

The Nucleus

A Cosmic Premise

“We see this in the story of Noah, where God threatens to do away with humanity because of its constant failure to fulfill the requirements of justice and peace: “I have determined to make an end of all flesh; for the earth is filled with violence through them” (Gen 6:13).”

Although “the wickedness of man was great in the earth” (Gen 6:5) and the Lord “was sorry that he had made man on the earth” (Gen 6:6), nonetheless, through Noah, who remained innocent and just, God decided to open a path of salvation. In this way he gave humanity the chance of a new beginning.

-The Pope

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Cover

John, as a grand villain, endeavors to claim the Earth as his own and embraces megalomania and worldly drama as his motivators. As a member of an elite secret organization of world leaders, the Valar, John makes good use of his connections to achieve his aims. For his more underhanded dealings, he hides in plain sight as the logic advisor to the Pope. Under the guise of savior, he rains down hell upon humanity by pulling the string and adjusting the dials of his carefully constructed machine of domination. The Vatican is thrilled to ride the wave of domination across the globe and finally achieve God's will.

Through careful and sