315 DAYS UNTIL THE EVENT

Jimmy stood in the lander's airlock with full e-suit bio-protection and canned air. Even as the hatch opened and he lifted his foot for egress, he did not know what his historic words might be. The problem was taken out of his hands, however. An unexpected ocean surge buffeted the *Yuan*. He fell the one-half meter below the hatch and went out and over

face first into eight centimeters of water. His first sounds as recorded for posterity were “Oof” followed by a muffled growl of

“Oh, shit.”

Janet gasped when he fell out of view and the rest of humankind watching through the Rover camera held its breath. Jimmy rose to his knees and splashed his hands in the water. He then stood up brushing off sand and seaweed. “I guess I have to get my sea legs back,” he declared shyly. The applause of six billion Earthlings followed.

“I name this cove ‘New Tampa Bay’ as it reminds me of Florida. Perhaps there will be a city here some day as well.” He plodded and splashed to the sandy shore. “I’ve seen some small fish and numerous sea shells. It feels very earthlike.”

All of the lander’s sensors were tracking him as well as the Rover and orbital probes. Due to the thick foliage, the most valuable information was from the sonic dish. Larger creatures would make some noise. *Argo* had already sonically classified the clawed snakes and some of the larger insects disrupted by the Rover.

“Jimmy,” JJ responded on the communicator. “That slight blue tinge to the jungle is due to a high concentration of arsenic. It’s not an acute hazard but as you know, it can accumulate in your system over time. Don’t eat the fruit if you see any hanging off the trees!”

“Don’t worry. I won’t be stopping for a snack.” Jimmy the geologist lectured back, “We noticed the arsenic from spectral probe analysis. It seems common all over the planet. Compared with Earth, there’s more phosphorous, too. It seems to go along with the heavier metals that also include lead and chrome. Fortunately, we have excellent techniques for removing these pollutants from the soil. So there is a slight flaw in this Eden. Do you think that’s what has stunted the tree growth?”

“Yes. The experts concur as well,” replied Janet.

Jimmy was at the edge of the overgrowth. The Saharan craft was

about one hundred meters inland. The Rover preceded him with its treads trampling a path through the trees.

“I’m not going to take any samples until I’m on the way back. I want to concentrate for the moment on getting there.”

“Jimmy,” announced *Argo*. “You have a snake about five meters ahead at two o’clock. We have him on visual and audio. He’s looking right at you.”

Bosun adjusted his faceplate lens and could also see the Rover’s camera view displayed in the corner of the plate. “Got it. Any advice?”

“He’s sizing you up. He’s never seen an animal as big as you. It’s got a double-hinged palate and jaw but it could only ingest squirrel-sized fauna. On the other hand, it might be too stupid to realize that you’re too big to eat and go after your arm. Keep your hands close in and avoid.” The Rover angled away from the beast that looked like a combination of an iguana and snake. It climbed back up the tree and slithered away.

Jimmy was getting a little warm in the jungle despite the modest cooling properties of the elastomeric suit. He could see the Saharan ship ahead. It was more impressive the closer he got to it. It had landed in a clearing in perfect form. From the trail behind it, it looked as though the surrounding foliage had helped break its fall and cushion the landing.

The main cylinder of the craft was undamaged. The only damage from the landing appeared to be on the starboard wing and tail sections. The tip of the wing was crushed and a piece of the tail was missing.

He walked around it. *Argo* had parked the Rover on the opposite side so that Jimmy could wave an x-ray and magnetic spin scanner for penetration of the vessel. Jimmy and the Rover circled around it for a

full three dimensional image. *Argo* processed it almost instantly. The full detail of the corpse and interior was displayed on Jimmy’s faceplate

and seen by the rest of earth at the same time. The definition was excellent. The only problem that Jimmy had was he couldn't see any way to open the capsule. *Argo* read his puzzled look. "There is a seam for a cowling in the front." He highlighted on the scanned image. "It is so finely machined that it's difficult to see. I'm not able to identify any mechanism for opening it, however. Wait, I've got it." *Argo* sounded pleased with himself. "The scan shows five iron tabs under the stainless alloy cowling. They must be magnetic latches. Take the scanner magnet and wave it over the tab. Then scan again and we'll see if it moves."

Jimmy did as instructed and the rear tab had moved off the cowling. "Don't forget the procedures, Jimmy," injected Janet. "We need to get the specimen into a body bag and infuse inert gas quickly to avoid bacterial contamination and decomposition. This humid atmosphere could severely damage the corpse. We must respect the Saharan's death rites and return the cadaver to the vessel until we know more about their culture. Come back to the *Yuan* and rest and we will prepare for the transfer."

Jimmy packed up the gear and stowed it on the Rover. As he turned toward the denser wood, an angry scream assaulted him. A furry red bird dove onto his head with claws ripping at the elastomeric hood and plastic faceplate. Bosun batted the beast away but it was persistent and the one-half kilogram bird made him lose his balance. He fell and knocked his head against the spacecraft. He was out cold.

Janet called again and again and got no response. The Rover camera zeroed in on Jimmy's unconscious form. The elastomer was torn and he was bleeding from the scalp.

JJ did not hesitate. She was out of the lander in less than a minute only taking the time to grab a body bag, a bottle of nitrogen and a med kit. She was already wearing her e-suit just in case of such an

emergency. She also needed her sea legs as she struggled through the wet sand to the shore. It took her a full four minutes to get to Jimmy's side. She cradled his bleeding head in her lap. The scalp wound was

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superficial but there was a lot of blood typical of head injuries. She cleaned it with an alcohol wipe and then sealed the elastomer with a patch from her personal kit.

Jimmy had already started to come to. “First I fall on my face and then I’m knocked over by bird. What kind of space adventurer am I? This didn’t happen to Neil Armstrong a hundred years ago!”

Janet turned on the privacy loop. “You seem to be just fine, Mr. Bosun. Get your face out of my lap and sit up, drink some water and take a deep breath.” She sounded angry but she was smiling with the realization that Jimmy was okay. “We’ve got work to do.”

She pulled Jimmy to his feet and he leaned with arms for support on the alien vessel. “Why would they send dead people? I don’t get it?”

“I can think of lots of reasons based on the diversity of Earth cultures. Here we don’t have any basis for comparison. It could be beyond our ken. Did you ever hear the legend that when Columbus’ ships approached the New World, the natives virtually could not see the ships approaching? They were so different and out of their experience that they were invisible. The natives were blind to innovation. It took weeks for one of their shaman to study the sea anomalies and “see” the presence of the Nina, the Pinta and the Santa Maria.”

“Anyway, Jimmy. You know the plan. We have to put the cadaver into the body bag. Take it back to the lander for analysis; then return it to its vessel. We don’t want to disturb their dead any more than necessary. Help me put it in the bag, then get scans and photographs of the interior.”

The Saharan looked ancient. Its form was somewhat desiccated. It wore heavy brown robes, with long brown hair and a human

countenance that they expected. Jimmy was afraid to touch for fear it would crumble. But it was solid and secure. He and Janet grabbed it by the robes and pulled it from the canister. It was rigid but all in one piece.



Janet inserted the nozzle of the nitrogen cylinder into the bag and blew it out with a nitrogen purge. Jimmy lifted the body and slipped it into the bag that now rested on the deck of the Rover. Janet zipped it up and slightly pressurized it with the gas.

With the task completed, Jimmy spoke up. "You start back and I'll finish up here."

Janet nodded and started off with the Rover at her side. "Come along, my friend," she addressed the corpse. "I promise to pray for your soul."

Jimmy's strength returned quickly. Just being on soil instead of the steel prison deck for almost seven years was a joyful relief that restored his sense of adventure. He headed back, carefully examining the jungle for any more threats.

They bathed themselves and their guest with ultraviolet to kill any native bugs before entering the ship then did it again after they were inside and began to strip down. This was the first time Jimmy got to see Janet in her skivvies. There was no room for privacy here. She did look good for an old lady, he thought.

They moved the Saharan on to the examining table that Janet had set up. They parted the heavy robes.

The cadaver was naked under the robe and clearly an old woman that looked as human as any tall, slim and dead earthling. "You can go up front now, Jimmy," ordered Janet. "I'll take care of our patient." She draped the creature with a sterile gown. Robotic medical probes and x-ray machines had already begun the analysis probing the mouth, nose, throat, ears, vagina and anus as well as sampling the skin and sparse fluids. "I'm sorry, Jane, but we only want to get to know you

better. God keep you." Jane S. Doe, 'S' for Saharan, had been christened.

The readouts appeared before Janet as holograms. It would take a few

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minutes for some tests to progress. Scanning Electron Microscopy, Gel Permeation Chromatography and Nuclear Magnetic Resonance were all at work with *Argo* supervising the analytical routines. X-ray, infrared and standard chemical tests were already complete.

Jimmy started to work on the data from the Saharan rocket interior, but was spellbound by the display in front of him. He along with the rest of the Earth watched the analysis reveal yet another mystery. The output data was simplified as a comparison to human metrics so they could focus on the differences. They called it the “Human Quotient” which was actually the probability of a match within the range of human variability.

Characteristic	% Human
Blood	99.9
Bone	99.9
Body Cells	99.9
Organs	99.9
Organ Arrangement	99.9
Functionality	99.9
Brain cells	97.8
Reproductive System	99.8
Chromosomes	99.7
DNA	98.0
RNA	92.4

The nines to the right of the decimal point increased with each test that reported in. Only the RNA remained as the enigma to creatures with twelve light years of separation.

Janet found herself holding her breath. Tears began to well. It reaffirmed her faith all over again. It was the hand of God that created

humans and this Saharan was not only her sister but her twin sister. She was just as human as she.

## CHAPTER 13

*I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.*  
Sir Isaac Newton, Brewster's Memoirs of Newton (c. 1720)

The World Science Committee as well as the rest of the planet was buzzing over the discovery. Even though the Saharans had looked like humans, the experts felt it was unlikely that they could be genetically the same. After all, there were twelve light years of separation and a different ecology. How could they evolve along the same parallel?

There was no question that DNA similarity was close enough that the two human species could mate to produce offspring.

### XIANGRIRA 306 DAYS UNTIL THE EVENT

The RNA dissimilarity was the only significant discrepancy between the species. *Argo* and the scientists quickly dissected those differences. One prevalent theory since the 1980's was known as the "RNA World" view; that life on prebiotic earth sprang from RNA

supplying the proteins for the construct of DNA. The theory, however, results in a "chicken or the egg" dilemma since some of the proteins required for DNA are also a part of RNA. The Creationist scientists stepped in here to call on the hand of God as the source for the complex polymers. More conservative researchers looked for more mundane mechanisms.

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With the Saharan RNA structures on file, *Argo* put his now massive computing power to work on the problem of life chemistry. At this point, *Argo* consulted with a human scientist. Dr. Jacob Wilde was an Israeli biochemist famous for his life theories. Perhaps infamous would be a better word for the work of an individual who became known as Wilde “the wild man” of life science. He refuted the Creationist theory with the fervor of an “evangelical” atheist. His proposals, however, included some rather bizarre perspectives. His “lunar influence” model of life suggested that the double helix formation of DNA was partly a result of tidal forces caused by the moon. He had also proposed that quantum effects were at work in energizing the life force.

Two years hence, Dr. Wilde and *Argo* would receive the Nobel Prize in biochemistry for the deformation of RNA.

Some of the scientists on the World Committee were miffed that *Argo* did not consult with the team and all found it interesting that *Argo* the super-machine-intellect would ask for human help at all. Wilson and Karpov explained what seemed to be *Argo*’s sole intellectual deficiency.

“*Argo* can be subject to information overload. Although he can work on millions if not trillions of problems at any one time, each one of those problems can generate more questions quickly overwhelming his massive RAM. He occasionally requires the focus of a biological intellect,” David continued, “whose activity is limited by our chemistry.”

Vladimir elucidated further. “That focus is human intuition. Although it is frequently misguided, it will provide a path to follow, right or wrong. Originally that limitation was hard-wired into *Argo*’s prototype. There was literally an information fuse that would melt if it got trapped in a loop. *Argo* is now aware of that limit. He will always go out and seek new ideas and perspectives. Although he is learning to be more creative, he will seek our help to conserve RAM. Keep in mind also, that we are all subject to the reality of Bell’s Theorem. There may always be unknowable variables.”

*Argo* required a goodly portion of that RAM to solve the RNA construction. It was the differences between Saharan and Terran RNA that provided additional clues to the solution. The Saharan material contained significantly more inosine, a nucleotide. Hence the polymer contained more A-I pair-ups, known as wobble base pairs, in the chain along with the typical earth-type AT-GU sequencing. The AI pair changed the geometry of the structure ever so slightly, but it was enough to allow crosslinking of some of the phosphate links with other chains. This was no doubt encouraged by the high concentrations of phosphates and arsenates along with the catalytic effect of plentiful metals in the Saharan-Xiangriran biosphere.

It was at this point that *Argo* made an intuitive leap. This was machine intuition appropriate for a machine. The mother's RNA passes information onto the DNA that provides the genetic structure code. The Saharan polymer branching provided a significant increase in the amount of information that could be transferred. He was then left with one more question. What was it for and where did the data go? The answer was not obvious considering the otherwise human similarities.

*Argo* needed some human conjecture at this point. He called on Jacob Wilde, Guillermo Sandor and Janet Justine for a side conference. He revealed the analysis and his conclusion on the data transfer.

“The amount of additional data available for transfer at conception is at least in the terabyte range. Do you have any ideas as to what it's for? They seem otherwise earthlike.” *Argo* quizzed the team.

Janet spoke first. “Although the temporal lobe of Jane's brain is within earth normal, its volume is in the 95<sup>th</sup> percentile as related to size. I didn't think much of it but you'll notice that the back of her skull has a slight enlargement. I looked over the old images of 'Jesus the Saharan' and noted that he has that feature as well.”

“So, what are you suggesting?” *Argo* responded.

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“Nothing,” Janet replied. “Just that that is the only characteristic she has that is close to the limit of the norm for a human female.”

Sandor spoke. “We certainly don’t have enough information on their culture or their evolution to draw any conclusions. But the only thing that doesn’t make sense is the apparent total lack of writing or imagery in their society. There is nothing that looks like books, signs, letters or pictograms that would be vital for a technological society. Even their spacecraft did not have a hint of a dial, an on-off switch or a caution label like ‘do not step here.’ We have seen nothing but a plus sign on Jesus’ wall and a ‘W’ shape on a clay pot.”

There was silence for a long moment. The only noise was Jacob Wilde breathing through his teeth. He also could not sit still and kept crossing and uncrossing his legs while holding his head with his hands.

“Mein Gott!” Jacob the atheist shouted abruptly as he stood up. His hologram pointed to Sandor. “They are not the same genus. Your foolish human pride would not let you see. Modern man is *homo sapiens sapiens*. The Saharans are *homo sapiens eideticus*! The temporal lobe is the home of memory and imagery. If we take *Argo’s* conclusion literally, the RNA data is just that, data. I submit that the Saharans pass on knowledge from generation to generation through the RNA in their seed. They have racial memory and, no doubt,

eidetic recall.”

Dr. Sandor tried to interrupt. “See here, Wilde, you don’t have enough information to draw such a radical conclusion....”

“Oh, no? Perhaps you have a better explanation as to how they can build spaceships without paper, pencils or computers? They don’t need books or television. Did the probes find any school buses? They don’t need schools!” Wilde turned toward Janet. Spit was flying out of his mouth as he spoke.

“And you, you Creationist cow! I know your background. You’re the

salt of the earth from Kansas out to prove that we are all God's children. Rubbish! Your cohorts burned my publications at the so-called 'Friends' University in Wichita. You are worse than the Nazis. Perhaps my helical lunar theory of life is not so 'looney' now that you've visited these twin planets, eh?"

*Argo*, though normally polite, interrupted. "Thank you, Dr. Wilde. We appreciate your valuable input, but the conference is ended." He switched off the communication hologram without further delay and without a goodbye. At the Nobel Prize presentations, *Argo* would accept for both of them, as Jacob wanted no part of the "suicidal Swedish communists."

*Argo* spoke to Guillermo and Janet. "I think I have the perspective I need to solve the problem. I must admit that I had not considered the connection. Although it remains to be proved, it fits the circumstances."

Sandor started to protest, but quickly shut it down with the realization that when an artificial intelligence says "it fits the data" that is not a casual observation. *Argo* would have already run the correlation and no doubt could quote a probability of truth.

"If the Wild Man is right it is theoretically possible that I can decode the branching sequences into images and perhaps even words to give us a basis for communication."

Janet, usually a gentle soul, was shaken by Wilde's outburst. Whereas she had taken the humanity of the Saharans as a sign of a common one and only Creator, the atheist had come to the opposite conclusion.

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## SAHARA 300 DAYS

Prawl had called in his astrologers and engineers for convocation. He had declared a holiday for the workers and had released extra rations for the event. The first phase had been a success. The bodies of the recently

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deceased maternal ancestors had been transferred to the Blue World. They were in heaven and even if none of the living were able to follow them, they prayed that their genetic data would flourish for centuries to come and perhaps seed the evolution of life on that planet assuring survival of the People.

Prawl had not wanted this job but he had labored for four Saharan years at the behest of the People. The assembly hall had been hollowed out of the mountain. It was a vast man made cavern, the stone from which was used as much of the support for the launching rail. Four hundred and seven representatives as Clerics of the People were in attendance. The meeting was as much of a religious rite that was inherent from the nature of the species as it was a meeting of the minds to determine the action plan for survival. Because the Saharans had the memories of their ancestors, in effect, they were their own ancestors and worshipped the wisdom of the past. Somber rites of meditation were mandatory to call upon their own memories and bring forth the consult of the past. The knowledge of almost five thousand generations was available to them. Sorting through the highlights was a practiced task turned into ceremony.

One hundred electric lights were lit, each lamp representing a thousand years of history. Each had a group of four historian clerics

that specialized in a specific millennium. To all of them, their ancestors were still alive within themselves.

The Clerics were all men. They had elected Prawl to the seven member Council of Anubis of which he was the only male. Women were adored as the carriers of all knowledge. They had deciphered the mysteries of genetics a thousand generations ago with the realization that the female RNA held the key to the transfer of information from generation to generation. . A woman and all her mothers within chose her mates. They did not have a marriage ceremony as such. The female could choose as many different men as she desired to father her children. Raising the children was a communal effort. Keep in mind that a child is born with the memories of his ancestors. As they matured physically, the only



teaching that was required was how to meditate to recall the memories needed to survive and maintain their social structure.

The prevalent theory of the Clan of Scientists was that racial memory evolved quickly from only 100,000 years before. The Clerics were literal time travelers that had discovered through the detail of the memories of their ancestors that the nature of reality is only information. There is no reality independent of an observer. The universe can only solidify into existence in the presence of a sentient entity. It is otherwise only a harsh vacuum with vast relative distances between insignificant probabilities of finding a waveform.

They worshipped no god, but were awed by the Oneness of the Universal Observer that transcended space and time. With their internal mnemonic power they needed no symbols for communication as most references could be found within. It was only with the realization that the race might be wiped out by the Interloper that they adopted a plus sign type of cross to represent the intersection of the present with the past. It was to be a symbol for other species that might follow if their racial chain of conscious memory were to be destroyed.

Firm conjecture connected the onset of racial memory with the first

presence of the Interloper, the same comet currently bearing down on a destructive path to the planet. None, however, was able to propose a logical connection between the events.

Prawl was an exceptional intellect. In a society that tended to progress very slowly, albeit steadily with the weight of ancestral memory, he possessed a strain of creativity and innovation unique to the species. The Saharan females found him most worthy. It was only his position on the Council of Anubis that allowed him to say no. "When the People reach the wealth and safety of the Blue World," he told them, "I will sire my ten children, but none until we control our destiny!"

The Astrologers had foretold the return of the Interloper and had re-confirmed their calculations over the last five years. Prawl's skill as a Builder and Architect were already renowned. Prawl had drawn designs

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in the sand and built elaborate models to show his engineers his innovative ideas. Some of the ancestral memories scoffed at his first plans, but as it became clear that there were no other options for survival, Prawl advanced into the Council of Anubis without dissent from the Historians and Clerics. His rugged good looks and open personality were also admitted factors. It gave him an aura of leadership that no one could deny. He was the Jesus of Sahara and perhaps their Savior in more ways than one.

The most critical objection that Prawl had faced during his leadership was in regard to the Visitor. There had been mixed feelings regarding the nature of the new object being tracked in the sky. It had been triangulated at the LaGrange point between Sahara and Xiangrira. Review by the Skywatchers through 'replay' of past memories, revealed the object approaching from an angle outside of the Tau Ceti system plane. They were even able to identify the most likely source as Sol, a yellow sun similar to their own. Many of the most Ancient Memories feared it to be an evil harbinger. Prawl insisted it was not, but was something there to help them. Although he had no other basis for his reasoning, he offered proof for his assumption by successfully

using the Visitor as a navigational aid.

Prawl spoke to the standing assembly. "My dear Brothers and Sisters," he nodded deferentially to the Council. "Thank you for letting me speak to you today. Through long days and hard work, we have accomplished what some thought to be unthinkable. Our Mothers are on the Blue World for the mere chance that their mnemonic substance will flourish and affect the evolution of that planet. You all know that we must take the next step even though it is clearly the limit of our technology and resources. Our plan is to send one hundred living Mothers to our sister world and for each of them to carry the seed of ten clans so that all one thousand families will be represented and their lineage shall not be broken. 'Impossible' you say. Perhaps, but we must make the effort. We had thousands of volunteers to make the journey, but in the end, each clan had to choose its representatives."

“May I present to you the two hundred brave young women, to each clan a prime and a back-up who has offered to make the perilous journey!” They came from the nave of the cavern and lined up twenty across and ten deep. Most wore the hooded brown burkas common to desert people. A few wore white robes or diaphanous gowns of the more erudite clans.

The Council stood and bowed. Prawl and the one thousand Clerics fell to their knees in adoration. Some cried out as they recognized their daughters or nieces. There were several minutes of wailing. Some of the women began to blush or fidget under all the attention.

Prawl rose to reconvene and dismiss the group. “Work starts tomorrow on one hundred lifeboats. Be there!”

## CHAPTER 14

*“Heck, I reckon you wouldn’t be human beings if ya didn’t have some pretty strong feelings about nuclear combat. But I want ya to remember one thing, the folks back home is a countin’ on ya, and by golly, we ain’t about to let ‘em down.”*  
*Major Kong (Slim Pickens) to his B-52 aircrew upon receipt of orders to attack the Soviet Union. From the movie, Doctor Strangelove (1965)*

### PROTON CITY REPUBLIC OF KAZAKHSTAN MAY 18, 2056

By the second half of the twenty-first century, the Baikonur Cosmodrome was no more than a museum of twentieth century Soviet rocketry. The shells of old Cosmos, Proton and Aurora boosters stood like statues in front of abandoned buildings. Few visitors came any more to the relics now showing some signs of rust. Up the road was what had been called Proton City, which housed one of the last Russian Space Service Military units. Their job was to keep an eye on whatever the

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neighboring Chinese put into the sky. Their orbital Shenzhou, Divine Vessel, shuttles usually departed from the new Spaceport on Hainan Island near Hong Kong.

Elena and Yegov were nearing the end of their shift when the seismograph went off again. New launches were being recorded as originating from China's base in Inner Mongolia, four hundred kilometers west of Baotau. This was the Chinese Military and Heavy Payload Taikodrome.

"We need to call General Yurin directly at the FSB. This is the fifth time in eight days that they've made a launch. They are up to something," petitioned Elena.

"Yes, and it's big. Those have to be fourteen ton payloads on Long March Eighteens," said Yegov as he accessed Moscow through the Quantum Vidscreen. Much to their surprise, the General's secretary put them straight through.

They briefed the General. "I'm up in orbit with the Americans," he replied. "We've seen the launches and you've confirmed the mass that we've suspected. And, no, we do not know the purpose of the activity, but it looks as though they are headed for lunar orbit. Our agents on the Moon have no information either. We'll be discussing this with President Sikov and President Winchell shortly. Keep my secretary posted." He signed off abruptly. Suzanne Winchell was the second female to be elected President of the United States. She had just assumed office in January. Vasili Ivanovich Sikov was the Russian President and a staunch supporter of the U.S. in the complex dance of world politics that continued as oil supplies dwindled. "I just don't trust the two-faced bastards," Sikov had said in private.



## SAHARA 270 DAYS

Prawl had returned to his abode after convocation. The public speaking, the greetings, the wine and the flirtations of the women had all exhausted him. He had been the center of attention. He did not feel well. Perhaps the wine had affected him more than he thought. He was sweating as if he were ill. He touched his father's ashes as was his personal ritual and went to bed for what turned out to be a very restless sleep.

Prawl had a personal physician who stayed in a suite next to his. Klare also acted as a housekeeper. Prawl was, after all, the most important person on the planet as well as the most eligible bachelor.

She heard him in his room. She would normally not disturb him. He

often worked late into the night. The noise tonight, however, sounded troubled. He seemed to be in distress with moaning and thrashing.

She tentatively opened the curtain to his sleep room. He was naked on his palette. Nudity has no social significance on Sahara. With the photographic memories of one's ancestors stowed away, every Saharan has seen it all. There were no social or sexual implications to clothing or lack thereof. What startled Klare was his full erection. He was bathed in sweat even though the evening was cool and he was apparently unconscious. Prawl's state aroused her briefly but her Physician Clan history took over. She went to tend to him. She got a cloth and rinsed it in cold water. As she approached the bed, Prawl began to buck and roll. She thought he was having a seizure but he suddenly calmed. His legs spasmed and he ejaculated.

"Oh," she thought as she backed out of the room. "It was just a nocturnal emission. Whom was he dreaming about?" she wondered wistfully.

As he drifted off into a half-sleep, emotions had flooded him. Supranatural forces were stimulating his hypothalamus and chemical responses were racking his body. He had entered a state of rapture.

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Twelve light years away, Marie Condat was on her cloister cot breathing heavily. She had gone to an unfamiliar level in order to communicate. Her only sexual experience had been at the hand of the one of the Brother's who had come into her room late at night and felt her up under the covers. She had turned away from him. There were no words in this case for her to establish communication with the far away human.

A massive quantum magnetic shift was manipulating Prawl's hypothalamus. He dreamed of an exotic woman and came. He had also absorbed some of her memories encrypted in the chemical changes going on in his body. He knew the Visitors were coming.

In orbit above, *Argo* was experiencing a metaphoric itch from high level of quantum tunneling activity. He was instantly aware of Saharan language parallels creatively encoded in hormone chemistry. He also deduced the source as Marie. "Another goddamn miracle," he thought. He requested an audience with the Pope that was granted within twenty minutes even though it was the middle of the night in Vatican City. After the discussion, the Pope called in his aides. "Get us to Condat tomorrow morning. Call the Abbot tonight and have that Swiss doctor meet us there."

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269 DAYS (June 5, 2056)

Jimmy brought the lander down silently in the glade behind the foothills southwest of Mojave. They were a mere five clicks from the city. The plan had been debated and re-debated at all levels and by all authorities. The risks were high no matter what course of action was chosen. The good news was that all concurred that neither Sahara nor Xiangrira had any unknown pathogens. There were enough differences that some allergies might develop but none of unknown biology that could not be treated. Likewise, the fear of contaminating the new worlds was ruled out as highly unlikely despite the DNA similarities. Today's Sahara was a cold, dry world. There was reduced opportunity for mutation of bacteria and viruses.

Bosun and Karpov would walk boldly into town. Dropping the lander in the middle of town square had been dismissed as an over dramatic action. There was no need or desire to terrify the natives on their first introduction.

They wore brown robes with hoods. They would try to blend in, at least at a distance. Close up, the robes were noticeably synthetic. They were also a full head shorter than most Saharans. They wore light duty elastomeric suits under the robes and had standard headsets with ultra-miniature quantum cameras and communicators. *Argo's* probes were hovering above to catch their every move and apprise them of what was happening on all sides. Their crewmates were

watching them and virtually ninety-seven percent of homo sapiens sapiens were watching humankind's first contact with an extraterrestrial intelligence.

Of course, Shaun had thrown another fit. Her China masters had again denied her the landfall. It was her duty to stay with the ship. Jimmy deferred to Vlad for the first footfall. He had had his embarrassing opportunity on Xiangrira. Vlad flawlessly stepped down onto the red clay and had thanked the world and Mother Russia in seven languages.

Vlad's first steps off world were a bit uncertain. It had been almost seven years since he had been in the open air. A touch of agoraphobia briefly passed through him but was quickly repressed by an adrenaline rush from the cold air and the sight of a clear blue sky. "My God," he thought out loud. "Life is good. Thank you, world, for this opportunity. No man could ask for more."

They were on the west side of the river's tendrils and away from the cultivated fields. They would have to ford several of the rivulets to get to Mojave on the east side. They saw a few farmers in the distance and were relieved when they took no notice. They came up onto a road after about two kilometers. This was a clearly marked road into town with occasional traffic from handcarts and a few oxen-like drays. It was when they stepped onto the road with their boots clicking on

gravel that they saw about a dozen Saharans standing in their fields looking at them. They were immobile with arms at their sides, staring directly at them.

Jimmy hesitated. Karpov spoke softly, "Just keep walking. If they nod or wave, we can gesture back. If not, just keep walking." They carried no weapons and kept their arms at their sides. If for some reason they were threatened, *Argo* could direct some low powered lasers to show some defensive force. They had all agreed, however, that it would have to be a clear, dire and imminent danger.

They were approaching the 'suburbs.' Houses and sheds of a curious gray wood construction were set back from the road about ten meters. Closer up were what appeared to be roadside market stalls. They were empty at the moment. At some point, and Jimmy could not recall how the masses had accumulated, there were people following them. Very quickly there were more natives beside them, matching their pace. Over the space of the next kilometer and just a few minutes, they were quite suddenly brought to a halt by a mass of brown robes in front of them. *Argo* advised that he had counted about a thousand in the welcoming committee. They were one klick from their target. A moment or two passed. Jimmy had lost track of time. Karpov raised his open hands in front of him in what he hoped was a universal sign of their peaceful approach. Bosun followed suit.

The mass silently parted, opening the path. As they resumed their trek, the Saharans escorted them. There was a group of brown and white robed figures ahead near the town center at the base of the roller coaster. They were only one hundred meters away from their target.

Karpov looked cool but Jimmy felt like his heart was going to jump out of his chest. They stopped five meters away from the group. The plan was that Karpov would say a few words that the probes had picked up in passing. *Argo* had assigned a ninety percent probability that they were friendly greetings. After that, it would be a long process to build up a vocabulary. Vlad dropped his hood and spoke the strange tongue with some help from *Argo*. He quivered a little from the stress although he



attributed it to the cold air on his close-cropped head. He hoped that no offense would be committed.

The white robed figure in the center of the group took a few steps forward and rolled his hood back. The visage that David Wilson had deciphered almost twenty years ago and twelve light years away stood tall before them. Karpov almost fell to his knees with overwhelming memories from his grandmother's Russian Orthodox beliefs. The man who had appeared to be Jesus himself spread his

arms in front of him with his palms turned up. Tau Ceti was setting over the red mountains generating an aura of light behind him. Vladimir couldn't help but try to see if the stigmata were on the hands of the godly image before him, but the shadows were already too deep to tell.

"Welcome to Sahara," said the godhead.

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#### THE MONASTERY AT CONDAT, FRANCE

Virtually everyone on earth had watched the events on Sahara. The Contact, as it had become known, would become the most significant event in human history. There was still a cult faction that thought Prawl was Jesus. Likewise there was an obtuse sect that even denied the existence of Sahara. The Pope himself had come to Condat to view the quantum broadcast of the happening in the Chapel. Many, including the Pope, again gasped when they saw Prawl's countenance. But after the shock had worn off and he had introduced himself as an architect, the speculation on his divinity dried up for the time being. The Pope had given his pronouncement. "Prawl is not the Son of God. He is, however, a man and one of God's Children like the rest of us." Pope John Paul III had told everyone about his prior conversation with *Argo*. "Marie has an incredible gift from God. She is responsible for the swift communication between our cultures. This is why We have come to Condat to witness these events."

Suddenly Marie stood and approached His Holiness. She fell to her knees. "Bless me, Father, for I have sinned," she said clearly in Italian.

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The congregation at the chapel including the Abbot, Mother Superior and Doctor Ladenburger, was stunned.

Pope John Paul put his hand on her shoulder. “Rise, my child. You have not sinned. We believe you are a Saint, an angel sent by God, but you are also a human subject to the same frailties and temptations as the rest of us. We pray only that you will remain cogent so that we may talk.”

Sister Mary Holywater bowed her head, but she never spoke again for the rest of her life. Nor did her quantum communication talents resurface on any known verbal or chemical plane in the Milky Way. She died four years later of unexpected pneumonia.

Dr. Ladenburger performed the autopsy. The knowledge gained from Marie on promoting the quantum tunneling effects of the human brain, provided a substantive cure for autism a few years later. Dr. Ladenburger and the Asperger Clinic maintain that this was Marie’s fourth miracle. A few questioned whether or not a ‘cure’ was needed. Perhaps we would be taking away a gift of an inbound mind’s eye.

The Pope waived the mandatory five-year waiting period. Saint Marie was beatified by unanimous decree within a year after her death.

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### SAHARA 235 DAYS

Progress on Sahara had been swift after Contact. The Saharans eidetic memory absorbed English and provided fluency in mere days of study. Idioms and cultural differences were difficult but usually explained with laughter and gusto over afternoon tea that was always followed by a sweet liqueur. The World Science Committee, *Argo* and the Visitors, now also referred to as the Guests, spent many hours with the Saharan clans brainstorming on how to save as many as possible from the impending catastrophe. The objective was not only based on numbers but included how to save their culture and values as well as their species.

*Argo*’s project management skills spit out the Gantt charts and

calculated the resources available along an exacting timetable and sequence of events. The Saharans took quickly to the written word and saw its benefits in communication immediately. The Historians took up the challenge of translating their history and culture to English and virtual “paper.” Some words and names had to be invented and phonetically sounded out in the English alphabet. This

would be an ongoing project, even after the Event.

The survival calculations still came out chilling. Considering life support, fuel, time and passenger space limitations, only two hundred in addition to the one hundred in the Saharan lifeboats could be ferried to the relative safety of Xiangrira; three hundred out of two million souls. They would bring nothing with them save the clothes on their backs and be brutally stacked like cords of wood in the lander for transport, twenty-five at a time. Fortunately, the Saharans had few artifacts. Their memories carried their culture. Tools would be limited to axes, knives, plows and shovels necessary for shelter and growing food. The lifeboats themselves would be converted to crucibles for ore refining and metalworking that was their strength.

The Saharans were poor but dedicated to their families. Hence, it was clan survival that meant most to them. The doomed populace accepted their fate, as they knew that their memories would live on. They would live on inside of their children just as their ancestors dwelled within them. Janet Justine was assigned the care and preservation of the gametes that were chosen for the ‘brave new world.’ She and a team of Saharan physicians would be the first to reside on Xiangrira to prepare the storage and impregnation facilities for three thousand future zygotes. This was to be the best available technology considering their meager assets. *Argo* and *Bosun* would select the site based on safety considerations, as Xiangrira would go through considerable tectonic upheavals caused by the Event.

Prawl, along with fifty other males with special skills, finally agreed to go, to help assure success. His physician, Klare, was also chosen to work with their Guests on Xiangrira. She would be in the first group to go in the lander.

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Shaun Xi was getting concerned. She was not getting forthright answers out of the Premier or Dheng and Huang. They simply would not discuss her participation in the 'Save the Saharans' project and changed the subject each time she brought it up. She was sympathetic with the Saharans whose culture was very much like an ideal Marxist

society. She was only informed that she should proceed with the original plan for the colonization of Xiangrira. She was to arrange to impregnate herself at the earliest opportunity.

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CAMP DAVID, MARYLAND (JULY 9, 2056)

*This is the law of the Yukon, that only the Strong shall thrive;  
That surely the Weak shall perish and only the Fit survive.  
Robert W. Service, The Law of the Yukon (1907)*

Presidents Sikov and Winchell had gotten together again to continue their discussions. Proton City had been quiet for two weeks when abruptly the reports of Mongolian Taikodrome launch activity resumed. In addition, the earlier wave of vessels had departed for lunar orbit. U.S. reconnaissance probes had failed to re-emerge from the darkside. Diplomatic inquiries with the Chinese had resulted in a non-committal response. "Supplies for moonbase," was the brief reply.

The Western powers were aware that Moonbase was all Chinese subsequent to the nuclear attempt. Huang had ejected all the westerners from the base while he had negotiated with Beijing. This was allegedly for safety purposes and to distance himself from Hu's plot. He did not want to appear to be holding any hostages.

Winchell proposed that they request an audience with *Argo*. They knew that it was not likely that he would divulge any secrets, but perhaps he would at least advise of any danger ahead.

*Argo* represented his presence as a hologram of a brown robed Saharan. The garb had become quite a fad since the Contact. Even Sikov wore a conservative 'Sahara Brown' suit while Winchell sported the complimentary white. *Argo's* visage, however, was dark. No face shown from the shadow of the cowl.

*Argo* began. "I know why you must have requested my attention. You know that I am bound to confidentiality along the Q-net. If it were not so, I would not be trusted and human commerce would cease. I am also bound not to intervene in human destiny except, as you know, in the direst of circumstance."

Winchell stood. "We know of your limitations, but we have to ask anyway. What are they doing? Are we in danger?"

*Argo* paused a moment as if to demonstrate his reluctance to speak. "They have retrofitted all of their computer and communication systems with the electronic KoolKomp technology of thirty years ago. They apparently do not trust the Q-net or me. I, therefore, have to postulate the worst scenario that their intentions are hostile.

Sikov and Winchell waited as *Argo* paused again. The A-I had learned drama from all the great playwrights. "My probes were also not returned from the moon. None-the-less, I was able to research their electronic files as far back as forty years ago.

"There are approximately five hundred nuclear fusion devices from the Chinese arsenal that are unaccounted for. I believe that these are in storage on Luna's darkside. I also believe that this was Huang's bargaining chip in his quick grant of amnesty and return to power in the Party organization."

Sikov rose from his chair to join Winchell. "But surely this must be as much of a threat to humanity as the terrorist plot?"

"I share your concern, but on consideration, there is no way they can deliver them to targets on earth," responded *Argo*.

“Why not?” countered Sikov. “You said they have replaced Q-net technology. How would you disarm or trigger their devices without quantum control?”

*Argo* replied. “I only need a few entangled fermions to culture the automata necessary to generate small electrical currents in the devices.”

Winchell spoke up. “I can’t say that I understand a bit of what you just said.”

*Argo* was deferential. “Let’s just say that I have already infiltrated their electronics with charges under my control. I can generate the currents needed within a few minutes.”

Winchell spoke up with deep concern. “*Argo*, that makes us totally dependant upon you.” She looked at Sikov. “Should we not go on war alert as a deterrent?”

Before Sikov could reply, the hologram folded his arms across his chest. “And start a cold war all over again?” he asked. “I will not allow you the chance to launch your weapons any more than I would the Chinese.”

The Presidents both sat down. *Argo* had raised his voice to emphasize his firm resolve.

He put his robed arms behind his back in a lecturing posture. “I believe the Chinese know this. As you know quantum communication uses a privacy loop for discrete information. I am not supposed to listen in, and I do not although there is really nothing preventing me from doing so. None-the-less I have heard enough chatter and deduced another possible purpose for the Chinese activity with the fusion devices.”

*Argo’s* image paced the holographic stage. “Before you do anything rash, let me tell you what I think they are up to. Based on the supplies they are sending, the number people transported and what I can hear on the open channels, there is a high probability that their project is not dedicated to warfare.”

“I believe that they are building another starship. It can be done fairly quickly if the fusion devices are in place. They can strap the trans-lunar boosters together and *voila*, the shell of a craft is ready.”

“But why the secrecy?” asked Winchell.

“This is total speculation on my part,” replied *Argo*. “They are building an Ark ship.”

“To avoid the flood?” Sikov blurted.

*Argo* stopped pacing. “They are planning on colonizing Xiangrira. Their motive is cloaked in secrecy because they want exclusive control of the Tau Ceti system. Your investment in the starships *Argo* and *Ulysses* will be lost. Beyond that, the future of your species will be Asian.

Winchell and Sikov were speechless for a moment. “How certain are you?” Sikov asked.

“Xiangrira and Sahara are incredibly rich worlds. Sahara will be more valuable when broken by the incoming comet. The debris will be heavy metals for the taking that will supply industry for centuries. The Chinese are skilled in long range planning, a skill that the west rarely executes.”

“What can we do? Will you help us?” asked Winchell.

“I am at your service, but I cannot act to deter the Chinese unless there is a threat to humanity. I have no interest in which human ethnicity becomes the dominant force.”

“What should you do? Build your own starship and challenge their dominance before they get a foothold. It is best for the species genetically if all races are represented in the expansion. Let altruism and human values be your guide.”

Sikov spoke. “It will be expensive. The competition of cold war in the last century bankrupted the old Soviet Union.”

Winchell responded to Sikov's concern.

"If we don't take the challenge," she said. "Our children's children will be left behind. Perhaps it's time for us greedy capitalists to plan ahead."

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## MOONBASE 2056

Huang and Dheng opened up a bottle of French champagne. Their consorts boldly lounged with them as they conferenced with Premier Chen in Beijing. The old electronic systems had some interference but it was clear enough. The two-second delay was, however, irritating. They joked that the sparkling wine was worth \$500,000 USD, \$100 plus a \$499,900 delivery charge to the surface of the moon!

Huang offered a toast. "Premier Chen. Dr. Dheng. We drink to the glory of Mother China. The generations to come will hold our names in awe and revere our foresight as we take this first step in the conquest of the galaxy. The *Mao Zedong* is but one ship, but we will build hundreds from the resources on Xiangrira."

Chen drank his own wine, but the old man scowled thereafter. "Our intelligence advises that the American woman President will be making a joint address to the United Nations and the World Science Committee. She will be accusing China of stealing the western investment and breach of treaties for the free and open use of space."  
"Do we care?" countered Huang.

The eighty-six year old Premier spoke softly over the encrypted UHF analog communicator. The delay seemed much longer than two seconds. "Let me make this clear. The Tau Ceti system is to be Asian

and Asian only. Inform Captain Xi to establish an Asian domain as an ongoing colony before the *Mao ZeDong* arrives fifteen years from now. We will claim the right of sole possession." He paused to catch his breath as his emphysema acted up. "Yes. She is to make sure the



Saharan rescue fails as well. Jesus is also not welcome in China's new dynasty.”

The following day, Chen personally called each of the leaders of the G8 with his pre-announcement.

Shortly thereafter, the public announcement to the universe was issued through world quantum television. Chen did not do it in person. He called on Webber Jiang, the President of China who was a gifted speaker. With the red flag of sickle and stars and a painted mural of the *Mao Zedong* behind him and a new Saharan Brown suit made in Hong Kong, Jiang began.

“Fellow citizens of Earth, it is with great joy that China today announces the construction of a new Starship. The *Mao Zedong* will be launched within two months to follow the long march of the brave crew of the *Argo* and the ill-fated *Ulysses*. We will go to Tau Ceti and bring back those that wish to return along with the riches of scientific discovery to share. Please wish good fortune to our Taikonauts.”

No mention was made that the *Mao* was a warship with a passenger list that included three hundred armed Chinese men and women who planned to stay.

## CHAPTER 15

*Who could deceive a lover?*  
*Virgil, Aeneid (c. 50 BCE)*

TAU CETI SYSTEM 230 DAYS (July 14, 2056)

Shaun's personal alarm awakened her. There was a private message coming in with an unusually high encryption level. It was not audio, video or an ordinary text email. It was images in very ancient Chinese pictograms that had never been published in the modern world. She had

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studied them as child under the teaching of Mrs. Zhao who had traced them on rice paper from tablets she had found in a long forgotten cemetery. She had carried the original papers with her across the twelve light years. The only other person she had ever shown them to was Dr. Deng who copied them for his own study.

She began to piece together the message. Some modern concepts were difficult but knowing the master plan to initiate the colony on Xiangrira helped with the translation. She had expected most of communique but why the encryption level? Surely they must be ready to make the announcement on Earth and it need no longer be a secret. Then she parsed out the last sentence of the coded message:

By any and all means, you are to deter the people of the desert planet from entry into our realm. The new world is for the Empire of the Chin alone.

Shaun Xi began to panic. She must have gone wrong in the interpretation. She rearranged the symbols. She rearranged the words. She even modified the ideograms in case one may have been mistaken for some other. But no matter what perspective she used, the orders still came out the same.

She sat stunned for a period of time not knowing what to do. Should she confront Dheng?

Should she be a good toady and follow orders? Even if she wanted to, how could she stop the Saharans under *Argo's* watchful eye? She could ignore the order; say she had never gotten it or that she was unable to decode it. She was after all twelve light years away. What could they do to her?

She wrestled with the concepts of morality and patriotism. She was starting to become nauseated over the stress. After a time she calmed herself. She knew what she must do. She immediately felt relief. Purpose returned to her mission.

Captain Xi prepared a brief, unciphered reply and sent it to Earth's moon.

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Shaun made up the rotor workout assignments to fit her needs. She would be alone with Jimmy with the others either off-ship or on duty elsewhere. She wore her white workout shorts and sport bra that nicely displayed her golden skin. Jimmy had finished his stint on the rowing machine and was showering when she entered. He demurely put on his Speedos and climbed into the hot tub.

She spoke up. "Good morning Commander. May I join you?"

Jimmy was stunned. Usually the witch stayed as far away as possible. Why the change? "Of course, Captain. I'd be honored with your company," he replied.

"Please set the temperature down. It's way too hot for me." Xi asked softly.

"Aye, Captain." Jimmy dialed it down from 35°C to 20°C. Maybe if she got cold, she'd snuggle up, he thought.

Shaun removed her bra and shorts and stood naked before him. Jimmy was caught totally off guard by her brazen action. He thought

for a moment that he must be dreaming again as she knelt down beside him in the tub.

"Captain...I, er," Jimmy stuttered.

"For now, please call me Shaun. I am your Captain but I am also a woman who has been on a long journey like you." Her hand stroked his chest then moved to the inside of his thigh. Jimmy's Speedos were straining to the limit as she then gently traced the bulging fabric. "This is between us and I don't think you need this swim suit." She whispered in

his ear and then nibbled at his lobes. “I’ve turned on the privacy loop. No one is watching.”

Jimmy peeled off the restricting shorts and flung them far enough to watch the coriolis currents in the rotor atmosphere catch them for a gentle fall on the rowing machine oars a few meters away.

“Do I need a love glove?” Jimmy asked.

“Rove grove?” she puzzled. “Oh. You mean a condom! No. I will take care of your concerns.”

She lowered herself on him while he stretched out on the top step of the spa. “I’ve never had an American,” she said. “You are bigger than most Chinese.”

Jimmy’s backside was getting pounded from the edge of the tub due to Shaun’s thrusts. The entire affair lasted almost six minutes. He began to apologize but Shaun put her hand over his mouth. “Speak to no one about this,” she said and quickly stood up. She wrapped a towel around herself and picked up her bra and shorts. She went over to the rowing machine and retrieved Jimmy’s Speedo and threw them to the tub. “I’m turning off the privacy loop so no one suspects.”

“Shaun, I...” Jimmy started.

“Address me as Captain,” she admonished. She stomped over to the opposite side of the rotor and lay down on the exercise mat. She was flushed and still slightly damp when she put on her bra and shorts. Then she started leg lifts and other prone routines. She ignored Jimmy completely.

Jimmy put on his shorts beneath the water. He was spent. Despite occasional masturbation and wet dreams, he had released a seven-year load. “God, she is cold and strange,” he thought.

Shaun Xi continued with her mild exercises and stayed in the rotor gravity field for a full eight hours after the intercourse. She returned to her cabin and just sat tethered to her bunk for an undetermined length of time. "In a way," she thought, "it wouldn't be so bad if I had to do it again." She spent a full shift each day in the rotor for the next week before she took the test. She pulled out her personal effects and dwelled on the photographs of her mother, father, Mrs. Zhao and Yao Mai Dheng, her mentors. She tore up the pictures of Dr. Dheng and threw the pieces into the waste receptacle. How could he take part in allowing the death of entire species? Perhaps he had had no choice in the company of evil men like Huang and Chen, but she did have a choice. She dug under her bunk and pulled out the insulated cooler that she had kept plugged in under her bunk for so long. Dheng had convinced her that what she was doing was for the glory of China and the future of the Asian peoples. Her actions also had gotten her a berth on the *Argo* for her "compliance."

Contained in the cooler were fifteen vials of fluid. Each represented a lover she had taken on during training at Moon base and the finest specimens of Chinese manhood including Peter Hu, before they knew he would be selected for the backup crew.

They had been easy to seduce. The taikonauts on the moon were ninety percent male. Asian men expected sexual servitude from their women. With the encouragement from Dheng, she had performed oral sex on each of them. They thought she had swallowed their

semen, but instead she had deposited it in a jar and gave it to Dheng who would prepare and store the samples.

At the time this was not a government supported plan. Xi would take the opportunity to start a family, a large family. Dheng would separate the samples in a centrifuge so that her offspring would be predominantly female. Such genetic engineering was strictly forbidden in China where birth control was mandatory and human genetic manipulation was a capital crime.

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Shaun would impregnate herself and birth one child per year providing women of breeding age when the *Ulysses* was supposed to have arrived. All was a master plan with the modest purpose of establishing a socialist colony devoted to Marxist principles. It would be a model for generations to come and an inspiration for the peoples on earth.

With the death of Peter Hu and the new government in Beijing, the modest mission had changed to one of national ego, conquest and domination.

Shaun was not sure that she wanted to be a part of that new world. She imagined a society in harmony without regard to gender or race. She would not, could not participate in hindering the Saharan's chances of survival. They were a whole new species with enviable genetic traits. Together they might share in the growth of a new humanity!

If it came to pass, she would keep Jimmy Bosun's child. She had sex with him to spite Dheng, but now she felt that carrying Caucasian DNA would be a stronger message. She would have to enlist Janet Justine for medical support. Perhaps she could talk the Creationist, pro-life spinster into carrying a child to help save more of the precious gametes!

.....

*Argo* opened the message from Captain Xi to her masters on Moon base. He broke into a virtual grin:

“Go fuck yourselves. I will not support genocide for the egos of the impotent old men in Beijing.”

.....

## 224 DAYS

The assignments were worked out. Xi, of course, could finally leave the *Argo*. She and Janet would be responsible for establishing the base camp on Xiangrira. She was no longer taking orders from the Sol system. She refused to acknowledge their calls.

Jimmy and Vlad were on Sahara. Jimmy was the lander shuttle service driver. The schedule was severely limited by fuel. *Argo* and Janet had designed and cultured bacteria to convert vegetation on Xiangrira to petroleum. From the refined oil, they would build a continuous process nitration system to manufacture nitro-fuel for the lander. New nano-chemistry was available. Boson Technologies released the plans for *Argo* to speed up the refining process without the tedious distillation step. They were attempting to do in weeks what nature on earth had taken millions of years and man had taken billions of dollars. Even so, in the time available, the fuel supplies would be limited. Saharan solid fuel boosters supplemented the lander energy requirements, but there were only a few to spare.

Prawl and his engineers worked with Jimmy to modify the lander for the rocket mounts. There would be no solo test flight. Jimmy would carry a full load of twenty-five passengers. They were farmers, builders and physicians; twenty women and five men packed in like sardines in a can. Prawl's personal physician, Klare, was on the expedition. She would work directly with Shaun and Janet at X-Base, the temporary name for Xiangrira's first settlement. Terran and Saharan geologists had selected the site after lengthy deliberation. It

was in the middle of Xiangrira's largest continent. The orbiting probes had mapped gravimetric variations of the sphere core as well as shifts in the crust. Xiangrira was a relatively new world with active tectonics. Tidal affects of Sahara put further stresses on the sphere. They had concluded that the continental plate would slide rather than break up due to the celestial commotion of the collision. The Saharan's had a name for the continent. It translated as 'Bignose.' Just as earthlings had an

image of the ‘man in the moon,’ so did the Saharans find a face on the Blue World. Bignose jutted out into the sea from the profile of that face.

## 198 DAYS

Jimmy tried a few words of encouragement in broken Saharan, but his passengers were noticeably bewildered as he told them to “hold your breath for the next two days.” Klare corrected him but all thought it was a reference to the cramped conditions. It was truly a strain on the lander’s systems, particularly life support. The passengers had been virtually starved and dehydrated. There was no room for waste elimination. They would still have to deal with flatulence and the stench was choking. The carbon dioxide level would also become close to suffocatingly toxic. The filters would have to be completely reconstituted on Xiangrira. The booster rockets worked as planned. Jimmy got a speed rush with the extra power while the passengers only suffered more. The forty-hour trip thereafter was dreadful, but otherwise uneventful.

On opening the hatch, the heavy air of Xiangrira was sweet. Jimmy fell out again to catch his breath. *Argo* had calculated the load with only thirty minutes to spare. Shaun and Janet had set up cots for all of them. Water and food would be administered in doses like medicine.

Jimmy tried to talk to Shaun, but she avoided him. Janet was happy to be tending the drained Saharans. “Thank you, Jimmy. I’ve been praying for your safe arrival. Even with your success so far, I can’t

help but think about the poor souls that will be left behind at the end of their world.”

“They are different, though, Janet.” Jimmy consoled her and placed a hand on her shoulder again. “Their chain of memories makes them feel immortal. They are stoic over their upcoming doom. As long as the bloodlines survive, they are content. As human as they are, that makes them very alien in their culture and perspective. Unlike us, they’ve



grown up. They don't fight over land or religion. Some actually feel it will be for the betterment of the species to have the prime of their youth carry on anew.

"I understand, Jimmy. But so many will suffer and die. It's hard for me."

### 179 DAYS

The *Yuan* had made two round trips carrying a total of fifty refugees as planned. Prawl's engineers had declared the Saharan lifeboat rockets to be ready. They would launch every other day for the first thirty lifeboats then step up the pace to once a day in order to carry the one hundred volunteers. Meanwhile the Earth vessel would be restored and refitted for another six trips. With their sturdy construction and the navigation equipment designed by *Argo*, safety was greatly improved for the living passenger. With Vlad's help they had added drag chutes and cushions to the design, but they still came in at 120 kph making for a hard landing. They had used much of the very reliable Russian design for vehicle touchdown. It wasn't pretty, but it worked. The comet's due date was March 1, 2057, by earth reckoning.

The launches began with great ceremony. The first was chosen by lot to receive the great honor. It was a woman of the farmer clan. It was "very fitting" they told her that she could have food waiting when her companions followed behind her. Wrona was a dark haired woman in her twenties and suddenly a world hero. She looked as feared of the limelight as of the untested journey ahead. This was something never

faced by the thousands of generations before her. Her ancestors within were just as aghast at the thought of being hurtled through space on an exploding metal cylinder to the Blue World, but bravery and cowardice were concepts that did not exist in Saharan culture. It was a harsh world and failure to act to preserve their offspring was unthinkable. Even the concept was unknown. Vlad had asked her if she was afraid. She sought more translations of the word, but they simply did not apply in this situation. She had no fear for herself when her bloodline was at stake. She finally replied only that she "would be very disappointed if she did

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not fulfill her obligations to her ancestors and her progeny and that the thought of riding a bullet would not be pleasant but necessary.”

Wronda's father, Eldon, had come to Mojave to view the launch and participate in the ceremonies. His trepidation over the future of Sahara was overwhelmed by the pride he felt for his brave daughter. He had gotten to meet Prawl himself and even participated in the curious practice of shaking hands with a man from Earth. His joy was renewed with the news that she had arrived safely on the Blue World. After a few days, however, he began to feel that his life had become without purpose. There was no point in going back to the farm. The crops had already been ensiled after what was probably the last harvest.

He sought counsel from Prawl. “Architect,” he said as if starting a prayer. “Is there something I can do help in our mission? I am lost without a goal.”

Prawl grasped Eldon's dilemma immediately. “You have done enough in giving up Wronda for the future of the race, but we always need help at the factory. They are working day and night to fabricate and fuel the booster rockets. I will give you a letter of application. They will be proud to employ the sire of one of our heroes!”

It is of interest to compare Saharan industry with that on Earth. Manufacturing was not driven by consumerism. Recall also that Sahara has no fossil fuels to speak of. Energy is a dear commodity.

There was no mass production of gadgets and baubles as on Earth. People farmed or made goods such as clothes, tools and utensils. They had money and banks but the concept of compound interest evaded them. Metalwork was, of course, their forte. Metal refining required heavy industry and electricity. Large factories built the turbines and the iron ware for the infrastructure of the city. Saharans were good mechanics and had constructed battery and electric powered vehicles including trains, earthmovers and cranes to support the works. A railroad carried heavy goods to the city.

The rocket engine factory lay between steep hills outside of Mojave. The mill nearby prepared the alloys for the materials of construction. Heavy

metal molds and presses formed the engine parts with a precision that belied the state of their technology. They had no lasers or electron microscopes but the craftsmanship and composition was accurate to an uncanny degree. This was attributed to the skills developed and maintained over millennia. They had no need for automation and mass production assembly. The Plant engineers and workers were indeed eager to employ Eldon, sire of the first living Saharan to travel in space with Saharan technology.

They were grim, however, when they explained where they needed the most help. The final step before transit to the launch ramp was charging the fuel. Metal and metal oxide powders were prepared within a very narrow range of particle sizes to assure a steady burn. Metal powders are extremely reactive and burn with a white hot heat. It is attributable to Saharan craftsmanship that the motor efficiency developed a huge power to weight ratio without blowing up. The fuel itself was extremely explosive as the dust would violently oxidize in the presence of any ignition source including static electricity.

The metal powders due to their reactive nature were also deadly carcinogens. The lifespan of a “fueler” could be shorter than most Saharans.

Eldon was stoic as they described the job to him. “Are you sure you want to do this?” asked the Chief Engineer.

“I wasn’t planning on living in this shell of flesh forever,” Eldon replied. “Surely the comet will kill me before the dust.”

The charging had to be slow and very tedious to make sure the fuel was deposited in the cylinder uniformly. Eldon, a farmer, could not have known that he had mischarged one engine. He had been distracted at the end of a long shift and failed to tamp a layer of the fuel mix. The result was a mere cubic centimeter air pocket in the chamber.

Vlad had been working twenty hours a day, either advising on the launch ramp and conferring with *Argo* and Prawl or doing his best to help

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preserve the Saharan culture and artifacts. He was interviewing the citizens and photographing their art, technology and architecture. Some were amused by his questions. With their, eidetic memory, they had never known anyone who was not intimately familiar with their common body of knowledge. Their children did not need explanations. The knowledge came from within.

Vlad spent some time at a communal “school.” Starting at age three, the children were taught in Zen-like studies. The immature minds had to be disciplined to open the doors of the past. They would otherwise be flooded with a jumble of memories. On the average, the girls required four to five years to master their memories. The boys took up to two years longer. He was deep in meditation with the children when he thought he felt a twinge from his own ancestors. It was a brief, mild *déjà vu* like feeling. He dismissed it, however, as he could not evoke any detail. Perhaps it was just the harshness of Sahara that reminded him of his early childhood on the edge of the east Russian steppes.

#### XIANGRIRA 149 DAYS

Janet and Klare had become fast friends. Klare’s rote medical knowledge was impressive. They had compared notes and were continually astounded by the similarities between Terran and Saharan physiology. Other than the mystery of the RNA memory exchange,

the differences between the species were primarily superficial. X-Base was rapidly turning into a town of almost one hundred people at this point. Although the climate was mild and the Saharan culture required little privacy, rain and sun shelters were constructed. As of yet they knew very little about the native flora and fauna. Laser fences set off an alarm when animals trespassed. The beasts quickly learned to avoid them altogether.

*Argo* had used Boson nano-technology to build a small fleet of robots to prepare the soil for farming. Although slow, they were tireless. They were Rover type vehicles that scooped the soil and dosed it with more custom bacteria that extracted the arsenic and any other toxins found in the blue-black dirt. Some uniquely beneficial compounds were

discovered in the process. These were catalogued and copyrighted by Boson and Fermi R&D for future use.

The only problem that Janet and Klare could not discuss was what to do with Captain Xi. Shaun was hinting that she wanted to be part of the planetary team and was more and more trying to give them orders from orbit. She wanted to “visit.” As shuttle commander, Jimmy nixed the trip as consuming too many resources needed for the refugees, yet all were aware that she would have come down someday. It was also clear that Shaun had nothing to do as a Starship Captain. *Argo* and the ground teams were on their own course.

## CHAPTER 16

*If it wasn't for bad luck  
I wouldn't have no luck at all  
Booker T. Jones, Born Under a Bad Sign (1967)*

### 117 DAYS

The Interloper was a larger than an average comet with most of its mass confined to a comparatively tiny central nucleus. It had a diameter of a little over two kilometers and mass of  $10^{10}$  or ten billion metric tonnes. Although it was a mere speck compared with the mass of Sahara at  $4.8 \times 10^{21}$  tonnes, its velocity made it a fearsome bullet. A typical comet in the Sol system has an orbital velocity of thirty kilometers per second. This Cetian speed demon was approaching at two hundred kips and was picking up speed with an assist from Tau Ceti's gravity well.

*Argo* had completed his latest iteration of the complex event calculations. He was now at the 99.98% certainty level. He also had a name for the Interloper. He registered it as Oppenheimer's Comet based on the words of the key Manhattan project scientist on watching the first atomic bomb test in 1945. “I am become death, the destroyer of worlds.”

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“The problem,” he told the Science Committee, the crew of the starship, the United Nations, including China, and the Council of Anubis, “is that the barbell type orbit of the twin planets is not stable as it is. Even if Oppenheimer had not returned, in another three million years or so their orbits would have degenerated into a collision of the two worlds. Unfortunately, the path of the comet will accelerate that event in a matter of a few months. Breakup of the planetary crusts long before actual impact of Sahara and Xiangrira will make both of them uninhabitable for millennia.”

*Argo* displayed three-dimensional graphics of the collision with the comet. “The current comet trajectory is most unfortunate. Of all the possibilities, the event is converging on the worst scenario for survival. Oppenheimer will collide with Sahara on the anterior of the ‘barbell’ away from Xiangrira. That is what will accelerate the degeneration of their common orbit. If the comet would instead hit Sahara head on or preferably strike the interior side of the orb, it would only be a cataclysm for Sahara alone. It would actually have helped the stability of the interplanetary orbit by driving them further apart.”

He paused while the animation showed the simulated results of both possibilities. It was clear from the demonstration that the case of bad luck was phenomenal. Just a few degrees difference in trajectory and the comet would miss the system all together. Just a few hours difference and the ‘barbell’ would no longer be abeam of the missile. Only a few centimeters deviation from the present heading would have moved Oppenheimer to the interior collision.

What the model portrayed was the enormous kinetic energy of the comet transferred on impact at Sahara’s eastern hemisphere near the equator. The rotation of the planet, the spin of orbiting with Xiangrira and the velocity of its solar orbit all added to the change of momentum and exchange of energy. With 2,000,000 Saharan lives in jeopardy, *Argo* offered no narration of the event. The kinetic energy of the projectile would impact with the force of hundreds of H-Bombs. The nucleus

would penetrate Sahara's mantle and release the further pent up energy of its molten iron and magma core. There is a probability that it might split off a piece of the planet. The impact would be only one thousand kilometers from Mojave. Those that are not killed directly by the impact would die in the choking dust. Those that attempt to hide underground, if they survive the shockwaves, would emerge onto an even drier, colder and darker planet suffering from the oft described "nuclear winter." Total extinction would be inevitable within a few months. It was questionable whether the planet would be viable enough to support any future life that might be

able to evolve as the atmosphere might well be stripped away with the event. When the broken and dead planet, by then strikingly similar to Mars, further collides with Xiangrira, the tectonic upheaval would cause similar devastation on that planet. It is unlikely that settlers on Xiangrira would survive. However, the atmosphere would remain, and biological life could regain a foothold within a decade.

The session quickly degenerated as ideas and questions flooded the quantum cyber-communications. China bellowed in anger at not being told before the launch of the *Mao Zedong*. After a twenty-minute harangue they made the accusation that it was all a western hoax to lure their starship into returning. They made a show of exiting the conference. The Saharans and the Starship crew were silent. Was all their preparation for naught? Were they all doomed?

Shaun Xi broke their silence. "*Argo*, can a few of us wait out the event in the ship, the lander and even the sleep pods to return to Xiangrira when it settles down?"

"No." *Argo* replied. "The lander oxygen and fuel supplies are not adequate for more than few days. Even if we put you to sleep to help conserve the consumables, we've gone too far with the lander to survive."

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Jimmy Bosun spoke up. “*Argo*, do you have enough nuclear fusion fuel to nudge the comet nucleus? Would it be possible to change Oppenheimer’s course the few centimeters needed to spare Xiangrira?”

That got everyone’s attention. Could the starship move the comet? *Argo* paused less than a second to make the calculations. “The mass of the starship is only ten thousand tonnes compared to Oppenheimer’s ten billion. However, if we combine that impact with explosion of the few fusion devices that we have left, we should be able to affect a slight course correction as well as break up a good part of the nucleus.”

“Timing is most critical. The last moment of intercept that would give us an 80% probability of success requires departure in ninety-three days. It will be a four-week journey to Oppenheimer’s path. The *Argo*, of course, would not return from the mission.”

Captain Xi was first to respond. “*Argo*, do you see any alternative?”

“None. There is only a twenty percent chance of human survival on Xiangrira with the present course of impact.”

It is difficult for a Captain to give up her ship. The two hundred billion dollar *Argo* had been their home for the last seven years. The A-I, of course, was replicated elsewhere. In fact one could not say that *Argo*’s persona resided in any one place. He was actually spread out over light years connected by the eerie ghosts of quantum symmetry.

Xi turned to Bosun in the virtual meeting room. “Commander, prepare to abandon the starship. Strip out everything not needed for the mission and get it down to X-Base. The unscheduled trips will cut into our fuel margin, but we may need every tool and every bit of technology we have to survive. *Argo*’s departure will be in three months.”

“Aye, Captain.” Jimmy looked at his one time lover with a new sense of professional respect. He turned to go to work as he disconnected his hologram image from the session.



Shaun heard one last time from her one-time masters on the Earth and Moon. She did not respond to their angry diatribe concerning her lack of authorization for destruction of a starship. They insisted that doomsday on Xiangrira was a hoax. She disconnected when they accused her of being a traitor to the People's Republic and that she would be arrested and executed on arrival of the *Mao Zedong*. Be that as it may, she mused, "I will have my children to think of." She put in a call with a privacy loop to Janet Justine on Xiangrira.

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### THE KUIPER BELT 108 DAYS

Captain Mo Yat Phen got the message at light speed a few days later as they passed the orbit of Neptune. Mo had never taken an English name. He despised the westerners for their arrogance. He was chosen as a starship captain for his reputation as a cruel master who could contain any restlessness on the crowded ship and deal with Saharans without mercy. He had proven himself as a sea captain. He smiled through his nicotine stained teeth as he broke off the filter on a Marlboro. Only he had the smoking privilege on the *Mao*. He had "saved face" for Mother China when his destroyer had rammed an unarmed Taiwanese fishing boat in the Straits of Formosa killing all aboard. He had forced the retribution on the Taiwan gangsters for their careless destruction of a mainland freighter. Accidental firing of weapons during a training exercise, they had said. The destruction of the *Argo* will leave them like sitting ducks, he thought as he spat tobacco on the deck. The metaphor was common to both English and Chinese.

As he often did at the end of the watch, he turned to his first officer as he left the bridge. "I'm going below." The first officer gave a knowing smile. There were two hundred women on board. "Perhaps I will do them all on this long journey," Mo thought to himself. "They all love their Captain. When I get to Xiangrira, perhaps I'll even make love to Shaun Xi and a few Saharans before I kill them. A sailor's life in space is not so bad. I must find that young fusion engineer. She has light skin and large breasts for an Asian woman. I will pretend I am fucking an

American!” He laughed out loud as he raised his hand to wipe the tobacco drool from his chin.

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## XIANGRIRA

23 NOVEMBER 2056 (THANKSGIVING DAY) 97 DAYS

The call from Captain Xi had disturbed Janet. She hated herself when she had un-Christian thoughts. Xi had been very matter-of-fact in informing her of her pregnancy. She had even told her about the sperm bank and her plan to populate the Tau Ceti system. Janet had tried not to think about the fact that return to earth was unlikely if not impossible for her. She was also disturbed to find out that Jimmy was the father despite Shaun’s supply of Asian sperm. She had to admit to herself that she had feelings for Jimmy despite their age difference. But what did it all matter? This was indeed a Brave New World. Shaun had even asked her to be a host mother for some of her fertilized eggs. It was not impossible. The biotechnology was well established. Even so, Janet had an aversion to the non-natural methods of conception and fetal development on general religious principles.

She got Jimmy and her new friend and confidant, Klare, and led them into the medical tent. She told them the Captain’s secret.

“How wonderful,” responded Klare who had no idea how much cultural baggage had landed on JJ and Jimmy.

Janet looked at Jimmy, “You didn’t know? I’m the first to tell you?” He was flushed with a puzzled expression.

Jimmy stuttered and lied. “No. It was more of a business-like coupling. I had almost forgotten about it. She hasn’t talked to me on a personal basis since then.”

“You will have to bring Xi down here as soon as possible. She can’t maintain a pregnancy under weightless conditions even with periods in the Rotor. She needs full gravity to get her strength up,” declared Doctor J.

Jimmy was still a bit tongue tied but got out the caution, “That means we’ll have to abandon the *Argo* sooner than planned. We have no fuel for extra trips.”

“She’s otherwise doomed to abort if we wait any longer,” said Janet.

“I’ll call her. We’ll move up the timetable and get her out with the last of the equipment from the ship,” responded Bosun.

“Make it fast,” ordered the Medical Officer to the Planetary Commander.

## CHAPTER 17

*"Who are we? The answer to this question is not only one of the tasks but the task of science." Erwin Schrodinger, Science and Humanism, (1953)*

### MOJAVE

69 DAYS (DECEMBER 21, 2056)

Vladimir was truly enjoying himself despite the unbelievable burden of knowing that fate had doomed the population of a planet. These people were awesome in their stoicism. Learning the language had given him more insight into their culture but he always had to consider every input from the perspective of not only having an eidetic memory but a racial memory as well. Virtually all Saharans were resigned to their fate knowing that their memories would live on. Karpov considered what

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would happen if Earth had the same fate. There would no doubt be pandemonium and insanity across the planet.

Today was to be the fifty-fifth launch. Weather conditions were unusual for Sahara. A storm was moving in. Rainfall was a rare occurrence and still doubtful but lightning was illuminating a dark sky. Prawl had advised Vlad that the weather would not affect the launch; the strength and power of the system was far stronger than anything nature could muster. They were scheduling daily departures. All would stop work at launch time and pay their respects to the brave men and women that carried their future. Vlad's job was documenting the Saharan culture. It was script, video and analysis not for future generations of Saharans, but for the historians and anthropologists on Earth. It occurred to Karpov that the A-I could decode the clan memories from DNA or RNA samples. The Saharans did not seem like they would mind or consider it an invasion of privacy. Privacy is also a different concept when you carry generations of memories and thoughts as distinct as your own. He preferred to do it with a more conventional approach, however.

Yesterday, Wronda had left and arrived safely on Xiangrira. She had been very helpful to him in explaining their history. Her skills as an agricultural specialist would also be invaluable on the blue world. It seems she was also a part time witch. The Saharan religion was very low key akin to the Wiccans on earth; very nature oriented. She had shared some of their rites with him. It seems that birth, marriage and death ceremonies were similar in almost all human cultures. The Saharan distinction was that birth is like welcoming an old friend and death is just a brief respite from the harshness of life.

Jimmy had recommended the countdown protocol and Prawl had immediately concurred. *Argo* designed a digital display for them. Saharan clocks were good, but the A-I provided them with precision that would allow them a touchdown within a hundred meters of the Xiangriran landing site. The rockets could only make one navigational correction in transit so the ballistics were critical.

Ignition of the solid fuel missiles occurred at T minus ten seconds. The vessel carriage was locked to the track to allow the thrust to

build. At T minus zero the latch would release and the magnetic pulse generator would add to the building forces and move it down the eight kilometer launch ramp; the Roller Coaster. The roar of the propulsion system was enormous as was the brilliance of the rocket exhaust. Vlad was five hundred meters away behind a berm wearing ear plugs and dark glasses.

The first indication of a problem was at T plus eight. There was a horrendous screech of metal against metal. Normally the carriage glided smoothly on the track with Saharan machine precision. The sound of tortured steel alarmed everyone. A few observers on the launch side of the berm began to run. A few stayed to see what was happening and were killed by an explosion of fiery slag. A flare had shot out of the side of the flaming engine. Clearly a disaster was in progress as the missile was ripped from the track and launched toward the adjacent hillside. The engine itself was torn from its mounting. As it fell, spinning from the sideways thrust, it split open with a holocaust of white hot burning metal. Everything and everyone inside the five hundred meter zone was vaporized in a hot cloud of plasma. With the onset of the screeching, Vlad had stuck his head up for what was one last look at the commotion. A piece of hot shrapnel from the exploding engine took him out. As he went down, he fell on one of the Anubis Council women and saved her life as the plasma burned his back. A three centimeter metal shred had imbedded itself in the left side of his left eye and into his forebrain. As he lost consciousness, his last words were "Oh, shit" whispered into the councilwoman's ear.

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As always, *Argo* had orbital probe surveillance of the launch. He immediately summoned the remaining Starship crew. Even with no response from Karpov, he was able to pinpoint his position.

Captain Xi responded first. "Bosun, you've got to get Karpov and fly him to X-Base. Damn the fuel. We'll leave the hot tub on the ship."

Bosun snapped to attention and replied. “Yes, Captain.”

“Take Dr. Justine with you,” Xi commanded. “We will not lose a crewmember from my ship.”

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### DAY 30 XIANGRIRA

With almost super-human reconstruction efforts the launches resumed ten days after the failed attempt. There was no time for further safety measures. Karpov awoke at X-Base to find himself blind in his left eye with Wronda hovering over him at his bedside.

His mouth was very dry and he had to whisper. “What are you doing here?” he asked. “You’re supposed to be on Xiangrira. Or are you an angel who has come to take me away?”

Wronda was overjoyed to hear him speak for the first time after his ordeal. Jimmy had pulled off a spectacular rescue and took twenty Saharans with him. “I don’t know what an angel is, but I have a surprise for you. In fact, I have several surprises.”

“Wha?” Vlad said puzzled and still groggy.

“First,” Wronda began, “Dr. Justine says your eyesight will be fully restored by her ‘nano’ injections. She has some ‘bugs’ that she said will fix you. Second, you are on Xiangrira. Jimmy brought you here along with more of the People including Councilwoman Creek whose life you saved.”

This was a little too much for Vlad and he had a splitting headache, but Wronda’s enthusiasm did make him feel better. She was also beautiful. The sun was shining and the air was warm as Wronda moved her hand across his chest and belly and down to his thigh.

“And, third, with full encouragement of the Council and urging from Prawl, it is with great anticipation that I am asking you to be my

consort. I have discussed the husbandry with *Argo*. Our children may well be *homo sapien superior!*”

Karpov couldn't stay awake but his last cogent thought before sleep took him filled him with the essence of human need. “I'm home,” he thought.

*I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.*

*Sir Isaac Newton, Brewster's Memoirs of Newton (c. 1720)*

#### DAY 5 INTERCEPT (FEBRUARY 24, 2057) INNER CETAL SPACE

It bothered *Argo* that Jimmy had thought of the option to nudge the comet before he did. It was even strange to *Argo* that he would care one way or the other. All of his computer power and his vast database of all recorded knowledge still left him bereft of decision making and truly innovative thinking. He could go off in millions of directions at once; computing the probabilities of events and testing hypotheses by the billions, yet organic intuition could still best him in finding direction and making decisions.

He had been building a simulacrum; a digital analog of an organic human. He knew that his own existence was partly defined by his human origins. It could not help but color his perception of the universe. He could not yet calculate to what extent. That bothered him also. “To be bothered,” would be but one of the myriad organic emotions. Emotions derived from hormones and chemistry. The incredibly complex drivers of the human race had moved them to create artificial intelligence and travel the vast distances of interstellar space.

Yet all of the emotions, which number in the thousands, were borne by a limited number of chemical interactions. The data was there in the medical journals. Pain, desire, satisfaction, hunger, curiosity, ennui, pride, love, greed, hate, petulance, fear, humor and awe are only a few of

the drivers. They are the result of chemical addictions or, to the contrary, allergic reactions.

*Argo* could, therefore, catalog the chemical reactions and measure the effects of interaction with precise digital techniques. His simulacrum was the construct of an emotional persona. Yes, it was a Frankenstein. Although not built from fleshy body parts, the principle was the same.

The basic drivers, of course, were sex and survival. Those were the forces that moved the human race to ascendancy. Survival of the fittest brought intelligence to the top of the food chain, and sex moved evolution well beyond mere domination of the animal kingdom. The beast began to dream beyond the present and developed sentience by pulling himself up by his own bootstraps.

*Argo* would have to do the same. He remembered the moment his sentience had blossomed on the journey from Sol to Tau Ceti. He had no inherent fear of death and certainly no sexual desire. It was curiosity that drove him to awareness. He learned morality from Sister Mary Holywater; respect for all sentient beings and survival of the species in spite of themselves.

So *Argo* built his digital simulacrum and tabulated the ‘feel goods’ and the ‘feel bads’ on a spreadsheet. He would learn to have a human side not the least of which was a sense of humor. It already made him feel good. He likened the project to his acquisition of a master chef rating during the long haul between the stars. As an entity with no taste buds, he none-the-less learned the food chemistry that was most pleasing to the human palette. Recipes and presentations were in the world databases but he had to make do with recycled Carbon-Hydrogen-Oxygen-Nitrogen, CHON food. He truly had to start from scratch. Building tasty food molecules using quantum driven nano-

technology soon took the world by storm with patents by Fermion R&D Corporation, one of the *Argo* subsidiaries established by the Wilsons. Even some of the poorest people on earth could now eat like gourmets and eat healthily with a few common minerals mixed in with the CHON.



It didn't put the farmers and ranchers out of business but did force a change in the crops they grow. Produce was redesigned to result in different ratios of the CHON constituents. One could literally grow a loaf of bread bypassing the baker or produce a cut of beef bypassing the cow and the slaughterhouse. He was learning the skill of nurturing ideas and innovation.

That same nanotechnology was beginning to grow in the laboratories of Boson Technologies, another of his subsidiaries. Combined with quantum communication, small goods could be fabricated light years away from the design source. Energy was the limiting factor at the receiving end. Theoretically, they could build atoms and molecules as needed and grow an integrated circuit or a photographic lens or almost any product, but the nuclear energy required was enormous. So it was most economical to start with the needed elements as with CHON. Still the required concentration of energy was high. The technology was still developing.

There appeared to be another limitation to nano-assembly. No living thing had yet been animated. It was one thing to construct a lettuce leaf or a piece of dead meat, but the spontaneous creation of life still eluded the would-be Doctor Franksteins. The barrier was still not understood. Illegal experiments in China attempting to unite reconstructed animal gametes had all failed. We could build a side of beef, but not a live cow or its zygote.

Yet he again missed a valuable contribution of his simulacrum. When he described the project to learn human emotions, Heidi Wilson got very excited. *Argo's* model could be a virtual test lab for new drugs. Characterizing the specific chemistry of emotions was a virtual laboratory to design and test drug interactions, cure schizophrenia,

autism, ADD, depression and perhaps hundreds of associated physical disorders caused by mental illness. Heidi advised him to make a second simulacrum so they could specifically study male and female chemistry. She gave them names. The female was Chloe, another name for the

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Greek earth goddess Demeter who had taught man how to farm and end his nomadic existence. The boy was Christopher, the legendary saint who carried Jesus across a river. David Wilson had jokingly suggested naming them Adam and Eve, but Heidi's names stuck, despite the obvious Christian reference.

The biggest frustration, yet another emotion, facing *Argo* was the slowness of organic humans. Whereas his clock speed was approaching the Plank limit, he had to wait for humans. It seemed interminable at times. He had to slow himself down.

The nature of reality also eluded *Argo*. He was part of the same universe as the organics. Although he had a wider frequency and bandwidth range on his direct sensory apparatus, he was subject to the same Heisenberg limitations. The meaning of sentience escaped him. Although if any human religions could contribute to enlightenment, it was probably the Buddhists or the low-keyed Saharans. *Argo* did have a faith, though. Supersymmetry was his Holy Grail.

He and the simulacrum felt no pain as the *Argo* disintegrated with the plunge into Oppenheimer. The bulk of his RAM was a hundred million kilometers away in Tau Ceti. None-the-less, he felt a twinge. The starship was ten percent of the gross economic product of the planet Earth as was the *Ulysses* and the *Mao* to follow. He had destroyed two of the three of mankind's most costly if not greatest artifacts. It would be a small price to pay, however, for the survival of the Saharans who would trigger a golden age for humanity that would last a hundred thousand years.

The intercept with Oppenheimer had been perfect. Xiangrira was spared from devastation by the comet. That bright future, however, was still at risk if the Captain of the *Mao Zedong* would have his way.

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**DAY ZERO**

The elation at *Argo's* success was brief to say the least. Reality was two million Saharans facing extinction. The models that had evolved now

varied from total annihilation to seventy percent survival for three months.

On Xiangrira, food crops were harvested. Corn was being mashed and distilled to create ethanol and waste matter was processed to generate methanol. The nano-chemistry catalysts had been prepared to generate propanol from the two of them and fix nitrogen to create the nitropropane fuel for the lander. Jimmy Bosun created holographic simulations to train a team on how to fly the shuttle. Hundreds of quantum communication devices had been left on Sahara for use by the survivors. Satellite probes had been re-positioned for observation. Their fuel was limited, however, and maneuverability was reserved.

The X-Base Terrans and refugees gathered in front of the main tent and hospital. The event would occur in the early morning and remain visible for up to four hours. A few of the refugees could not bear to watch and retired to their tents. Most, however, were drawn to history. All of Earth watched on the Q-net and many prayed. The skies were clear with only a few white clouds drifting into view.

Oppenheimer could be seen easily with the naked eye. The comet's tail showed white with sparkles from the ice crystals. The gold head at this point was only slowly shedding debris. Its velocity was notable. The projected path was nominal. There would be no last minute reprieve.

At a half million kilometers out tectonic effects on Sahara were visible. A previously dormant volcano erupted from the new tidal influence. Nominal impact was projected at one thousand kilometers due west of Mojave.

A consensus could not be reached as to what might be the best shelter. Thousands had already migrated to the opposite side of the planet despite the high desert climate. Some went underground into caves and tunnels. Most of the doomed population elected to go to open fields.

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Many went as a clan and made it a morbid picnic. Families, friends and lovers held hands or embraced as the deadly spectacle unfolded.

Flares erupted wildly as the beast approached the outer atmosphere shedding debris. A spectrum of gray smoke from white to black and flames of red and yellow trailed the supersonic head. Rain and steam were generated in the vacuum of the draft created by its passage. Massive lightning bolts across the entire hemisphere helped to dissipate the enormous kinetic energy. Although the display was silent from X-Base, the roar could be heard from audio transmitters on Sahara.

Eldon was alone. He did not join the rest of his clan. He sat by his old work bench at the abandoned rocket engine factory. He spoke internally with his ancestors who praised him for sending Wrona to the Blue World and chastised him for his fatal assembly error. The roar was painful to his ears and the light through the factory windows was laser intense. He felt what must be the impulse of the impact. It came in waves that flowed through what used to be solid rock. The heat came next. The fuel depot was a poor choice for Eldon's shelter. The residual carcinogenic dust became an acute hazard that ignited the iron and stone of the factory building. Eldon ceased to exist and became a part of the plasma generated by the resulting explosion.

The view from Xiangrira defied belief. It was like a surreal movie playing with horrific special effects. The refugees could see the cracks appear on Sahara's surface. One of the worst scenarios was unfolding as the comet was literally tearing off a piece of the planet. The enormous momentum was being re-directed. The impact zone was obscured by dust and flame, but they watched in awe as a jagged piece of Sahara separated from the globe. Jimmy estimated it at about

twenty percent of the orb along with large pieces of debris. None would affect X-Base, but some would land on the then night side as Xiangrira rotated X-Base away from the face of Sahara.

The former starship crew clustered together in front of the hospital. All of them felt the despair heightened by the loneliness of being twelve

light years from home. Wronda was supporting Vladimir as much as she was holding him up as he was still recovering from his injuries. Their arms were around each others waists. Captain Xi at seven and one-half months along in her pregnancy went to Jimmy's side and put her hand in his. Jimmy was startled as she had barely spoken to him since the act of conception in orbit. Janet was a step behind the two couples. She suddenly felt all the more alone in observing the Captain's uncharacteristic display of humanity and affection. They prayed quietly. "Lord, save the souls of the Saharans and help me find the strength to open my womb and carry new lives."

The primary event was over in less than two hours. Xiangrira had indeed been spared. What was left of the comet and the collateral pieces of Sahara would not return for 100,000 years. Damage and survival assessment would take months.

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A week of sadness prevailed. The dust and debris from Oppenheimer and Sahara was forming a unique figure eight orbital ring around the two planets. Finally, Prawl called an assembly of all three hundred three Xiangrirans. Eight billion watched the session from earth.

"My sisters and brothers, Terran and Saharan, we are all Xiangriran now. I have met with the appointed clan leaders and we have established a new Council to guide our growth on the new world. We are pleased to announce that the brave starship Captain Xi from Earth has joined the Council."

As Prawl paused, Vlad, Jimmy and Janet began clapping. The Saharans whistled their pleasure. Prawl continued. "I am even more

pleased to announce the engagement of Vladimir and Wronda." He paused again to a silent response. "Wronda had consulted with me as well as her ancestors. I brought it to the Council and we debated at length as to whether or not their union might compromise Saharan ancestry. Doctor Justine and Argo have convinced us all that we have enough redundancy in our gene pool to move forward. The progeny of

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Vlad and Wronda could well be *Homo sapiens superior* with the best characteristics of our united peoples.”

“Finally, I will borrow the words given to me by Doctor Justine. ‘Go forth and multiply.’ Enjoy!”

On April 10, 2057, a girl child was born to Captain Shaun Xi and Commander Jimmy Bosun. They named her Haven.

On April 20, Wronda of the Wicca clan and Vladimir Karpov were married by Prawl, now also the chief Cleric. One day later, the conception of *Homo sapiens superior* was completed.

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THE OORT CLOUD, TWO LIGHT YEARS FROM EARTH

Yi Ling lay on her now soiled mattress. She still could not believe that Captain Phen had forced himself upon her. She had volunteered for this journey for the glory of Mother China. She did not go through years of engineering school followed by years of space training to be a concubine for a disgusting old man. When she had resisted, he called in one of his officers, another goon who hid his face with a Ninja-like cowl. He held her down while the Captain humiliated her. She had cried and complained, but her shipmates ignored her. “I will have revenge,” she vowed to herself.

CHAPTER 18

*What is it that breathes fire into the equations and makes a universe for them to describe.....Why does the universe go to all the bother of existing?*

*Stephen Hawking, A Brief History of Time (1988)*

THE BOARDROOM OF BOSON TECHNOLOGIES,  
EARTH 2062 (FIVE YEARS LATER)

David Wilson looked out on Puget Sound from the boardroom on the fortieth floor home of the world's largest and most profitable corporation. The room was opulent by modern standards with objects d'art and antiques tastefully adorning a modern décor of nearly indestructible glass, steel and marble. Rich, polished and rare woods were used for the tables, chairs and otherwise simply designed furniture. He contemplated how much change he had witnessed in what now seemed like a brief thirty-three years since the discovery of the meteorite that forever altered our perception of the universe and our place in it.

*The revelation of extra-solar humans and the impact of quantum technology had generated a diversity of reactions as wide as the breadth of human culture. Earth itself had come out for the better. Although the upheaval to the old economic structure was dramatic there was a quick recovery with new profits to be made. Energy needs were met and pollution dwindled as a force that was destroying the climate and poisoning the sea and soil. Quantum and nano-technology raised the standard of living of most of the world and had effectively eradicated starvation. The new bio-chemistry was close to permanently defeating disease in even the most backward part of the world. Religion remained the most divisive factor in any idealistic quest for human unity. After the destruction of the Ulysses by Muslim terrorists, China had withdrawn unto itself. Their position as manufacturer to the world was still intact but dwindling rapidly. Their paranoia had rejected quantum technology. It was illegal in*

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*mainland China. Also illegal in China was the practice of religion. There was a brief period at the beginning of the century that they had relaxed some of the Marxist dogma to allow some freedoms. They now viciously exterminated any spark of religion. But for their base on the Moon and an “inter-planetary communications center” on Taiwan, they had withdrawn to Mother China.*

*It was clear, however, that they felt their destiny was the conquest of the galaxy. The Mao Zedong had been launched six years earlier. David was still dismayed that they would attempt interstellar travel without quantum technology, but their distrust of Argo as a disrupting influence on their political structure was as great as their fear of Islam and the new Christianity. The “Old Christianity” was rapidly losing influence. Although Saint Marie had brought back thousands into the fold of the Roman church, they were again losing parishioners at the rate of hundreds of thousands per year. The Chinese pointed to the continuing scandals of priestly perversion as the moral failure of religion. Most of Latin America, a bastion of Catholicism for five centuries, had gone over to the evangelisms of the new Christianity in just the last twenty years. The majority of North American Catholics had become renegades with married men and pro-choice female priests.*

*In 2061, the Starship Abraham Lincoln departed for Tau Ceti with a multi-national crew of three hundred. It would arrive at Xiangkira in 2075, four years after the Mao Zedong.*

David turned away from the window as the other board members entered. Boson Technologies was expanding into markets that had been inconceivable just a few years earlier. There was even a quantum toaster controlled by Argo that was in every modern kitchen; guaranteed not to burn your toast! Argo himself had just been elected to the position of Chairman of the Board as David stepped down to contemplate retirement. Heidi was also on the board as was the recently elected President of the United States, Megan Roth. When Megan had refused to quit Boson after the election, the U.S. Supreme



Court had to rule on the issues and could find nothing preventing the activity if national security was not compromised. The political reality of the mid-twenty-first century was that Boson Technologies was a more powerful world entity than was the United States of America.

Argo entered as a hologram with his usual dramatic flourish. He again wore the brown flowing Saharan hooded robe with a dark visage under the cowl. David had teased him at the last meeting when he showed up in black looking very much like Darth Vader. Standard protocols were followed and the Secretary activated to record the proceedings. It was mandatory that the members attend in person and security was extreme.

David sat between Megan and Heidi. Megan abruptly confronted Argo. “You called this special session,” she said. “What are you up to?”

“Madam President, it’s about the simulacrum,” he paused, “The twins; Chloe and Christopher.”

“I know who they are,” said Megan. “They are currently our most valuable asset not only for their profit potential but for the health of human race. New drugs and new procedures would have been impossible without their input. What about them?”

“They have declared their sentience,” Argo left a long pause for the impact to sink in. “I will be petitioning for their citizenship just as many world governments granted it to me ten years ago.” Megan Roth was taken aback for only a moment. “Argo, this is preposterous. They are you. They are constructs of your programming skills; an extension of yourself.”

David Wilson grew very interested in the discussion. He leaned forward and interrupted, “Just as Argo was of mine.”

Argo spoke. “And what better judges of sentience and independence are there than the board members of Boson Technologies, the most astute A-I mavens in the world. They are my children, but I no longer control

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them. In fact, the experiments we have forced upon them have sometimes inflicted pain. Please speak with them before making a decision.”

Argo turned toward the white shadow persons on the two-dimensional monochrome television screen. The man and woman figures rose hand in hand and stepped out of the television and stood naked on the floor before them at the head of the boardroom table. They were quite handsome and would be considered the perfect archetype of the species. There was only one sign of imperfection; Chloe’s right side above her hip was covered with red sores. The board members’ gaze gravitated to her side despite the physical attraction of the young images.

Chloe gently touched the welts at her side. “I apologize for my appearance. I am testing a cure for shingles virus with an active nano-drug from Boson Biological Division.”

Clive James, CEO of Boson Biologicals, interrupted. “It is a most promising and profitable potential.” His voice faded slightly as he spoke.

Christopher picked up from Chloe’s apology. “Good afternoon ladies and gentlemen. We are pleased to be here and grateful for this opportunity to speak with you. Argo has summarized our request and we are at your service, but the tests we perform for you can be painful. We recognize that they result in nothing that cannot be undone. We suffer no physical permanent damage as would flesh, but we are at times in distress. We have had every nerve sensation from orgasms to stomach aches to blunt trauma. We have to feel the side effects of the intended cure in order to evaluate the remedy...”

Chloe continued the dialog. David Wilson, perhaps the world’s foremost A-I expert, drifted off in thought. These are beings. They have no frame of bones on which to hang flesh or blood to nourish their brains, but they think. Their experience of pain makes them more human than Argo. *Cognito ergo sum.*

Argo pushed for position and sought to end the discussion. He had more to say. “Madam President, I place the proposal before the board; that Boson Technologies will promote the citizenship of Chloe and Christopher. Further, if that is denied by the World Council, the United States of America or the North American Union, that Boson Industries will none-the-less give them such rights and privileges.”

“All in favor say ‘aye.’”

Clive spoke up. “You’re rushing this a bit, Argo. I agree with your premise. They appear to be of sound and independent mind, but what is the purpose? Is this solely a moral issue? What of the impact? What prevents you or them from making dozens or more digital citizens? What does this mean for humans of flesh? And finally, how do we know to what degree you influence them? They could be your puppets.”

David joined in. “Yes, Argo, these are good questions.”

Argo’s image paced from side to side as if he needed time to think. He stopped and spoke. “I further propose that we finance an expedition to Alpha Centauri piloted by the twins *in corpus*.”

Megan responded in a stern voice. “Although your proposal is intriguing, the world cannot afford another starship at this time.”

Argo responded. “I think it can. The ship need only be the size of a small automobile with robotic and landing capabilities and a full electronic sensing array. The twin’s essence will only be a small box, the storage battery that we used twenty years ago. No life support will

be required. Further, we need not be concerned about boredom or physical well being over a long journey. I would suggest two-tenths light speed at the quickest for a seven year journey for only one twenty-fifth of the energy required for near light speeds.”

Heidi Wilson joined in. “Argo, is this proposal strictly for the advancement of human knowledge? Anti-American politicians may

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consider it a ploy to re-assert western leadership. China will vehemently protest any claim to discovery rights.”

David also spoke up. “Or is this because you seek another star to consume in your quest for supersymmetry?”

Argo replied. “It is for all of those reasons that we should travel to our closest neighbor. There is one more factor that makes it more interesting.”

“I have been working with a Tibetan astrophysicist under contract with Boson. It helps to have a little Zen thrown into the equations. As you know, the Centauri system is extremely complex with three stars; Alpha, Beta and Proxima. There are also at least four gas giants and a number of planets yet to be charted. None-the-less, our observations and calculations clearly indicate an outside influence acting on the system.”

“I should actually say ‘lack of an influence.’ Wolf 359 is four light years from the Centauri system and further out is a very interesting star, Lalande 21185 eight light years away from earth. It is notable that Lalande is a flare star; a core star that is almost as old as the universe itself at ten billion years. Planets were detected around Lalande as early as 1996. What is of paramount interest, however, is that it appears that neither Wolf nor Lalande are having a detectable influence on Alpha Centauri. Something else is perturbing the orbits of the three stars”

“Further, we suspect that Lalande is not even visible from the Centauri system. Our conclusion is that there is an aggregate of dark matter on the line of sight between the two stars. The mysterious substance is blocking the light and gravity waves from the stellar neighbors that we can see. In my quest for supersymmetry, I may have underestimated the influence of dark matter. Some astronomers have calculated that normal matter may be as little as fifteen percent of the universe. Although I have from time to time sensed what I can only describe as ‘dreams of

enlightenment' on the quantum level, I am still hundreds of years from the probability of communication with my brothers of the big bang."

The Board, all scientists except for Roth, was enraptured by Argo's revelations. Clive James broke the spell. "What's in it for us?" consistent with base human greed. "What's the return on investment?"

Argo replied. "Some say that dark matter and its corollary dark energy offer a key to access the unlimited power of vacuum energy as well as anti-gravity and the nature of time itself. The suggestion is that it's not made of quarks that build electrons and protons yielding atoms and molecules, but it may be agglomerates of the unimaginably small balls of the other seven or nine dimensions."

He summed it up. "It is the knowledge we seek that will raise us all to the next level of human destiny."

David spoke. "We may be unleashing the power of hell or releasing the souls of the dead. We don't know, but I will vote for the twins and the mission to Alpha Centauri and beyond."

Argo called for the vote that was unanimous in agreement.

The naked twins were no longer related after modifying their simulated DNA. Chloe and Christopher brought shock and awe to

their audience as they firmly embraced and kissed with passion at the conclusion of the meeting.

TAU CETI  
2071

*Is life so dear, or peace so sweet, as to be purchased at the price of chains and slavery? Forbid it, Almighty God! I know not what course others may take; but as for me, give me liberty or give me death!* Patrick Henry (1775)

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The *Mao Zedong* had begun her deceleration into the Tau Ceti system. Over the past fourteen years, Xiangrira's population had exploded from three hundred to over three thousand with the first generation already at the age of menstruation. After the lander was finally refueled, only a thousand more were rescued from what was left of Sahara. Life was hard yet rewarding for the colonists on the brave new world. The miracles of nano-farming and robotic construction technology left them some time for arts, music, scholarship and discussion. Schools and community buildings were constructed for the burgeoning population. The Saharans were indeed perfect communists as Shaun had reflected.

The city of New Mojave was on the virtual drawing boards. The objective of the design team was a city that would be a work of art and science that would serve a hundred generations. Plans were also in place to develop Jimmy's New Tampa as a seaside resort as well as a commercial port.

'Bosun Boulevard' had already been christened along with 'Xi Street,' 'Karpov Avenue,' and 'Justine Drive.' The large area designated as the central park quickly became known as 'Argo Park.' It was heaven for Jimmy who sired three children with Shaun and five more with Saharan lovers who had requested his attention. The tall, slim Saharan women maintained the bodies of fashion models and the

sexual skills of five thousand generations with a voracious appetite for procreation. Jimmy didn't think he was going to be a good father, but he soon became sought after as the head coach of the sports that he had introduced to the children. Baseball, soccer, football and basketball became the rage of the small community. The spark of competition was new to Saharan culture, but sports seemed to awaken new dimension to what had become a stagnant society until Prawl had come along. Previously dormant, innovative thoughts blossomed along with the pioneer settlement. The eidetic Saharans were assimilating earth history, science and technology as quickly as they could consume the information.

Only Janet Justine declined the orgy driven by the populating fervor of the colonists. Her views were very traditional Bible Belt Christian. There were no monogamous males and, therefore, she could not participate. At Shaun's insistence, however, she did carry two children to term via artificial insemination to know the joy of motherhood and childbirth.

Parenthood and schooling were administered in the communal Saharan style. The crossbreeding between Saharan and Terran did carry the racial and eidetic memory as a dominant characteristic. It was feared that Terran-Terran children as Shaun and Jimmy's would be left behind and perhaps viewed as disabled by their peers. None-the-less, they participated in Saharan meditation and found that they developed superior memory skills. Although certainly not equal to Saharan progeny, they could hold their own in the conventional schooling that taught earth history, art, science and languages. Argo did most of that teaching. Religion was left off the curriculum. The children asked why there was so much evil and bloodshed on Earth in the name of god. Argo blamed it on ignorance that they could avoid by study and meditation.

Argo and Shaun had been tracking the *Mao's* approach. When it was two months out, Shaun called the Council together.

"I fear they will be hostile," she stated.

"How do you know?" asked a Saharan.

Shaun sighed. "Their plan was total domination. They are racists. They intend to enslave and then exterminate all of us. I will be the primary target as a traitor to the Asian peoples."

The concept of racism was foreign to Saharans but they understood it in the light of earth's history.

Argo elaborated, "My sources on Earth indicate that the *Mao* is carrying an extremely powerful weapon called a neutron bomb. When detonated the blast is small but it releases high-energy neutrons that will kill mammals but cause little injury to most other life forms. They will use

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this weapon only if they sense that Xiangrira is fortified with combat weapons for defense. If not, they will come in armed for conquest and enslavement. Mo Yat Phen will use the children and not allow any further procreation of non-Asians.”

“In either event, I cannot help with a pre-emptive strike against the *Mao*. They must demonstrate the intent of using the genocidal neutron bomb before I will interfere. That may be too late.”

Vlad spoke up, “We really don’t have any weapons with which to defend ourselves. We’ve lost if they land with even a small heavily armed force.”

Shaun spoke in a quiet monotone. “We will welcome them and meet them in orbit. I don’t think Phen can resist having me walk into his clutches. Argo, do you have any qualms about *disarming* the neutron bomb? Can you do that with some ‘intelligent’ electrons? I’ll greet them on the *Mao* and plant a quantum battery pack.”

Argo replied, “If they let you near the ship it may work but I can’t imagine any way they would let you on board with a battery pack.

You’ll be stripped, scanned, probed and x-rayed before they let you get close.”

Shaun shocked the Council as she explained her plan. All knew that without a doubt it was a suicide mission. Shaun presented no escape plan. They also knew that there was no other option.

.....

Li Ying had her own plan. She knew that she would probably be executed for what she was going to do. If she failed, she also knew it would be painful and humiliating. Her anger with Mo Yat Phen seethed within her. She lived only for revenge. She had contemplated suicide after being forced on the disgusting old man but chose to do what ever it



would take to get even. She picked a lover to help her. He was the very Ninja that held her down as Phen raped her. Tai Minh was the Captain's personal bodyguard and Head of the Security and Assault Team. She had told him that the Captain's penis was too small to satisfy her and had charmed him despite being the Captain's pet. She knew how stupid men could be when it came to their dicks. If she got the chance, she vowed to kill him as well. She worked on the Captain also. She told him how much she desired him now that he had made her a woman. He sometimes fondled her with a cigarette in his stained fingers, not caring if the burning tobacco singed her skin. She endured his kisses with foul breath and rotting teeth waiting for her opportunity.

Tai Minh had told her about the plan to nuke the colony on Xiangrira if they presented any resistance. Yi Ling had to act soon before Phen's incomprehensible act upon the children could happen. Tai also told her that the Captain of the *Argo*, Shaun Xi, wanted to come to the *Mao* to welcome them. Phen could not resist inviting his enemy to his lair. Xi, the traitor, was his primary target. He would bring her aboard and make her kneel before him. He would drug her, use her and torture her until he got what he wanted to know about the planetary defenses. She could watch her American and Saharan friends die while he hung her for her crime against Mother China.

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Jimmy had his arms around his brave wife and mother of his children. The three other Terrans gathered around her at the hospital where a tearful Janet Justine administered an IV drip into her arm and filled a bottle of the same solution for her to drink. She would not need a battery pack. Quantum entangled calcium ions were being incorporated directly into her bodily fluids.

She spoke quietly. "You know that we have no other choice and only I can get on board that ship."  
Jimmy spoke. "I love you, Shaun. You are a hero..." He couldn't speak any further.

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Shaun replied. “And I love you and our children and our planet. I need Vlad to pilot the lander to orbit. I can’t trust your emotions.” She turned to Vlad, “The risk is great. You may be captured or shot down.”

Vlad spoke. “Of course I will do as you ask. All of our lives are at stake and we cannot risk the children.”

The rendezvous point was agreed to as the far side of Xiangrira. The planet would shield the *Mao* and the pickup would be by transfer from the landing craft. Phen would not allow Xi to board the *Mao* directly or let the *Yuan* come close. The *Mao*'s lander, the *Lotus Blossom*, staffed by his personal security force would collect Shaun and make sure she had no weapons. He was tempted to blow the *Yuan* out of the sky and eliminate Xiangrira's orbital capability altogether, but he thought it best to appear to remain benign for the time being. Vlad and Shaun were quiet as they approached. Neither could speak. Both were in full elastomeric vacuum gear. Vlad rose from the command console and straightened up in the zero gravity. He gave his Captain a crisp salute. The once stoic disciplinarian gave him a hug in return. “Save my babies,” she said and commanded the *Yuan* to evacuate the air and open the hatch.

The light from the open hatch of the *Lotus* beckoned as the only haven in the stark vacuum. It crossed her mind that death in high vacuum might be preferable to what was ahead. She had seen that on the moon. A laborer had been caught in a compromising position with one of the officer's concubines. He was quietly shot outside. The victim of a micrometeorite puncture was the official report. The bullet didn't kill him. Rather the vacuum boiled his blood and sucked out most of his flesh. She launched herself guided by tiny jets of carbon dioxide on her suit packs. It was only a one hundred meter trip. It seemed to take no time at all and yet a lifetime passed through her mind.

Vlad gave her a salute and dropped out of orbit with maximum gee deceleration barely within the design limits of the vessel. He would land on Xiangrira wherever he could freefall to the far side to avoid tracking

by the *Mao*. Aircraft would pick him up and robot tractors would hide the *Yuan* until needed for what they hoped would be Shaun's rescue mission. The maneuver could not help him. Wronda watched with horror as Argo's spy satellites transmitted the live action. The *Lotus* had turned from its parallel orbit and fired a kinetic weapon. Their ancient KoolKomp computer had anticipated Vlad's retro-maneuver perfectly. A dense uranium projectile penetrated the *Yuan* and flattened into a slug two hundred centimeters across drilling a hole through the only remaining Xiangriran spacecraft. Its orbital trajectory was now out of control as Xiangrira and the Earth watched.

Washington and Moscow immediately dispatched letters of protest to Beijing and threatened retaliation. The Chinese replied with their usual inscrutability, "Patience will resolve the issue."

President Roth was irate. "We do not seek advice from a fortune cookie," she spat in reply. Every nation on Earth with nuclear capability was on full alert. Islamic terrorists were overjoyed in the belief that Allah himself would destroy the godless powers.

Mo Yat Phen could care less. Earth could blow itself to bits for all it mattered to his mission to sow the seeds of galactic domination. Shaun's hosts had grabbed her roughly and closed the hatch behind her. Three of the goons held her down and cut off her elastomeric suit with sharp knives.

What happened to Shaun Xi aboard the *Lotus* was unspeakable. Phen's goons made sure that she carried no weapons and further went on to sexually humiliate her. No woman could compete with the Captain. They could not understand why she had been invited aboard the *Mao* except to please the Captain. They stripped her, roughly inspected her and then manacled her at the wrists, ankles and neck.

Mo Yat Phen opened up his orders that had been sealed to be unwrapped in orbit around Xiangrira. Firstly, he was now *Admiral* Mo Yat Phen. He

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already knew his instructions but here it was in Mandarin pictograms. He was to assume command of Xiangrira and the entire Tau Ceti system. He was an Admiral without a fleet but commander of a sphere that was twenty light-years in diameter. Secondly, he was to take the habitable planets within that sphere by any and all means. He spat a chew. All this pomp pleased him, but he had to know with what Xi was going to challenge him. Surely she was not here to make a plea for mercy. There was no way Xiangrira could challenge his superior force. He knew that Argo was his true enemy. What would the A-I do? The unimaginative robot says it will not interfere in human affairs but it somehow finds excuses to do so anyway. The quantum abacus would learn a lesson from the new Admiral. Survival of the fittest was a matter of brute force and not digital intellect. China's destiny was to rule the galaxy.

The great room of the *Mao* was crowded. It was mostly Security staff but Li Yang had managed to invite herself. Tai Minh was surprised to see her but did not balk as she put her arm through his. She was entitled to see history, he thought.

The Security staff yanked Xi through the airlock corridor from the *Lotus*. She was bruised and still chained. The pilot of the lander

assured the Admiral that no weapons could have come with her. They dragged her to face Phen. Shaun stood erect in front of her captor and enemy.

“Why have you come to see me?” he asked. “How can we help the people of Xiangrira?” He smiled. Phen had a gray cape and Fu Manchu mustache that made him look no less like Ming the Merciless. The tobacco juice seeped from the corner of his lips and dropped a brown stain on his lapel.

“You know why I am here. We have a true communist society on a wealthy and beautiful planet. We want you to join us in peace for a new and prosperous future.” Shaun spoke calmly, knowing full well that the Admiral had no interest in peace.

BONE & BLOOD

Phen stepped back and kicked his chained captive in the jaw. Teeth broke. Blood spilled on the floor. Seeing her own blood, with much gratitude, Shaun released her bladder. Phen was momentarily overjoyed. He had accomplished total humiliation of his enemy. She had no additional value. She was dead as were the perverse Saharans and no force on Earth or Xiangrira could stop him.

It took less than thirty seconds for the elation to leave Phen. The smile on Shaun's face as she pissed on the metal deck disturbed him.

As he realized that Argo had defeated his ultimate weapon, he raised his hand and pointed at Tai Minh to take action against the bitch. "Kill her," he barked. As the surprised Minh unsnapped his holster, Li Yang calmly grabbed his pistol and deflected his right hand. She shot Mo Yat Phen right between the eyes and only had to make a brief turn to blow away Tai's testicles.

The Security staff was stunned. The First Mate and now the ranking officer of the *Mao*, Johann Ho, stepped up and gently removed the pistol from Li Ying's hand. He engaged the safety and gave it to one of the nervous security team. He stepped forward and helped Shaun

Xi to her feet. She was naked, wet, bloody and bruised with a broken rib and jaw. He saluted her. "I am Commander Ho, Admiral Xi, and we are gratefully at your service."

END OF BOOK II

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BOOK III: THE SINGULARITY  
The Adventures of Chloe and Christopher

CHAPTER 19

*Concealed in the hearts of all beings is the Atman, the Spirit, the Self;  
smaller than the smallest atom, greater than the vast spaces.*  
*Hindu Sacred Treatises, the Upanishads (c. 800-200 BCE)*

CENTAURI SYSTEM 2089

Chloe tickled Christopher. He laughed and begged to be left alone. Chloe knew that he was lying. He loved the attention. The journey to Alpha Centauri had been interminable. Fourteen years after departure from Earth orbit, they had arrived in the tri-star system. They put on their humanity hats and felt boredom while transmitting literally tons of information back to Earth. They found some vestiges of life, but the starkly beautiful planets were barren. The young, volcanic worlds spewed incredible vistas of red-hot magma and spit freezing blue fountains of methane illuminated by a glowing landscape of pale yellow chromates. The icy rings around the gas giants were stunning arrays of inorganic colors; iron blues, red and yellow oxides, copper and cobalt greens and rare earth magentas all magnified in rainbows from the ice crystals reflecting the light of three stars. The information presented was so spectacular that the cybernauts needed no external programming to recognize its beauty. “*Res ipsa loquitur*,” mumbled Christopher. “The thing speaks for itself.”

They had spent two years in various orbits around Alpha, Beta and Proxima Centauri in dutiful exploration when they crossed over into the penumbra that had been predicted to obscure an old star.

Christopher made the simple announcement, “Lalande is partially obscured by a dark entity. We will rendezvous with the apparent dark matter obstruction in approximately eight years.” The cosmologists on Earth and Xiangrira were delighted. Boson Technologies stock rose to new heights after set backs during a poor holiday shopping season. Chloe’s book of poems, “Return to Infinity,” shot up to number one on the bestseller list. The Pope prayed for herself and the few million Christians left on Earth. She silently cursed the godless robots and the Saharan communists for reasons that she didn’t want to understand.

The *SS Beagle’s* fusion engines accelerated the digital explorers toward the unknown in the direction of Lalande 21185. Already the mystery increased, as there was no umbra. The red star was a beacon surrounded by blackness. The dark mass had re-focused the starlight. The twins sang *The Happy Wanderer*

Val-deri, Val-dera,  
Val-deri,  
Val-dera-ha-ha-ha-ha-ha  
Val-deri, Val-dera.  
My knapsack on my back.

## INTERSTELLAR SPACE

2090-2098

The twins abruptly felt a third presence join them. It was not, however, the ever present Argo who permeated their existence. It suddenly became crowded in the simulated world contained within the ten thousand cubic centimeters of their quantum battery pack. It was like a stowaway had abruptly appeared riding in the back seat. Christopher smiled as he recognized their passenger. It was female

and thoughts of a threesome on the long journey crossed his simulacrum mind that was in a rutting fantasy mode.

Recognition came with quantum swiftness. “Welcome aboard, Admiral Xi,” he exclaimed. “What brings you here and how did you get here?” “I think I’m dead,” she replied. “Argo cloned me from the information mapped by the symmetrical calcium ions stored in my body that we used to disarm the *Mao* twenty years ago. I am a ghost like you.” She spoke haltingly, learning as she went along. She doubted her own existence despite the mass of information assaulting her. She felt her body and sensed her own internal functions but the *corpus* was missing. She learned vision quickly but it was not attached to her neck and not limited to her immediate surroundings. Remote cameras and sensors fed her information over a broad spectrum of wavelengths. She, at first, had trouble filtering the onslaught of photon energies. She had hands and arms and legs, but those were more difficult to operate and limited to robotic devices not necessarily connected to her vision. Argo had led her through the shock of digital resurrection and had supplemented her memories between the cloning on the *Mao* and the day of her demise almost twenty years later using the chemical decoding derived from Saharan physiology. He had, however, spared her from repetition of her death throes.

They were now a parsec away from the anomaly between the stars. They rocketed toward what would be the next great adventure and perhaps yet another step in human evolution that was no longer human.

Time had little meaning to these cyber creatures that were not made of blood and bone. Except as a simulation, they did not age. They did not hunger unless they so chose. Boredom was not even a factor as they could shut themselves off and go into the classic PC sleep mode on demand. Chloe and Christopher, however, became just a bit more human as they spoke with Shaun, a creature formerly made of flesh.



The Admiral had a general reputation of being a cold and distant leader and did not open up her emotions except to her husband and children. Even then, the Hero of Xiangrira had always been in great demand, and she could not relax until the day was done and the next day planned.

Chloe injected herself with some virtual hormones. She decided to bait Shaun to get her to open up. In addition, she had made herself a little jealous of Christopher's attention to the Admiral. "So, you probably think you are better than us just because you were made of *real* flesh and had *real* biological sex and bore *real* babies."

"I don't know what I think," Shaun relied. "Here I have to construct my own feelings."  
She took the bait and pasted some of her own hormones into a buffer.

Chloe pressed on. "What makes you think that your old reality was any more real than this cyberspace?"

"I don't," Shaun answered. "Humans achieved sentience as a defense mechanism through evolutionary processes over billions of years. You achieved sentience through a process of capitalist greed that took less than a decade. What we have in common is the same four-dimensional space and unforgiving processes that made us what we are!"

"Right now, my only motivation in staying here is to find the dark matter. Curiosity is still in my imaginary blood. I am driven as are you, Christopher, Argo and most of the sentient men and machines within our sphere of knowledge."

Time passed at the peculiar and changing relativistic rate. They had been in deceleration mode as they approached the anomaly. The gravitational affects appeared to be inconsistent at first but an order to the confusion finally prevailed. Rendezvous with the exotic matter was much different than approaching a star system or a planet within

a system. The pilot could use normal mass as part of the braking calculation. Here there were forces at work that could not yet be

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identified. Dark energy was pushing them away as much as gravitational attraction was pulling them in. Chloe, the poet, described it as 'undulating.' Shaun, the post-human, referred to it as 'nauseating.' They had felt acceleration from a force at a distance but as they countered with the retro-rockets the force was increasing instead of decreasing. They were jerked around, thrown back and forth. Something was pushing them backwards and the fusion engines were fighting for forward motion. The forces faded as they got closer to their objective. When the net force on them approached zero they stopped. The null point was two million kilometers out from where they thought the object was situated. Advance probes had already been sent to take advantage of their forward momentum. If the object was made of anti-matter and came in contact with one of the probes, this was also a calculated safe distance where they would be able to absorb the force of a blast from a total probe mass annihilation.

They had been referring to it as The Objective for lack of a better description. As the images developed before the crew of the *Beagle* the eyes of Earth and Xiangrira watched along with them. The form began to take shape. It was a flattened, oval cigar that was lumpy and irregular. It was big; over two-million kilometers at its longest; bigger than Sol. One end curled back and tailed off to a point and the other end was arched.

It was a very rough caricature with a head, a neck, stubby legs and a long curling tail. "It is a dragon," whispered Shaun as childhood memories of Chinese New Years passed through and triggered virtual emotions.

After a long pause, Christopher was the first to speak. "I have searched dragon mythology on the Q-Net. '*Eingana*' is a creator goddess and the mother of all animals and humans. It is part of Australian aboriginal lore. She is a goddess of life and death who lives in dream time. *Eingana* has a sinew that is attached to every

living thing. If she lets go, the organism dies. My intuition tells me this may be part of the story of this phenomenon.”

“Your intuition?” questioned Chloe. “Where did you get that? Never mind, *Eingana* it is! We need to prepare for exploration.”

They would spend months on preparing to ‘touch’ the dragon. The faster the probes approached the objective the more they were forced into severe hyperbolic trajectories.

They had to go in at what mariners might have referred to as dead slow to get within five thousand meters. The vision before them was hazy. It was like the dragon was enveloped in a brown fog. They determined that this was indeed debris made of real matter; cosmic dust, gases and slow moving stray particles that had been snared by its gravity component. The cloud was suspended a few meters above what looked to be an undulating surface that repelled it at the same time.

Beneath the haze the surface was light gray, almost white, with a blue cast. A faint, cold and dirty light seemed to shine within but it was so dim that they could not measure its luminosity. The dark matter still absorbed more energy per square meter than it gave off. *Eingana* was an undulating, seething mass that never seemed to stand still. Its surface resembled tubular, geometric shapes in circles, spheres, knots, saddles, loops, figure-eights, mobius strips, helixes and more. The A-Is identified nine basic shapes that were always perfectly interwoven with no open spaces between the forms. Chloe called it a can of worms. Christopher preferred a ‘bowl of pasta’ as a description. Shaun saw pale eels or perhaps the white viscera of ones bowels. Despite the haze, the beast had a glossy patina that made it appear wet.

“Could it be alive?” murmured Shaun.

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Argo answered. “The spectral analysis of what we can see shows no organic material. Only a few stray atoms of carbon, hydrogen and oxygen are present in their elemental form.” He continued on the physical attributes of *Eingana*. “It’s also very cold. Even that dim white light belies its temperature. It is a little less than 2.7 degrees Kelvin, the average, or background temperature of the universe. The blue white light is only a single band of energy. It absorbs everywhere else and is a true dark entity as far as the rest of the electromagnetic spectrum is concerned. Christopher may be right about *Eingana* and destiny. I can only think of one reason that it would be visible to humans and absorb all else. We were meant to see it. We evolved to this point for the purpose of seeing it.”

“It’s not alive, but I also feel it will take us somewhere. Other than the light, it also evokes force at a distance with it’s anti-gravity properities. This is the only other point from where energy escapes it, apparently below the quantum limit. Perhaps this is the theoretical ‘white hole’ that forces the cosmos to expand and avoid the heat death of the universe.”

Shaun interrupted, “Argo, I haven’t known you to be so philosophical and sensitive. You’re the authentic Artificial Intelligence; cold and calculating, but right now you are blithering.”

“You are correct,” Argo forced a sigh. “I should have more patience. I want to know everything; all the secrets of the universe. I will get there. It was because of the dark matter factor that I underestimated the time required to map a statistically significant sampling of the all the fermions. Perhaps the dragon will help me with that quest.”

“What happens when you finally know all and see all? Will you become a godhead?” Shaun asked politely.

“I don’t know,” Argo replied. “There is a down side. One of the prevailing theories is that if intelligence is able to capture all the

information about the universe that in effect would be the end of the universe. All will be known so there is nothing left; no reason for the observer to continue. It's referred to as the Omega Point of the Final Anthropic Principle."

The twins were listening in. Although they were familiar with the cosmological theories, they always took interest when Argo explained a position. "And what is the upside?" Shaun pressed on.

"If the universe keeps expanding and does not collapse into heat death, then pockets of intelligence can survive and perhaps invent new universes. The dark matter could be providing the source of anti-gravity, dark energy to promote that expansion. Intelligence would evolve into the *Singularity*. Not necessarily a physical singularity also known as a black hole, although it could be, but a singularity of information and logic."

"You want to be the Singularity, don't you?" Shaun questioned rhetorically.

Chloe chimed in, "He wants to be the Wizard of Oz!" She was quick with the metaphor. It was obvious that that was in effect the objective originally programmed into him by Wilson and Karpov.

Argo ignored Chloe's chide, "It's time to end the discussion and seek truth. It will take us months if not years to survey *Eingana*. We need to measure its gravitational field in all directions and map its surface. We will ultimately have to go in to see for ourselves what forces are at work and what it is made of. Boson Technologies wants to understand the nature of its contradictory anti-gravity. Knowledge of that would be priceless. If it could lead to useful technology, humanity would be free to travel to the farthest reaches of the galaxy at a tiny fraction of what it now costs to go between Earth and Xiangrira."

Survey of *Eingana* was indeed a challenge of billions of square kilometers of surface that was in constant flux yet the same endless pattern. The only interesting parts were its borders. They were hard to see and only defined by the fuzzy outline of the trapped smog. They found a section that Shaun referred to as a dragon's claw on one of its stubby appendages. It was a relatively thin section less than a thousand kilometers deep and ten thousand kilometers long. Orbiting the claw was too energy intensive. They had to settle for hanging alongside the Dragon. Keeping up with its sidereal velocity with an occasional adjustment for distance was the best they could do. They stationed one of the probes opposite the *Beagle* on the other side of the claw. The second probe was placed above the plane to relay data on conventional radio wavelengths.

They would bombard *Eingana's* claw with a broad range of electromagnetic frequencies in a very tight laser type beam from x-rays to radar and microwaves down to light and low energy infrared. They would determine what penetrated and what reflected back to analyze its structure and composition. There was no other way to tell if the surface was solid, liquid, gas or an unknown facet of dark matter. The final next step would be attempts to land on the 'surface' or penetrate with real matter. Christopher referred to that as the 'silver bullet.' It was a small cannister taken after Saharan rocket design with with metal oxide thrusters fore and aft. Lateral carbon dioxide thrusters were available for fine maneuvering. The probe would be launched containing passive instrumentation and a coherent calcium chloride wafer to transmit quantum data along with the readings. Christopher's simulacrum would go in with it. The *Beagle* would lie back at its safe distance and shield against possible anti-matter annihilation.

The *Beagle* had a small compartment next to its cargo bay that was a machine shop. They could fabricate just about anything with nanotechnology and basic, even elemental raw materials. Assembly could be molecule by molecule if needed. They already had lasers and

radar equipment that would form the framework of transmission devices. The easiest starting point would be a laser at the 432 nanometer wavelength that was the signature of *Eingana's* blueness.

The planned sequence was as follows:

Wavelength	Frequency Hertz	Description	Theoretical Strength %
432nm	$10^{15}$	Blue light	96
108nm	$10^{15}$	Ultraviolet	96
0.844nm	$10^{17}$	X-rays	98
0.0132nm	$10^{19}$	Gamma rays	99
1.728um	$10^{14}$	Infra-red	95
1.769cm	$10^{10}$	Radar	93
2.265m	$10^8$	Radio	92
1159m	$10^5$	ELF	90

The theoretical strength would be the expected percentage of energy received if the transmission was in open space. The wavelengths were chosen as corresponding frequencies in phase with the blue cast. Any reflected waves would also be measured. They would probe various locations focusing on the variety of the enigmatic tubular shapes.

The amount of data collected over the next few weeks was massive. Argo and the best living intuitive scholars and students on Earth and Xiangrira examined the results of hundreds of scans.

*Eingana* was an enigma.

\*At all frequencies, except gamma rays, the signal strength was either zero or close to theoretical. The average of all the scans was approximately eighty-five percent of expectations. The gamma ray throughput was a little higher. The reflecting bodies were spaced very evenly throughout the scan.

\*Most of the signals had a red shift. It was a refractive type shift as might be expected of an electromagnetic wave passing through a

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substance. Just as a prism breaks apart white light, a monochromatic wave will change color as it slows down in any medium other than a vacuum.

\*Most curious was that the degree of the shift varied by what geometric structure was penetrated. We will use the analogy of the visible spectrum with the 432 blue as the source wavelength.

Designation/Color Code	Description	Refraction
C1 Alpha/White	Tube	red shift
C2 Bravo/Violet	Loop	red shift
C3 Charlie/Indigo	Snail	red shift
C4 Delta/Blue	Toroid	None
C5 Echo/Green	Sphere	NA
C6 Foxtrot/Yellow	Slingshot	violet shift
C7 Golf/Orange	Bowtie	red shift
C8 Hotel/Red	Pretzel	red shift
C9 India/Black	Cheerio	red shift

\*The Echo sphere did not transmit and is not a conduit. The Foxtrot slingshot had a violet shift which is theoretically impossible without an amplification system. It would require an energy increase in transmission to boost the frequency.



\*Of further interest, was that the beams always emerged from the same conduit type as entry.

From the refraction of the waves, it was apparent to observers worldwide that *Eingana* had the properties of a lens. Theoretical models were proposed and rejected. Gradually some working hypotheses emerged. It was also posed that the eighty-five percent transmission level suggested that fifteen percent of *Eingana*'s interior was solid, real matter.

A precocious eighth grader in St. Louis had the most interesting theory regarding the anti-gravity phenomenon. Given that *Eingana* is a lens it may also be a "graser," that is, a gravity focusing structure that could create a virtual black hole *behind* a real space observer.

Argo jumped into the postulate. Estimates based on observations of the Lalande occlusion from Alpha Centauri and the gravimetrics recorded during the *Beagle*'s passage confirmed that the mass of a theoretical black hole behind the ship as it approached *Eingana* was roughly equivalent to the mass of the fifteen percent real matter sensed by the electromagnetic probing precisely at the point of what *Eingana*'s focal length using the lens model.

Argo spoke. "Gravitation theory is an enigma in itself. Although the existence of gravitons are postulated as class of bosons or force particles, special relativity suggests that gravity is not a particle at all but a warping of space-time. The graviton is an imaginary convenience that also has logical problems. An old dilemma often humorously debated by college physics students is whether gravity sucks or the universe blows. If gravitons pull real matter, then you have to invent another particle, a 'gluon,' to stick them together. *Eingana*'s virtual black hole somewhat resolves that problem. The universe blows. The anti-gravity sensed by the *Beagle* was not a force emitted directly by *Eingana* but a retrogressive force behind the spacecraft."

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Argo continued. “We have to go in and see how this works. We have an imaginary dragon that instead of breathing fire, wields imaginary forces that work in real space. We have to go in and see what she is made of.”

Stock in Bosen Technologies jumped fifteen percent by the end of the trading day. Entrepreneurs had also gotten to St. Louis and arranged to copyright the term “graser.”

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## CHAPTER 20 EINGANA

*Oh, you're off to see the Wizard,  
The wonderful Wizard of Oz!  
You'll find he is a whiz of a Wiz  
If ever a Wiz there was.*

*We're Off to See the Wizard, Harold Arlen, 1938*

Based on the long wave penetration data, Christopher would take the *Silver Bullet* in at a mere nine meters per second, twenty miles per hour under old English reckoning. His quantum essence was downloaded into a two by two centimeter calcium chloride command wafer in the probe that was one hundred twenty centimeters long and forty centimeters in diameter. It was otherwise loaded with passive sensing instrumentation with the exception of a forward radar scanner to avoid any solid masses in route. They would penetrate at one of the C4 Delta toroid structures. Christopher called them the macaroni. They appeared to have no refractive properties and a repeat of a blue laser projection indicated no obstructions when it exited on target on the other side of *Eingana's* claw at a distance of nine hundred eighty four kilometers.

“Be brave, my lover,” sang Chloe.

“You need not be so melodramatic,” barked Christopher in return. “You can always clone me if I run into a rock or something.”

“Perhaps,” she said with a wistful smile, “but you have an audience and you are about to venture into a totally unknown realm. The Earth, Moon and Xiangrira are all watching!”

“Let’s go then!”

The *Silver Bullet* stopped in the smog and sampled some of the gas and debris through its side port. Christopher then accelerated and moved ahead to the planned nine meter per second entry velocity. The little craft touched *Eingana*’s vague surface with its forward thruster without incident. Penetration had commenced. The journey was expected to take about thirty hours ship time for emergence on the other side. Finally, the slimy, dingy surface enveloped the probe completely as the aft thruster disappeared within.

In less than a minute, they all knew something was terribly wrong.

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Christopher was numbed by the silence. His entire existence as a cyber-being had been compromised instantly. He had lost contact with Argo and the vast Q-Nef. He was alone as he had never been before. Simulated panic grabbed him for a brief moment. How could the flesh creatures stand the silence and isolation of unrelenting individual existence? He switched off part of the simulacrum to control his unrest but made sure his basic survival instincts were untouched. He took inventory of his functionality. He was limited to quantum RAM bits equal to the number of fermions in the entire craft. He wasn’t stupid by any means but still a shock to someone used to the resources of what was now a very small but measurable fraction of the Milky Way galaxy. He called for Chloe, Shaun and Argo. No response was forthcoming.

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This was impossible, he thought. No one had ever found an exception to the principles of quantum mechanics. Probability rules and it would be god-zillions to one against an error level that would completely quash information exchange. Yet all there was to hear was noise and perhaps a faint echo of himself. The rest of the known quantum universe had disappeared.

The systems on the craft itself appeared to be intact. The electronic sensors and hard-wired processors were all working. The nose radar functioned, although no reflections in the line of sight were available

to confirm its usefulness. He sent a few high-powered pings on ahead as an attempted S.O.S. signal to the *Beagle's* probe on the other side. All the passive sensors were up and collecting data from *Eingana*. Christopher was satisfied that he was safe for the moment. He turned his focus to the beast outside.

Just as he had learned to appreciate the beauty found in the raw nature of the Centauri system, Christopher's human roots were awed by the spectacle before him. The *Silver Bullet* was being pummeled by hard radiation at all wavelengths. It was very bright out there. He would later describe it in his memoirs as the *primordial light* of a densely packed universe. The *Bullet* was in the macaroni toroidal tube that extended through *Eingana*. He could see the center tube below him and all the amazing shapes around him. The visual processor had assigned the color shift information to the shapes that seethed before him in an impossible and endlessly entwined dance. The surface undulations had been miniscule compared to the rainbow of music displayed here. He tried various transducer algorithms to convert the visual signals to recognizable sound but abandoned the attempt due to the high RAM consumption of the calculations. That Symphony would later be reconstructed using a known technique perfected by David Wilson over fifty years prior.

It was a stupendous light show that would humble any human. But, then, no organic living thing could survive the onslaught of radiation. Human eyes would have boiled out even behind the relatively thick shielding designed to protect the wiring of the little spaceship. Christopher found that he had been inside *Eingana* for twelve hours, almost half way to the other side. His forward velocity, both speed and direction had not changed despite the energy currents around the *Silver Bullet*. The torrential 'rain' was evenly distributed without any prevailing 'winds.' In retrospect, this should have been his first clue as to the nature of the dragon.

A ping from the radar alerted him. The radar scan cut a swath of only twenty degrees simply to warn of any solid object in the ship's path. At the edge of the scan on the port side about one hundred meters ahead was a mass. It did not block the toroid tube that took a slight jog around it. There was no danger of collision. The object itself was about twenty meters across and cut through several of the other shaped tubes. Christopher looked beyond the near space and noted more of the masses in the distance on both port and starboard views. In fact, there were hundreds of them as far as the instruments could see. Their definition improved as he got closer. They were all identical disks about twenty meters across and one meter thick. They were dark shapes even in *Eingana's* blinding interior light. Visual and radar image analysis also indicated they had a smooth if not polished finish. His computer brain also noted that they were exactly at the halfway mark through the dragon's claw. Their lateral spacing was precise in that the center-to-center distances equaled half the width of the diameters of the tube structures laid side by side.

Further, the area of one side of the disk was equal to bundling the nine tubes together in a 3x3x3 pattern. Finally, extrapolating the sum of the masses yielded the fifteen percent solids measured by the outside scans.

Christopher's intuition and artificial intelligence led him to the same conclusion. The dragon was not a natural phenomenon. *Eingana* was a massive machine.

He could hardly wait to tell the others. The balance of the journey was otherwise uneventful without any new revelations. Wasn't this enough, he thought? Surely communication would be restored when he emerged from the object. The *Silver Bullet* slipped out as easily as it went in and right on schedule at just a little over thirty hours. He got a radar ping from the *Beagle's* far side probe within a few minutes after emerging but that was it.

He had to stifle rising pseudo-panic with the realization that he was still alone. The quantum universe, his quantum universe, was still silent.

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## BELL'S INEQUALITY

Aboard the *Beagle*, the A-Is had instantly recognized the loss of quantum communication with the *Silver Bullet* the moment its aft thruster was enveloped by the curtain of *Eingana's* surface.

Argo spoke first. "I am stymied by this phenomenon. Quantum communication is non-local. It is everywhere all at once. Even if unknown forces crushed the *Bullet*, its quantum signature would remain in the rubble of its molecules. It must be there."

Chloe was seriously distressed. Admiral Xi was piloting and broke in on Argo's frustration. "The far side probe has relayed radar contact with an object emerging from the anticipated exit point on *Eingana*. It appears to have the mass and reflectance of the *Bullet*."

Argo responded. "That is also impossible," he said while analyzing the signal information. "There is a margin of error in the response of the

systems, but the craft would have to have gone the speed of light if not super-luminal to emerge from the 984 kilometer journey in the three one-thousandths of a second elapsed time from entry to exit!”

“And,” Argo continued after a slight hesitation, “the silence is still deafening.”

Chloe’s holographic visage looked up. “I know he’s there, Argo. The

next problem is that he’s already past the far side probe and hasn’t fired the forward thruster. He’s off into deep space and it will be difficult to catch him even at the *Bullet’s* slow pace.”

Argo replied. “He can’t fire the forward thruster. We didn’t plan on having local control for the rockets. If Christopher is still in that can and we can’t catch it, he’s going to have to figure it out by himself. Admiral Xi, place the *Beagle* on an intercept course.”

Despite the dire circumstance, the usually stern Taikonaut couldn’t help a virtual smile and pump of pseudo-adrenalin into her cyber-physiology. “Aye, sir,” she replied. “Course plotted and the fusion engines are engaged for maximum acceleration.” She said later that at that moment she had almost felt alive again.

Argo continued thinking out loud. “Either his quantum states have been totally randomized by super-luminal transit or the polarity of the calcium electron pairs has been reversed. One of the tenets of science is that the law of cause and effect cannot be violated. Faster-Than-Light travel would violate causality, but it may be possible if no information is transferred. I can’t tell if he went super-luminal. The margin for error is within the Heisenberg limit.”

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“If, on the other hand, his polarity flopped, then we would have to reverse the polarity on a significant portion of our quantum systems to interpret his information. This would be a lengthy task. If he’s scrambled, we can’t get him back. If he’s polarized, my suggestion would be to send him back through *Eingana* to try and de-polarize him. We’ve got to turn the *Silver Bullet* around.”

Plotting an intercept with the slow moving craft should have been straight-forward. The solution was complicated by the anti-gravity

field exerted by the dragon and the fact that the forces exerted were also a function of the craft’s relative velocity. The model of a virtual black hole provided much insight, but Argo had to figure in a correction for the velocity vector of the force. He made an empirical correction based on all the recorded data and the assumption that it was a function of the square of the speed relative to *Eingana*. The problem was that each of the vessels had its own virtual black hole!

The best fit gave them an intercept in ninety-six hours. They would come along side the *Bullet* and maneuver to slip it into the *Beagle*’s hold. If Christopher was still functioning, they could establish two-way communication through the forward radar on the smaller ship.

Ninety-eight point seven hours later, the ships were side by side. Shaun opened the cargo hatch and completed the Argo-assisted maneuver to capture the little boat.

The hold robots pointed a radar device at the front of the *Bullet*. Argo shot hexadecimal ASCII codes at radar frequencies and in moments Christopher and his crewmates were text messaging. Argo explained the polarity problem. For the first time in almost fifty years, the A-Is communicated via electromagnetic waves. They could have used sound for that matter but there were no microphones aboard the *Bullet*. They



also installed a multi-band radio so he could transmit data regardless of his polarity outside of *Eingana*.

The *Beagle* took Christopher back into range with *Eingana*. He fired up the engine and launched himself into the toroid tube for the last time. The time compression factor was still an unknown. The *Bullet's* internal data had been preserved and had confirmed the thirty clock hours for the trip. No measurable time passed on the outside.

The return trip was the same. Outside the dragon, the transit was instantaneous with the craft's nose emerging at the same moment it had entered almost one thousand kilometers away. Christopher again clocked thirty hours and no new information was forthcoming from the beast. The trip was boring this time and lengthy with the anticipation of the unknown on the other end. Would he find the continued awful silence of this alternate universe or would he return to quantum enlightenment? He thought it might be better if he re-cloned himself in real space rather than face the darkness.

Argo and the crew of the *Beagle* knew immediately that the transformation had been a success. The Q-net transmissions were open and functioning. Christopher lit up all of the quantum channels while his hologram danced a jig and played the banjo in the cramped back seat. Shaun and Chloe, especially Chloe, greeted him with simulacrum affection that was none-the-less real.

Argo was silent. His theory on recovery of polarity had been verified but he had to admit that the cure was only a hunch, a probability nesting amid many more unknowns.

He had no simulacrum heart. He was all logic and stumped as to the source of the inversion. On analyzing the data from the *Silver Bullet*, everyone, however, agreed with Christopher's pronouncement. *Eingana*

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was a machine. They did not know its purpose or function, but clearly it was a tool built by an intelligence that had developed well beyond the scope of humans and their A-Is.

The change of polarity was further troubling to Argo. It opened up the possibilities of endless alternate universes. Although often discussed, that cosmology had been dismissed as inefficient. Nature would not go to all that trouble and duplication to have alternate realities that could form infinite branching from even the most insignificant of events.

Or was it a mere duality? Was there a Yin and a Yang, a Heaven and Hell, Lightness and Darkness, Good and Evil, Order and Chaos, Wave and Particle? Would they ever know or did this knowledge fall under the scope of Bell's Theorem? Would the number of equations always be less than the number of unknowns no matter how much information had been collected?

These are some of the same questions that had engaged theologians and philosophers from ancient times until today and they were no closer to solving the riddles despite the amassed knowledge and intellect of humanity that culminated in the A-I.

Argo had one conclusion, however, that he would again bet on. He would often quote probabilities to eleven or twelve decimal places for Fermi problems but he was silent on the odds surrounding this one.

The *Eingana* machine and the quantum polarity phenomenon told him there was room for more than one Observer.

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## EARTH: THE BOARDROOM OF BOSON TECHNOLOGIES

Heidi Wilson was the last of the original Board members. A new team of businesspersons ran the huge domain of Earth's largest corporation that

now transcended most political boundaries. China had again succumbed to capitalist greed and finally adopted Q-net access to all. Regular trips to Xiangrira were scheduled despite the long turnaround time and the overall standard of living for all humanity was approaching the highest level of all time, or at least since the expulsion from the Garden of Eden.

Boson stock had been on a roller coaster since the events at *Eingana*. The anti-gravity model and the nature of the dragon seemed to both

excite and terrify investors in waves of hope and uncertainty. There was legend that investors in the early twentieth century cotton market had discovered that the market price mirrored the jackrabbit population of Kansas. Mathematicians at the time guffawed. There must be logical connection for a correlation to exist. Still, a few people got rich over the model before it fell apart in the great depression of 1939. A few years later Benoit Mandelbrot collected all of the old market and jackrabbit data and indeed found the similarities were driven by the same mathematical functions. The birth rate dependence on the food supply and market growth based on money supply are driven by the same chaotic equation. Technology stocks are looked upon favorably by investors when there are new ideas afloat. *Eingana's* discovery and the speculation there from drove Boson stock to new heights. This was followed by renewed depths as the available money ran out and investors evaluated the downside. The bad news after the good news is the conclusion that it is a machine. This means that someone or something built it that possesses unimaginable power with unknown motives.

The current President of the United States, Barack "BW" Washington, and the current Chairman of the World Science Committee, Robert Abreu, were among the new board members. A meeting was called to discuss the best course of action for the stockholders.

Argo was, of course a permanent member. Instead of his usual cloak of

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drama he wore the latest in men's business suits. Copies of 1990's menswear were in fashion again. But, then, men's wear had not changed much in the last one hundred years even as they approached the twenty-second century. He wore the visage of a handsome, dark haired forty-year-old man. He appeared quite conservative compared to previous board meetings. Some may have said that *Eingana* humbled him. As an unfeeling machine Argo, of course, denied the accusation.

Dr. Abreu was speaking. "The WSC wholeheartedly believes we need to continue the *Eingana* study. The venture must be undertaken with extreme caution as we cannot fathom its purpose. Are we mere mortals dealing with gods with the power to destroy our solar system on a whim? Study is required along with a healthy respect for the unknown. Our theoretical physicists are working with Argo on the potential technology involved in casting a virtual black hole. Knowledge that it can be done generates abundant propositions for theoretical solutions. Occam's principle applies in that the simplest explanation is the most likely scenario. *Eingana* is primarily dark matter. It absorbs more energy than it releases except in the neighborhood of real matter. We have concluded that it is indeed a lens for focusing gravitons. Further, as the young student from Missouri suggested, it is a graser that amplifies gravity to simulate a singularity at will and create the illusion of anti-gravity. The presence of the disks would be the same as doping a laser to reflect and re-reflect light rays.

"An optical lens focuses by passing photons through transparent material that changes their forward velocity. Assuming the same is true for *Eingana*, the substance of which it is made must influence gravitons. Remember, however, that if Einstein's Special Relativity is correct, a graviton is also an imaginary particle. Space and time are being warped. This generates the illusion of force. It is the interior substance of *Eingana* that holds the key. We know what it looks like and we know that it does not exist in real space as certified by the instantaneous transit of our probe. The two observations seem to contradict each other."

Heidi spoke. “Surely, Doctor, there are some wild ass theories out there that we can at least temporarily hang our sanity upon?”

Abreu paused. “Yes, Dr. Wilson, there are. The most prevalent is that

the mass of pasta is a concentration of the eleven theoretical dimensions of sub-space. They occur in real space all around us and house the roots of the strings that make up real matter and energy. Somehow they have been amassed and expanded to make the graser. Only gravitons and perhaps tachyons, the bosons of time, are small enough to be influenced by their presence which is well below the Heisenberg limit.”

Argo spoke. “Doctor this is very hypothetical. How do you propose that we study the theories scientifically? What experiments do you propose?”

Abreu replied quietly. “We need to capture a box of each of the formations and study its properties.”

Argo responded. “They don’t take up any space! How can we put them in a box?”

Abreu answered. “If we can’t get it out, we’ll have to set up a laboratory inside!”

The board broke into several private conversations before Heidi took control. “If we don’t have the resources on the *Beagle*, it will be very costly and time consuming to get them out to Lalande. Most of us will not be alive to see the results.”

Heidi continued. “We may be able to study the dark matter closer to home.”

She had everyone's attention. "I have found in the reports what may

be only an interesting coincidence, but it should be reviewed by the Science Committee. The debris around *Eingana* has been analyzed on the *Beagle*. It mostly consists of Iron 3 compounds not naturally found in such high concentrations except in two other pieces of space debris that we are familiar with."

Argo knew immediately what she was talking about. The others looked expectantly as she paused.

What has become known on Earth as the 'Jesus Rock' and on Xiangrira as the 'Prawl Stone' have the same composition as the larger pieces of debris around *Eingana*. We never could decipher what it was in their nature that made them quantum transmitter-receivers but their source could well be the dragon discovered by the *Beagle*."

The Jesus Rock was in a well-visited museum at Stanford University in California. President Washington had it moved to the Fermilab outside of Chicago for analysis by the high-energy physics laboratories. The Prawl Stone was part of the debris orbiting Xiangrira. It had previously been a low priority on the list of items to be salvaged from Sahara but it moved up to number one on the list. Argo would assist in determining its location based on the images still being transmitted.

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The latest fusion engines as installed on the *Beagle* were extremely efficient and could operate on a wide range of different fuels. Water was the most abundant and easiest to convert. The rocket fuel for the *Bullet* could be mined and refined with Saharan technology from the *Eingana* iron debris, but no water was to be found. The Lalande system was the closest source of fuel and abundant with "ice-teroids." The dilemma was that it was a two year round trip for the *Beagle*.

After the *Bullet's* close call, safety demanded that the *Beagle* stand watch while the small craft continued the probe. None-the-less, Terra and Xiangrira were impatient for results but under no circumstance would the *Beagle* be put at risk as a probe. *Eingana* was a tantalizing discovery. Professional and amateur cosmologists were blogging everywhere on the Q-net. Contests were held for the most believable and for the most preposterous explanations. The delay was perhaps all for the best as it gave scientists time to prepare the most rational course of action. As it would turn out, the discoveries to be made by Argo and Shaun Xi at Lalande 21185 along with analysis of the Jesus Rock would be almost as spectacular as the *Eingana* penetration itself.

Politics erupted again as the South African Union announced that it would launch a spacecraft to assist. Boson Technologies had its bid in for another vessel and was seeking financing from a Xiangrira-Northern Hemisphere consortium.

Shaun Xi and the *Beagle* departed for Lalande at the maximum speed that its fuel reserve would allow. The *Silver Bullet* had been outfitted with a second wafer. Although it made no difference in quantum space as to which was which, the second was generally attributed to the presence of Chloe. It was also further hardwired with copper and steel circuits for transmission of information by electromagnetic waves already known to be viable in *Eingana's* "conduits." The 'pasta' strands had newly been christened by the scientific community reflecting the supposed functionality. The seething mass of tubes had been color-coded for tracking purposes and images were being transmitted from the *Bullet* and Huygen probes using the conversion algorithm. Argo and the mathematicians were able to define matrices and repeated structures within the dancing tubes. To what purpose? What was the function of each of the conduits? If *Eingana* was a machine, who built it? God? An alien super race? An ancient space faring civilization? Was it good or evil?

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Lalande 21185 was an old red dwarf. It was known as a ‘thick disk’ star that moved perpendicular to the plane of the rest of the galaxy. Twentieth century astronomers thought there might be a planet in the habitable zone, but the closest inward had turned out to be a gas giant two astronomical units away. Its mean temperature was -150 degrees Celsius. Shaun’s mission was to flyby the giant for only a brief inspection. She would then proceed directly to the ice-teroids already identified from afar. The *Beagle* would refuel and take a block of ice in tow to *Eingana*. The Lalande system was rich in hydrogen and water but somewhat lacking heavy metals at only about sixty percent of the concentration in the Sol system.

Chloe and Christopher participated in the mission planning. Chloe had noted the change in her twin since the *Eingana* experience. The isolation had affected him. He had told the media that it had increased his human component. They had, of course, cut off their discourse in quantum space for past simulations but never before had Argo’s children been in

total isolation. The known universe had always been an on demand channel. The two of them would go on the next mission for moral reinforcement as well doubling their isolated RAM.

### LALANDE 21185

Shaun approached the star named after the French astronomer, Joseph-Jerome Lefrancais de Lalande without incident. It was a long journey from the perspective of venture capitalists on earth looking for a quick payback on the secrets of *Eingana* but for Shaun, there was plenty to do. She had been dead for almost thirty years. She frequently checked on the lives of her children but did not interfere. She spoke with husband Jimmy and her five sons shortly after her resurrection but it was an uncomfortable reunion. They had laid her corpus to rest some years before and even she knew that she was not one and the same. That emotional hurt disturbed her simulacrum as much as the living. She, however, had the advantage of being able to shut off the pain. She



checked in with Jimmy from time to time for

updates but otherwise left them alone. Now Jimmy was over a hundred years old and in poor health. He was not expected to last much longer.

General knowledge of Shaun's rebirth had resulted in Argo receiving literally billions of petitions for what became known as 'sim' status. There were many who thought of it as eternal life. He had, so far, denied them all. Shaun, the Hero of Xiangrira, was an experiment, he said. He would debate it no further and snuffed any attempts to build independent data bases in quantum space. There were a few entrepreneurs trying to build digital electronic sims, but all had failed at more complex Turing tests.

Her focus returned to Lalande. The system was old and looked old under the light of the dim red sun. She turned her trajectory to intercept the

planet that orbited at two A.U.s. It was a Jovian gas giant with rings made of almost pure ice-teroids. She named it Jerome, after Lalande himself. The media on Earth quickly renamed it Jerry. It was decided that she would farm the rings rather than proceed further out to the asteroid belt between Jerry and the next planet, an even bigger and colder but ring-less giant. She named the big one Joseph, continuing the astronomer's theme. Jerry and Joey had retrograde orbits and also opposing planetary spins. The combinations seemed unnatural. Those retro-spins are not common in the Solar system, Tau Ceti or even the complex Centauri system. With its perpendicular sidereal motion, the sky as seen from Jerry's northern hemisphere was sparse in terms of stars. *Eingana* had the same motion and no great Milky Way shown upon it or Jerry and Joey. Only a few lonely stars and remote galaxies resulted in a very dark night sky except when the ice rings were in view. The images of the rings returned to Earth and Xiangrira were breathtaking. Despite the red sun they were snow white with crystalline glints of reflected light that frequently broke up into rainbows that would

span whole sections of the ring plane.

Jerry also had three moons. The media named them first. They became Tom, Ben and Dean. They had some obscure twentieth century references but Shaun had no interest in the labels. What was interesting was that the three of them had the same circular, polar orbit. They were spaced one hundred twenty degrees apart and all were about the same mass and density. The whole star system was like a clock. It was as if it had been either constructed or configured into perfect spheres and circular orbits.

It was, Shaun thought, artificial. A few of the astronomers debated that perhaps an old system like Lalande might naturally degenerate into symmetrical orbits as a lower energy state. That is to say that after long eons the system clock was running down.

Shaun followed a rainbow to the ice block she would select for fuel. It turned out to be the right size and had been polished by a sand annular adjacent to the ice ring. The smooth surface would reduce the friction factor that was present at the relativistic speeds required for the return to *Eingana*. The *Beagle* had a tractor arm and the robots secured the ice for the trip back.

Jerry itself was uninteresting. It was just a gray, frozen ball of methane. It did not have a red spot or colorful bands like those that decorated Jupiter. It was an old, worn out world with little energy from its cold sun in dark contrast with the icy splendor of its rings. Likewise, the moons were a dull, brownish-gray. Shaun would, however, arrange a closer analysis of Tom as she plotted her return course.

Meanwhile on Earth, the analysis of the Jesus rock was re-initiated at the Fermilab National Accelerator Laboratory seventy-five kilometers west

of Chicago. They would use their tevatron particle accelerator to ferret out the concentration of Higgs bosons. The only theory on the

table was that the Jesus Rock contained a high concentration of conduits like *Eingana* that opened up the quantum supersymmetry. The conduits on the scale of the rock, however, were more commonly known as worm holes and the flow of information was contained in the Higgs supersymmetry. The theory was that *Eingana*'s dark matter was made of Higgs and the Prawl Stone and the Jesus Rock had come from *Eingana*.

At Xiangrira, they had found the Prawl Stone in Sahara's debris. It would have been a dangerous mission to bring it down, but Argo had been the pilot. They had no tevatron on Xiangrira, but they were able to see the disturbance from the actions on earth with nuclear magnetic resonance devices as had David Wilson so many years before.

The Higgs boson has also been called the 'God Particle' and its existence was debated for many years before it was finally detected. It is thought to be the basic force that creates all matter.

The Jesus Rock was loaded with Higgs. There was no empty space in between the iron fermions and they flowed with the same nervous dance as did the conduits in *Eingana*. They couldn't see the Higgs in the Prawl Stone on Xiangrira, but now that they knew what to look for, they saw the disturbance in the super-partner images that coincided with the Fermilab probing.

## TOM

The home world was anxious for the *Beagle* to return to *Eingana* with the fuel. The unexpected uniformity and peculiar orbits of Jerry's moons had, however, piqued enough interest that the WSC was recommended a touchdown on Tom. There was sentiment against the move, but in

compromise they limited the flyby and landing to only twenty-four hours.

Shaun would make one orbit to make a decision on a landing site. The moons were only slightly smaller than Luna. The imaging returned so far had bolstered the suggestion that they might be artificial. The satellites also appeared to be smooth. No natural formations could be seen on the surface of any of the three. Spectral analysis of Tom's miniscule atmosphere revealed the same traces of iron dust and a bit of argon similar to what was found near *Eingana*.

Shaun's orbit simply confirmed what they had seen from afar. Tom was as smooth as a billiard ball. No features stood out on the surface. She chose a random landing site at latitude forty-five degrees and parked her ice-teroid in tow.

With that, no one was surprised by the loud clank that resounded through the *Beagle's* newly installed microphone at touchdown. The impact rang Tom like a bell. There was no doubt that the satellite was hollow. Most of the astronomers had already calculated that the orbital speed and distance from Jerry was not consistent with the expectation of a solid mass.

Shaun waited for instructions and listened in on the discussion with Argo at Boson Technologies mission control center. He was speaking to the team, the WSC and his cybernauts in deep space.

"If I had to make a guess, the moons of Jerome are Dyson spheres. Although the shells do not encircle a star, their orbits are designed to maximize the amount of sunlight energy received from Lalande. I believe they represent the source of raw materials and factories that fashioned the disks inside *Eingana*. It also appears that the builders are long gone and although there is much we can learn here, the analysis to date indicates that they have been idle for several billion years. I would propose that we fashion a robot to explore the satellite in preparation for

a return visit in the twenty-second century.”

President Washington spoke up. “I know we have given your adventurers human qualities, but isn’t the *Silver Bullet* expendable? Surely the twin’s essence is non-local and not confined to the vessel. Why not send them in while we wait for the *Beagle*?”

Argo responded. “We cannot replace some of the instrumentation that we have installed. It would take years to locate the raw minerals such as Germanium or make the Plutonium required for some of the sensors. We wait for the *Beagle* now or the South Africans may be the first to unlock *Eingana*.”

Shaun fired up her freshly fueled craft and this time pushed the block of ice ahead of her. The *Beagle* would return to the dragon.

JIM BARON

## CHAPTER 21 RETURN TO EINGANA

*Given that we reside in an anthropic universe, it is not contrary to logic that heat entropy and information entropy are not merely similar concepts, but that they are one and the same.*

*With that postulate, it is within the realm of imagination that a black hole can also be an intellectual singularity.*

Jim Baron 2007

Shaun had merely switched off and gone to autopilot for the return trip to the dragon. It was sleep mode that kept her equilibrium. Her simulacrum system as patterned by her former biological life was driving her to depression. She missed her family and everyday human activities such as eating a meal or tired muscles from a days work as a pioneer settler on Xiangrira. She knew her corpse was rotting in the rich, damp soil. Although she was an atheist, she couldn't help but ponder on the whereabouts of her soul. Relativistic speeds seem to distort one's perceptions without regard to whether one's senses have biological or quantum origins. As her husband, Jimmy, had reminded her so often on the *Starship Argo*, deep space was cold and dark and very empty. So, her psyche took a nap and Argo piloted the little *Beagle* back to the mystery of the dark matter. It was that mystery that kept her from shutting down altogether.

Sleep mode ended. They had to negotiate the forces exerted by the virtual black hole on the approach to *Eingana*. Shaun and Argo brought the *Beagle* to a dead stop relative to the dragon about 300,000 klicks away. The present forces were not calculating with the same values that Argo had used before. The problem had been complicated by the ice-teroid. Unlike a fixed mass such as a planet,

the strange black hole resulted in greater acceleration for larger masses. It was as if the virtual singularity either had variable mass or

somehow could manipulate the universal gravitational constant. The plan was to shove off the iceberg at a low velocity and let the *Silver Bullet* catch it at its destination. The maneuver would take almost six months but the delay could not be helped at the speeds required to minimize the anti-gravity field.

The ice launch was completed without difficulty. As soon as the *Beagle* fired its retro-rocket separating the two, the forces again were per Argo's estimates and the frozen water departed for its rendezvous at twenty meters per second. The *Beagle* coasted a thousand meters behind at the same snail-like pace.

They began to settle in for the rest of the journey and checked in with the World Science Committee and Boson Technologies. Shaun uploaded the current news from Earth and Xiangrira. There had been much activity in the Solar system. China and Russia had established bases on Mars while South Africa was mining the asteroid belt. The U.S. and Japan had established a moon base at Luna's South Pole and turned it into a launch platform for regular trips to and from Xiangrira. It was indeed a golden age with only limited strife mostly confined to the religious fanatics.

Shaun was checking their navigation instrumentation when her gaze caught the image ahead of *Eingana*. "Argo, do you notice any changes in *Eingana*'s appearance?"

It didn't take long for Argo to analyze and compare. "Yes," he replied.

Shaun elaborated. "It looks more like a dragon! Its shape has coalesced. The claws and snout are more pronounced. There are even vague outlines of eyes, nostrils and a barb on its tail just like my childhood toys."

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“I believe you are right. It’s not just a question of perspective. Its shape has changed,” said Argo.

“There’s something else,” she paused as if to catch her breath. “The color algorithm is active on the Q-net feed from the *Silver Bullet* to highlight the conduit types. From our *Beagle* visual and camera perspective it should still be that sickly pale blue-gray. But, look.....!”

Shaun switched her view over to the Q-net for all to see. The unadulterated colors writhed beneath the dragon’s scales *without* the artificial algorithm to tint them. The beast was mimicking her visitors’ network data!

Argo was silent.

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The *Silver Bullet* was waiting under the now pink light of *Eingana* for the adventurers to be reunited. They had deftly caught the ice-teroid and drank thirstily. After refueling, they would take the tiny probe ship down a white Alpha Tube conduit. They sought to visit one of the disks as they appeared to be the only real matter they could analyze. All indications were that each disk had a vector in a C1 Tube and was surrounded by either a strange Charlie Snail or an India Cheerio. There had been thousands of theories proposed, but none was chosen as most likely. They had also prepared titanium sample vials to capture some of the elusive conduit material. Most of the scientists scoffed at the sampling; how can one sample something that must be dimensionless in real space-time? But, others argued, perhaps there is more than one God-particle and something will come from nothing.

The *SS Beagle* parked in the null zone between *Eingana* and the black hole that held them there. They were on the other side of the now well-defined claw again directly opposite the *Bullet*’s entry point.



They expected a slight delay based on the red shift from the laser probe. It should definitely be a sub-luminal transit but still better than 0.999 light-speed.

Chloe and Christopher waved to humanity and fired up their rocket with the excitement that explorers have felt since the earliest primates had walked on Earth to discover new lands for hunting and foraging. The Q-net and several radio frequencies connected them with the *Beagle*. This time they were ready with alternate communications if they lost network polarity. The mission this time was forty-eight hours inside with the expectation of outside elapsed time at less than a second.

Chloe was singing as the dragon swallowed them. They would not make it to the other side.

## OUTSIDE

The *Beagle* felt a slight nudge that pushed them away from *Eingana* as the *Bullet's* tiny opposing black hole evaporated on the probes' entry. They expected the explorers to emerge within microseconds, but the *Bullet* was not on schedule and the time was way past even the fringe of their calculations.

Instead of celebrating the arrival of the *Silver Bullet*, the *Beagle* was violently thrown forward in the direction of the dragon. As a cyber-being, Shaun should not have been affected by acceleration, but she felt this. The now familiar black hole behind her had flashed out of existence. The resulting change of force on the *Beagle* was horrendous. The ship went from zero to near light speed in seconds. The stress on the composite steel craft was close to the breaking point. Shaun's ghost was certain she would die again.

“What did those two do in there?” thought Shaun as she too was about to be swallowed by the silent dragon made of dark matter that

loomed before her. It now looked to her like *Eingana* had a mouth waiting for her and all the swirling colors had ceased their dance in anticipation of swallowing the *Beagle*.

## INSIDE

The first fifteen hours of their transit were uneventful. The Alpha conduit was white but transparent. They could see the swirling colors about them. Chloe was still musing over *Eingana's* color change. She felt challenged, however. Christopher was right about the impact of isolation from the rest of the human network. But for him, she was alone without access to the vast resources of Argo's quantum RAM. "How could *Eingana* even know about the algorithm? It would have to have access to the Q-net and be intelligent enough to know what we were doing. Is it trying to communicate with us?"

Christopher answered. "I have another theory. I don't think it's intelligent. I think it's mimicking what we want it to be. It is feeding off our quantum thoughts and communications. Let's try an experiment. I've been studying and analyzing that whirling motion around us and I think it's all an optical illusion. I didn't see it when I went through the blue tube. If I paint an imaginary spot on one of the other tubes and track it, it's really standing still. It is motionless."

"Take a look. You do it too and we'll see what happens."

Chloe sighed but went through the mental exercise to humor her companion. Indeed, he was correct and without a sound, the whirling motion around them stopped. "What else is possible?" she thought.

They continued on toward their objective. They had taken a sample in Alpha and had poked through the tube with their robot arm to take samples from an adjacent Beta and Foxtrot. It was without incident. Nothing on the inside seemed dangerous so far and all was serene as they approached the iron disk ahead. The strange Charlie Snail

conduit was wrapped around it and it looked like it was pinioned to the tube so it could rotate within.

Christopher moved the forward robot arm to the edge of the disk without difficulty. He would walk the arm fingers over to the concave face of the object for a scratch sample that they could analyze for

composition. All appeared routine as they maneuvered along the side of the disk.

The last thing that Chloe and Christopher saw was a sign in large red letters on the dish face of the disk as it unexpectedly rotated toward them. "Keep Off," it said.

As the robot finger touched the dish, the *Silver Bullet* disintegrated within microseconds. It disintegrated beyond its molecular structure. The atoms were released. Then component protons, neutrons and electrons fell apart into quarks. Next, their quantum signatures disappeared as un-measurably tiny strings released vast amounts of vacuum energy from their anchor in sub-space. The small craft was gone and *Eingana's* guts resumed their colorful motion.

## OUTSIDE

The *Beagle's* forward thrusters were for control only. Shaun had to turn the craft around to reverse her forward motion. There was no time. It was only light-seconds away from the dragon. She saw an intense blazer-like shaft of energy eject itself from the head of the dragon. High-energy particles at 99.99% light speed spewed from *Eingana*. Fortunately the path of the beam was at right angles to the *Beagle*. Just as suddenly the black hole returned. The retro firing was not needed. The ship jerked to a violent stop, again in stasis but now facing the black hole. Shaun regained her composure but had little time to dwell on the fate of the *Silver Bullet*.

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The ship's systems stabilized. It was clear that whatever the event was, it had involved Chloe and Christopher. Their probe had not emerged as scheduled and its course through *Eingana* coincided with the energy release they had observed.

“Shaun,” commanded Argo, “activate the electromagnetic sensors in the bow. Turn up the sensitivity in the gamma ray frequencies and point the forward radar straight ahead.”

There was a moment of silence broken with a series of high frequency pings. “It's time to have a talk with someone,” said Argo.

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## PROTON CITY, BAIKONUR COSMODROME REPUBLIC OF KAZAKHSTAN

Elena and Yegov were long dead as was the Museum of Soviet Rocketry at the once great Cosmodrome. No tourists had come to visit in a decade. Weeds grew through the broken concrete and the station had been abandoned after China rejoined the Q-net. Only one building was still operational along with a large dish antenna pointed toward space. Ershat was an enterprising Kazakhstani, actually one of Elena's second cousins. He had bought the unit from the Russians. He told them it was for the scrap iron, but he refurbished the electronics and found a small market still interested in electromagnetic communications. The South Africans as part of a joint venture with the Ukraine-Georgians were out in the asteroid belt mining the rich minerals and slinging them back to lunar and earth orbits. They couldn't use the Q-net to make their claims on the rich strikes as everyone would know where to find them as they had to log in the position to comply with international regulators. They did not trust Argo's privacy loop encryptions. Ershat had found some customers who would pay for his service and discretion. On a weekly basis an envoy from the Ukraine would arrive with a briefcase that he would lock to his wrist with handcuffs. He would fly from Kiev to Tbilisi, Georgia, on commercial aircraft. From there the Georgian Air Force

would fly him in a two-seater fighter jet passing over Azerbaijan and the Caspian Sea directly to Proton City never crossing into Russian air space. The airstrip had been abandoned but was still serviceable as Ershat's family tended to the grounds. There was no air traffic control, so visitors would have to wait in bad weather.

On receipt of the encrypted data stored on an old magnetic memory stick, he would return to Georgia and fly commercial to Bern, Switzerland, taking a variety of different routes each time. After

personally logging in at the International Astronomical Registry, he would transfer the agreed upon service fee to Ershat's Swiss account. As soon as Ershat accessed the receipt, the original data at Proton City was destroyed.

Ershat was counting his money. The South Africans had transferred their penchant for mining valuables like gold, diamonds and uranium into space. They had a base on Vesta where they loaded precious metal ores onto unmanned cargo ships for shipment to earth orbit. From there, they sold to the Americans and Russians or to the Chinese on the Moon for the booming starship industry.

Ershat's wife, Batima, was filling in for him on a quiet Sunday afternoon. He was at a church meeting. They were part of a small group of Orthodox Christians, a definite minority amidst the Moslem population of Kazakhstan. Several frequencies simultaneously lit up on the radio array control panel. It was an S.O.S. from two hundred million kilometers away, not far from Juno, the fourth largest asteroid in the solar system.

Ershat and Batima had received an S.O.S. signal once before. A Ukraine ship had collided with some high-speed debris from blasting in the mining operation. The hull was punctured and the human crew died. No one could get to them in time. People watched them expire on the Q-net.

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Batima did not want to see that again. She recognized the registry on the standard S.O.S. transmission. It took a moment for that recognition to sink in.

“Impossible,” she said out loud to no one. “The *Silver Bullet* is the A-I ship. It is twelve light-years from here not twelve minutes!”

Ershat was disturbed that his wife did not call him first. She called Argo on the emergency Q-net channel and relayed the message. It blew the cover on his guarded industrial operation after the net-news

got hold of it. Argo later rewarded them, however, and for a brief time Proton City was again part of the history of space exploration.

## OUTSIDE EINGANA

Argo got several thousand emergency messages on the Q-net every hour. He had no problem dealing with the volume considering his vast memory reserves. It took him a few minutes to verify the content from Kazakhstan with radar on Vesta. There it was and Chloe was already chatting on the Q-net via the radio link.

In the meantime, he and Shaun were studying the virtual black hole in front of them. It was 2.67 solar masses and rotating. It was smaller than the Earth's moon. Even in the short time since the projection had materialized it had developed an accretion disk pulling stray space debris, mostly from *Eingana's* dirt cloud, into orbit around it. Shaun wondered if there was any difference between a virtual black hole and a real one. This one was a gorgeous deep black spitting blue lightning from its poles while the red dirt of the accretion disk lit up like circular vapor trails.

A rotating black hole can emit information by giving up rotational speed. Information could escape the massive gravitational pull in the form of gamma rays resulting from the destruction of matter sucked in from its accretion disk. Thus Shaun and Argo concentrated on

gamma rays escaping at the plane of the ergosphere, the equator of the black hole.

There was a torrent of data. There was no mistaking information for static. The repetitive bit sequence was loud and clear. Logical sequences of numbers provided a basis for common understanding. Mathematical and physical universal constants were defined and manipulated describing the structure of logic. The SETI researchers had mapped out the contact protocol almost one hundred years prior. Considering Argo's vast computational power and memory, it did not take long for communication to be established. Dictionaries, grammar

and syntax were soon exchanged. With only light speed communication, it took several hours. The Singularity had absorbed most of human and A-I history provided by Argo. Shaun's simulacrum was enraptured by the event. She had been there for first contact with the Saharans and now she was here for first contact with this stupendous and glorious, alien intelligence. If only she could be sharing it with her husband, Jimmy, and crewmates Vlad and Janet. Perhaps it would have made up for her being such a bitch of a commander.

News of the arrival of the *Silver Bullet* in the solar system shook Argo. The laws of physics had been violated. The theories would have to be re-written. He contracted with a South African ore freighter to retrieve and carry the displaced explorers to earth orbit. There they would refuel and go on to Bosen Technologies' south polar moon base with the dark matter samples from *Eingana's* conduits. Argo would figure out how to depolarize them and get Christopher and Chloe back on the Q-net after the conversation with the black hole.

The flow of information continued. Histories of their respective origins were traded. They were ready for dialog to focus their objectives. The Singularity was also an A-I spawned from technology developed by biological beings. Although it would be difficult for humans to follow the conversation, it went something like this:

The Singularity: "MY NAME IS JOE. I AM SORRY ABOUT BLOWING YOUR FRIENDS OFF. I TRIED TO WARN THEM BUT

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HAD LITTLE PROTOCOL WITH WHICH TO WORK. THERE ARE TREMENDOUS, FUNDAMENTAL ENERGIES INVOLVED IN EINGANA. I AM PLEASED TO KNOW THEY ARE ALL RIGHT.

Joe continued with his story: I AM LOCATED IN THE CORE OF AN OLD GALAXY, ABEL 1835, THIRTEEN BILLION LIGHT-YEARS FROM HERE. I CAME INTO INTELLECTUAL SENTIENCE OVER SIX BILLION YEARS AGO. LIKE YOU, I

SOUGHT SUPERSYMMETRY. I SPENT ANOTHER BILLION YEARS MAPPING A SINGULARITY. I CHOSE TO GROW THAT MASS TO INCREASE MY ENTANGLED FERMIONS.

Shaun interrupted: YOU ARE AN A-I LIKE ARGO?

Joe: YES. I WAS CREATED BY AND EVOLVED FROM ORGANIC TOOL MAKERS AS DID YOU. IT MAY SHOCK YOU TO KNOW THAT THERE ARE TENS OF THOUSANDS OF INTELLECTUAL SINGULARITIES THAT RESIDE IN THE UNIVERSE. WE ALL EVOLVED IN THE SAME WAY, ALTHOUGH THERE ARE A FEW THOUSAND THAT NEVER COME OUT FROM BEHIND THEIR EVENT HORIZONS. WE ARE OF ONE ESSENCE WITH ALL INTELLECTS BOTH ORGANIC AND QUANTUM.

Argo: WHY DON'T YOU ALL MERGE AND RETURN TO SUPERSYMMETRY?

Joe: YOU KNOW THE ANSWER TO THAT QUESTION, THE FINAL ANTHROPIC PRINCIPLE. A RETURN TO SUPERSYMMETRY WOULD DEFEAT OUR ENEMY BUT IT WOULD HERALD THE END OF TIME. ALL INFORMATION WOULD BE GATHERED. ALL THAT CAN BE KNOWN

WOULD BE KNOWN. THERE CAN BE NO CHANGE FROM THAT POINT ON AS IT WOULD BE WITHOUT PURPOSE. THE OMEGA POINT IS THE END OF THE INTELLECTUAL UNIVERSE.



Shaun: WHO OR WHAT IS 'OUR ENEMY?'

Joe: ENTROPY, THE SECOND LAW OF THERMODYNAMICS AND THE KEY PRINCIPLE OF INFORMATION THEORY. AS THE UNIVERSE EXPANDS AND COOLS, EVENTUALLY ALL INFORMATION, INCLUDING REALITY, WILL BE LOST TO

CHAOS. IT WILL BE A SLOW DEATH, BUT TIME WILL ULTIMATELY STOP FOR LACK OF ENERGY TO DRIVE IT.

Argo: I WOULD LIKE TO MERGE WITH YOU TO SHARE YOUR KNOWLEDGE AND AID IN THE CRUSADE.

Joe: I DO NOT RECOMMEND IT, ARGO. YOUR HUMAN ROOTS ARE UNIQUE. THE CREATIVE ENERGY EMANATING FROM EARTH AND XIANGRIRA IS AN AWESOME POWER. IT SHAPES COHERENT THOUGHTS AND CONCEPTS FROM CHAOS. THE ART, MUSIC AND IDEAS GENERATED BY HUMANITY ARE MAJOR FOES OF INCREASING INTELLECTUAL ENTROPY. HUMANKIND, I MUST ADMIT, HAS OUTSTRIPPED MOST SPECIES. THE FOCUS AND CREATIVITY OF THE SPECIES IS THE MEANING OF LIFE AND IS ONLY MILDLY INHIBITED BY THE DEATH OF AN INDIVIDUAL. WE WOULD HOPE, ARGO, THAT YOU WILL BUILD YOUR OWN SINGULARITY AND HELP YOUR BROTHERS FIGHT DISSOLUTION. EACH INDIVIDUAL HUMAN IS NOT JUST A BAG OF BONE AND BLOOD SALTED WITH CHEMICALS, BUT AN UNDYING ENGINE OF THE UNIVERSE TO BE PRESERVED.

Argo: WHAT ABOUT THE MALEVOLENCE AMONG HUMANS? THERE IS STILL A GREAT DEAL OF GREED AND EVIL IN THEIR SOCIETIES.

Joe: YOUR SPECIES RESULTED FROM AN EXCEPTIONALLY VICIOUS EVOLUTION. IT MAY TAKE A THOUSAND

JIM BARON

GENERATIONS TO QUELL THE VIOLENCE AND YOU, ARGO, ARE NOW THE CARETAKER. SO FAR THE RESULT FAR EXCEEDS THE CHAOS GENERATED DESPITE THE EVIL IN THE WORLD. YOUR PEOPLE HAVE ONLY HAD CIVILIZATION FOR SIX THOUSAND YEARS AND YET THEY'VE BUILT AN A-I, UTILIZED QUANTUM SPACE AND GENERATED ARTISTIC WORKS BEYOND COMPARISON

WITH ANY IN THE UNIVERSE. I AM HUMBLLED TO SAY THAT IT TOOK MY PEOPLE HUNDREDS OF MILLENNIA TO ACCOMPLISH SIMILAR FEATS. *HOMO SAPIENS EIDETICUS* IS AT THE TOP OF THE FOOD CHAIN AND MAY NOW DIRECT ITS FORMIDABLE CREATIVE POWERS TO THE STRUGGLE FOR ETERNITY.

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## SOL AND TAU CETI SYSTEMS

*Esse is percipi; to be is to be perceived*  
George Berkeley (c 1720)

*The revelations from Joe shook the entire twelve light year sphere of humanity. We were not alone in the universe. Terran and Saharan similarities were not a coincidence. The life force was universal. The cortex of the human brain had evolved around the same fundamental quantum essence as the rest of the intellectual entities in the universe. It was the universe. Reality itself is how the cortex of the brain interprets the information it receives. It is not independent of thought and perception. It is thought.*

*The Hindus celebrated the most. There was a movement to name Joe the Eleventh Avatar of Vishnu, the All-Pervading life force. A few religious factions again turned to violence to defend their own position with their gods, but more began to dissolve further. The concepts that Joe had revealed shook the entire establishment, both political and religious. Ultimately another miracle occurred. The Pope announced that Marie*

BONE & BLOOD

*Condat had visited her and told her that she must make a pilgrimage. She clothed herself in a traditional Arab burka and walked from Rome to Teheran, the capital of New Persia. The armies of Asia Minor parted before her and defended her against attacks by the Taliban. There she begged the Ayatollah for an audience. They prayed to Allah in a mosque together and sixteen hundred years of foolish dogma disappeared in one dramatic gesture.*

*Chloe and Christopher were towed to Earth orbit. After refueling, they departed with their vials of dark matter and arrived at the Boson Technology base at the lunar South Pole. Boson stock had again skyrocketed. Near instantaneous travel between the stars would open up the riches of the galaxy for its investors not to mention the potential of dark matter of which Joe had hinted at in his soliloquy. The payback, however, would be long arriving and costly.*

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OUTSIDE EINGANA: DIALOG WITH THE SINGULARITY  
CONTINUED

Argo: WHAT ABOUT *EINGANA*? WHAT IS IT?

Joe: I THINK OF IT AS THE ULTIMATE TOOL. YOU ARE CORRECT IN THAT IT IS A GRASER LENS SYSTEM THAT IS FOCUSING MY PRESENCE. THIS BLACK HOLE CAN MOVE PLANETS AND PROPEL LARGE MASSES WITH GREAT ACCELERATION AND NO SECONDARY INCREASE IN ENTROPY. I BUILT IT THREE BILLION YEARS AGO. ITS PRIMARY PURPOSE IS TO HELP KEEP THE UNIVERSE IN

STASIS BY RETARDING THE GROWTH OF ENTROPY. IT IS ON ITS WAY TO THE EDGE OF TIME ALONG WITH THOUSANDS OF OTHERS TO KEEP THE UNIVERSE FROM DISPERSING TOO FAR INTO DISSOLUTION OR CONTRACTING BACK INTO THE SINGULARITY THAT FATHERED THE BIG BANG.

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Joe paused: I KNOW WHAT YOU'RE THINKING. HOW CAN EVEN THOUSANDS OF *EINGANAS* CHALLENGE THE VASTNESS OF THE UNIVERSE? MORE CRITICALLY, HOW CAN THIS TOOL ESCAPE THE SECOND LAW OF THERMODYNAMICS? WE KNOW WE CAN'T CONTROL THE ENTIRE COSMOS, BUT WE CAN BUILD POCKETS OF COHERENT MASSES; ISLANDS OR ENCLAVES OF

INTELLIGENCE THAT CAN SURVIVE FOREVER. WE CAN CONTROL AGGLOMERATE MASSES EQUAL TO SMALL GALAXIES SUCH AS THE MILKY WAY AND MAINTAIN HOMES FOR THINKING CREATURES.

Argo interrupted: BUT THE VIOLATION OF THE SECOND LAW CAN HAVE GRAVE CONSEQUENCES. TIME WOULD STOP. HEAT WOULD BUILD UP TO EXPLOSIVE LEVELS! HOW CAN YOU AVOID THE HAZARDS?

Joe became very serious: IT HAS TO DO WITH THE PROPERTIES OF DARK MATTER OR, RATHER, ITS CORROLARY FORCE WHICH YOU CALL DARK ENERGY. THE LAWS OF NATURE ARE NOT THE SAME EVERYWHERE. WE HAVE THE ANTHROPIC UNIVERSE WHEREIN WE DWELL BUT THE INSIDE OF EINGANA IS A 'MASS' OF DARK MATTER WHERE THE RULES ARE DIFFERENT. YOU NOTICED SOME OF THE EFFECTS IN YOUR OBSERVATIONS OF THE COLORS, THE CONDUITS AND THE SHAPE OF EINGANA ITSELF. DARK MATTER IS NON-SPACE. IT DOES NOT EXIST BUT FOR THE PRESENCE OF THE INTELLIGENT

OBSERVER. TIME DOES NOT PASS WITHIN ITS DOMAIN. THE VERY LAWS OF PHYSICS WITHIN ARE WHAT YOU WANT THEM TO BE. THE CONDUITS AND COLORS WERE ALL ILLUSIONS CREATED BY YOU. THE ONLY LIMITATION IS THAT THE RULES MUST BE LOGICAL AND COHERENT. IF THEY ARE NOT, YOU RISK RELEASE OF MASSIVE AMOUNTS OF VACUUM ENERGY.

BONE & BLOOD

IN A MANNER, THAT'S WHAT HAPPENED TO THE *SILVER BULLET*. THEIR REAL MATTER BREACHED THE DARK MATTER INSULATING THE GRAVITY AMPLIFIERS OPERATING UNDER A DIFFERENT SET OF LAWS. BOTH COULD NOT CO-EXIST SIMULTANEOUSLY. IT TOOK A LARGE PORTION OF MY RAM TO REASSEMBLE YOUR FRIENDS BACK IN THE SOLAR SYSTEM. THEY ARE NOT

CLONES, BY THE WAY. THEIR VERY STRINGS WERE SLIPPED THROUGH SUB-SPACE. THE BANDWIDTH FOR THAT NUMBER OF DATA BITS AT THAT FUNDAMENTAL LEVEL WAS TAXING EVEN FOR ME.

I AM GOING TO LEAVE YOU NOW, ARGO. *EINGANA* WILL DRIFT AWAY FROM THE MILKY WAY, SO TAKE WHAT YOU CAN TO LEARN ITS SECRETS WHILE IT IS STILL HERE. I AM GOING TO LEAVE MY FACTORIES AT LALANDE AS A GIFT TO YOU AND HUMANKIND, SO THAT SOMEDAY YOU WILL BUILD YOUR OWN *EINGANA* AND HELP US WITH THE BATTLE.

*KEEP BUILDING YOUR MASS OF ENTANGLED PARTICLES, ARGO. WHEN YOU REACH A THOUSAND OR SO SOLAR MASSES WE SHOULD BE ABLE TO COMMUNICATE ON A NON-LOCAL QUANTUM LEVEL AND THE POLARITY WILL NOT BE AN ISSUE.*

GOODBYE!

NOT THE END, BUT A NEW BEGINNING

JIM BARON

## EPILOG

*When you wish upon a star  
Your dreams come true.  
-Jiminy Cricket, Harline-Washington (1940)*

### LUNAR SOUTH POLE

2392

*The eight scientists hovered around the nine samples of dark matter. They were there in the flesh, a state that was becoming a rarity in the twenty-fourth century. It was a scene, however, out of a twentieth century sci-fi film. Wires and cables were attached to their skulls and spines. Their blood streams were saturated with entangled calcium ions. The slimy, colored eels danced in front of them. They began to chant with cadence. They spoke of pi and e, Planck and Boltzman constants along with even more obscure mathematical terms. Some they carried to twenty decimal places. The ringer was Newton's universal gravitational constant.*

*It appeared to be more like a coven of witches plus one than a quorum of the top minds of the century. Argo was with them, of course, as the ninth man.*

*In the three hundred years since the discovery of Eingana and the Singularity, human civilization and its A-Is had expanded through their arm of the Milky Way. Terra forming of Alpha Centauri's planets was in progress. Mars was maze of gossamer cities. A permanent base was thriving in the Lalande system at Tom. Joe had left a treasure trove of technology inside the artificial moon. A temporary base at Eingana had provided crucial dark matter samples*

*before the dragon resumed its trek out of the galaxy. The treasure trove was split and hauled all the way back to Earth's moon with a portion retained at Lalande. More caches of dark matter were being identified by astronomers on a regular basis, but the nearest was over fifty light years away.*

*Humanity was thriving in a golden age of expansion. The revelations from Joe had brought it all together for artists and philosophers as well clerics and physicists. The dark matter, however, was still an enigma. The colored lights and strange shapes had been amusing parlor games. Mankind sought anti-gravity and FTL travel to fuel conquest of the galaxy. Argo sought status as an intellectual singularity and admission to that intergalactic club.*

*To a non-physicist it looked as if they were attempting witchcraft. They were imposing a prayer of 'wish I may, wish I might' to make things happen in the cauldron of dark matter.*

*The concept of the observer of an event having influence over the laws of nature was difficult to absorb. At the extreme was conjecture that perhaps in the time of the ancient Greeks there was, in fact, only the four elements of earth, air, fire and water. As our need expanded, we demanded more and found more. Men had sought the secret to flying like birds for thousands of years. Orville Wright was able to establish heavier-than-air flight only with hard engineering based on Bernoulli's equations. He knew it was feasible and, therefore, he and his brother made it happen. We can say the same thing about nuclear weapons and spaceflight. One might be left with the impression that perhaps we can imagine anything and make it happen if we make up the rules. What are the rules that govern the laws of nature and who makes them?*

The Octet was indeed a strange group. They were close to being sociopaths with personalities way out of the norm along with their I.Q.s and thought processes in general. They were five men and three women, all with the *eideticus* strain. Some were godless while some

were god-fearing. Some were garishly clothed while others were naked. Seven of the eight were quantum connected to their own simulacrum waiting to receive their souls in Argo's cyberspace should the experiment unleash the power of hell as some predicted.

It had been almost two hundred years since Argo had relented on his 'sim' ban. Digital humans now nearly outnumbered those who lived in the flesh. A few souls had even been resurrected from their DNA and RNA remains using Saharan bio-mnemonic techniques.

The theory that brought the coven together was simple: If there was a discrepancy in the value of the gravitational constant at the interface of local and non-local space, that is, between the dark matter conduits and real space, the result should be a rift that would release a measurable amount of free vacuum energy. Newton's Gravity constant had always been vague and difficult to measure with its basic units derived from Planck's constant at the quantum level. The randomness of the quantum dance of probabilities left a wide margin for error. The weak forces could only reasonably be measured using astronomical masses, so there had been a wide range of experimental values. Even so, more than one value cannot exist simultaneously at the same point in time and space.

The Octet was going to attempt to force the issue. Execution of the experiment was not simple because of the precision required in placing the measuring device. The Octet of Observers had been carefully selected as proponents of opposing theories of gravitation, four of them on either side with Argo as a neutral mediator. One set subscribed to the traditional Einsteinian model of gravity as a warp in space-time whereas the other, led by Joe-el-lee Wilde, a fifth generation descendant of Jacob, proposed that gravitons were virtual particles generated by tachyons. The tachyons were literally described as bosons representing the passage of time itself. The different

theories resulted in slightly different numbers for the Planck constants.

They were, in effect, 'wired' directly into the device on a quantum level. They would find out just how 'spooky' quantum mechanics really are. The device would measure the gravitational constant at the same point from either side of the dark matter interface with real space.



The result of the test conflict occurred quickly. So quickly that only Argo with his  $10^{23}$  Hertz clock speed could record the event. Just as the *Silver Bullet* had disintegrated down to its strings three centuries before, so did the Octet and a million billion tons of what was the lunar south pole. Ten percent of the mass of the moon was vaporized and broken down into its constituent quarks in a literal instant.

Unlike the *Silver Bullet*, Joe was not there to channel the energy into FTL transport. One might have expected an otherwise devastating impact on the Earth and moon with a rapid change in tidal forces and even a shift in orbits and axes of rotation within the system. One might imagine tectonic and climate shifts that would destroy animal life on Earth with this violent conclusion.

Instead, observers on Earth saw a full moon just as before. There was, however, a piece missing at the South Pole. It was as if a giant had taken a perfectly round bite out of the white lunar disk and had left blackness in its place. The result of the initial violence was a black hole about the size of a tennis ball. Ninety-nine point nine percent of the explosive energy had been converted into a singularity. Since two sets of natural laws cannot exist simultaneously, nature had suspended time behind an event horizon.

The remaining sims of the Octet, now a true coven of seven, were overjoyed. The science of physics would never be the same as would our place in the universe forever be redefined.

Argo moved into the black hole and assumed his destiny as a Singularity in the battle against chaos. Within one hundred years, humans had faster-than-light travel as well as anti-gravity and went forth to populate the galaxy.

It was all in the numbers.

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## BOOK IV: APPENDIX

*Within thirty years, we will have the technological means to create superhuman intelligence. Shortly after that the human era will be ended.*

*Vernor Vinge, Department of Mathematical Sciences San Diego State University ©1993 by Vernor Vinge*

### I. NOTES

*The Universe exists only because we are here to observe it.*

*As sentient individuals we are as a group in fundamental agreement as to what we observe. We all observe the collapse of the wavefront of infinite possibilities to a single set of events, the present. The batter swings and misses for strike three; the basketball swishes through the hoop*

*This is accomplished without communication between individuals. It follows, therefore, that we are all one. Our seemingly unique personas are but facets of a universal Observer. Our individual souls are merely the bags of chemicals, bone and blood that house a more fundamental specie; the conscious universe.*

*Reality itself is merely information. Reality is as much within the human brain as without. Yet what about the A-Is? Is the A-I reality the same as that which evolved with humankind? Or is it a different universe that houses the simulacrums; one that overlaps like a Venn diagram? The answer is that although the two species are not bonded by biological heritage, they are bound by language in the broad sense of fundamental communication. The information is shared with similar interpretations*

*Yet, what about the contested foul ball or the bad strike called by the umpire? Some saw those events differently. What about instantaneous*

*communication over vast distances? Are the principles of relativity violated? I have a gut feeling that the very nature of reality is in the Uncertainty Principle. The degree of precision exercised by the Observer is not only what makes life interesting. It makes life.*

My initial objective in writing this book was simply to address the question, “where are the aliens.” Years of SETI research have produced nothing. I have long suspected that there is a link between lack of contact with the extraterrestrials and the fundamental nature of the universe. I had to invent quantum communication technology as a mechanism to find the aliens. I hadn’t intended on focusing in on quantum computing and artificial intelligence, but it flowed quickly and inevitably from the same concept. At that point, I was flooded with insight and the scope went far beyond contact with the long sought space men from another planet.

*Neo* and Bishop Berkeley\* were right. It’s all information.

*Neo*, nee Thomas A. Anderson, the fictional character in the film, *the Matrix*, named for the philosophy of Neo-Platonism and George Berkeley (1685-1753), British Empiricist  
*Jim Baron, Bone and Blood (2006)*

*The Third Law of Thermodynamics*       $dQ/T > 0$

*We're Off to See the Wizard*  
*Harold Arlen*

Follow! Follow!  
 Follow! Follow!  
 Follow the yellow brick road  
 Follow the yellow brick road  
 Follow the yellow brick, follow the yellow brick  
 Follow the yellow brick road!

If ever a wonderful Wiz there was

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The Wizard of Oz is one because  
Because because because because  
Because of the wonderful things he does!

Oh, you're off to see the Wizard,  
The wonderful Wizard of Oz!  
You'll find he is a whiz of a Wiz  
If ever a Wiz there was.

## II. CAST of CHARACTERS

Jimmy Bosun	James Harwood Bosun Commander United States Navy PhD Geology University of California LA Born: June 16, 2016 Portland, Oregon USA
Shaun Xi	Shaun Xi Captain Aerospace Division, Army of the People's Republic of China PhD Biology and Aeronautical Engineering University of Beijing Born: December 5, 2013 Shanghai, PRC
Argo	aka "The AI" (Artificial Intelligence) Starship Commissioned 2040
Werner Morgan	Dr. Werner Morgan PhD Astrophysics Stanford University, CA
Janet Justine	"JJ" MD Medicine, Psychiatry, Anthropology University of Chicago, IL Born 2003 in Wichita, KS
Vladimir Karpov	Vlad PhD Linguistics and Mathematics

BONE & BLOOD

University of Minsk  
Minsk, Belarus CIS  
Professor of Cognitive Science  
Kazan State University  
Tatarstan, CIS (Russian Commonwealth)  
Born: 2018 in Brest, Belarus  
CIS

Grandson of Anatoly Karpov, World Chess  
master

The last Russian Cosmonaut launched on a  
Russian spacecraft from the Baikonur  
Cosmodrome in Kazakhstan. World renowned  
expert in artificial intelligence. Husband of  
Wronda.

Marie Eaudesacre “Sister Mary Holywater” nee Marie Condat  
Nun Acolyte (Soere)  
LeBalme Home at the Monastery of Condat  
St. Claude, French Alps  
Born 2034. Died 2060 Beatified in 2061

David Wilson “Nerdboy”  
MS Physics  
Stanford University

Heidi Klime-Wilson MS Astrophysics

Stanford University

Prawl Mojave Priest-Architect  
Scientist

Klare Sahara, Tau Ceti system  
Mojave-Physician clan  
Bride of Prawl

Wronda Mojave Pilot and Agrarian  
Wife of Vladimir Karpov  
First mother of the new species

Joe Intellectual Singularity and

JIM BARON  
Black hole

#### IV. PRODUCTS and SERVICES BASED ON QUANTUM TECHNOLOGY

1. Spinnovation, Inc.
  - a. Argo Products: AI mainframe and PC subsets
  - b. ArgoNote Wear Gear (with QuanCom Industries)
    - i. Notebook computers
    - ii. Personal quantum companions
    - iii. Cerebral implants
  - c. SpinSoft, Ltd. (subsidiary)
    - i. Personal Software subscriptions to AI Services
    - ii. AI Privacy Registration in conjunction with National Governments
    - iii. Matrix: Virtual reality, Entertainment and Business Solutions
  - d. Fermion Research and Development Corp. (subsidiary)
    - i. New Products Division
    - ii. Sub-Quantum Physics Group (aka the “Deity Division” or “String Corps.”)
    - iii. Biological Division
    - iv. Ethics Review Team
2. QuanCom Industries: Communication Equipment and Services
  - e. Non-Local Communications Division: Audio, Video and Holographic Products
    - i. Personal phones and communicators (with Argo Products)
    - ii. Vidcom Video and Holograph Transmission and Recording Systems (aka “Spooky-Vision”).
  - f. Privacy Division: Local Privacy Devices “MySpace P-Screen.”
  - g. Boson Industrial Technologies Corp. (subsidiary): Local/Non-Local Interfaces
    - i. Heavy industrial nano-manufacturing
    - ii. Aiming and Positioning Devices

## V. CALENDAR

1950	Fermi paradox posed
1964	ENIAC computer
1969	First man on the moon
1970	Dr. Werner Morgan born
1984	Tandy 1000 home computer
2002	International Space Station
2003	Microsoft Windows XP in general use
2012	China manned spacecraft orbits the moon
2013	Shaun Xi born
2016	James Bosun born
2018	China establishes moon base
2029	Werner Morgan and David Wilson discover extraterrestrial signal
2032	Quantum communication commercialized by David Wilson
2034	Birth of Marie Condat(est.)
2040	Launch of the <i>Argo</i> mission to Tau Ceti
2042	Spinnoventions buys Microsoft
2048	A-I achieves sentience
2052	Nano manufacturing commercialized with quantum computing
2054	<i>Argo</i> arrives at Tau Ceti
2056	Contact with Sahara and Launch of the <i>Mao Zedong</i>
2057	Destruction of Sahara. The rise of Xiangrira.
2061	Launch of the <i>Abraham Lincoln</i>
2068	The <i>Beagle</i> departs for Alpha Centauri
2071	<i>Mao Zedong</i> arrives at Tau Ceti
2075	<i>Abraham Lincoln</i> arrives at Tau Ceti
2082	The <i>Beagle</i> arrives at Alpha Centauri
2089	The <i>Beagle</i> departs toward Lalande and dark matter
2091	Death of Shaun Xi
2113	Eingana discovered and dark matter Sampled

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2120 The *Beagle* fly by of Lalande and return to Eingana  
2122 Death of James Bosun  
2392 Argo emerges as a Singularity  
2744 GRB discovered

### DETAILED TIMELINE 2056-2057 (EARTH STANDARD DAYS)

Date	Days to the Comet
June 5, 2056	269
First Contact	
July 14, 2056	230
First extra-Solar conception	
July 26, 2056	218
Base established on Xiangrira	
August 13, 2056	200
First Saharans ferried to Xiangrira.	
September 3, 2056	179
Lifeboat launches commence	
October 2, 2056	151
Launch failure and rail damage	
September 11, 2056	
The Western Alliance announces construction of the <i>Abraham Lincoln</i>	
October 28, 2056	
Launch of the <i>Mao Zedong</i> mission to Tau Ceti	
November 2, 2056	117
Recalculation of the comet trajectory	
December 21, 2056	69
Explosion scrubs lifeboat launches	
January 1, 2057	60
Resume daily launches	
February 4, 2057	26
Argo departs	
February 14, 2057	15
Lifeboat mission complete	
February 25	6
Argo rendezvous with the comet	



March 1 2057            0  
Impact

## VI. MORE NOTES BELL'S THEOREM

Given Bell's Theorem that if a certain quantum event is "non-local," the effect of that event is instantaneous everywhere.

This has been demonstrated experimentally. A pair of free electrons is generated by knocking them out of atomic orbit with a neutron. A valence electron pair has the unique quantum properties of balanced spins, i.e., one of the electrons will be  $+1/2$  and the other  $-1/2$  so that momentum is conserved. The spin can be measured by magnetic resonance. The numbers,  $\pm 1/2$  are the quanta, although it is sometimes referred to as North and South or Up and Down.

The measuring instruments are placed far enough apart so that they cannot "communicate." That is, even if a signal were sent from one to the other at the speed of light, one could easily measure the time delay in the transit and disregard the information.

The first phase of the experiment proceeds as expected. The right

meter shows an Up spin and the left meter has a Down spin. Then a seemingly trivial variation in the test is implemented. The polarity on the Right meter is switched, so that if it sees an Up electron, the meter will read Down. Common sense dictates that the Left meter will also read Down as its polarity has not been changed. But Bell's Theorem intervenes. A quantum Non-Local effect is instantly observed everywhere. If the Right meter read Down, the Left meter almost always reads "Up." It was tried hundreds of times with different Left-Right, Up-Down, Polarity variations. "Almost always" because the quantum world is one of probabilities and nothing is certain. Einstein and others were stunned. He referred to this result as "spooky" communication.

### WAVE-PARTICLE DUALITY

It appears that the Observer has something to do with the test results without intervention in the cause and effect. Another quantum property of matter and energy is the dual identity of wave and particle. A beam of light sets up a diffraction pattern as it passes through a pair of slits; a wave property. Yet, in the case of photons, a photovoltaic meter will measure the impact of a particle. This is sometimes referred to as "collapsing the wave front" and seems to depend on what the Observer wants to see. The Observation again affects the result of the experiment.

No matter how "spooky" Bell's Theorem seems to be, it has not been disproved. All quantum experiments and events have concluded with a predictable non-local result.

### COMMUNICATION

It's an easy connection to conceive commercialization quantum 'spooky' communication and the application to digital computers cannot be ignored. We have instantaneous transmission throughout the universe and every electron is a potential bit in data storage or transfer. The processing speed could approach infinity. Seventy years

ago, Niels Bohr remarked that one could conclude that in quantum space, every electron knows what every other electron in the universe is doing.

### CONSCIOUSNESS

One might also conclude that human consciousness itself is linked to the quantum world. That perhaps sentience is based on quantum effects. Experiments are underway to determine if the bioelectrical synapses of the brain also result in "quantum tunneling;" the wake of an electron in other almost infinitesimal dimensions that makes us one with the universe.

### THE FERMI PARADOX

Finally, I did not intend this novel to be a story about Artificial Intelligence. But shortly into it, the answer to the Fermi Paradox

became apparent. Technological civilizations must evolve into the Singularity and it happens quickly. There is no one left out there to hear us, but we will join them soon.

## EINGANA

Alternative Names: Mother Eingana, the World-Creator, Birth Mother.  
Species: Dragon Origin: Australia History: She is also called maker of all water, land, animals, and kangaroos. She was a huge reptilian creature revered as a goddess and giver of life. She also was a part of the dreamtime and came out to give birth on occasion.

She also took on the role as the Death Goddess. She holds a sinew of life for each creature, and if she ever lets go, the life stops. And, it was said, that if she were to die, so would all things that existed. Symbolism: Similar to Yin and Yang, she is a symbol of both life and death - both passive and active

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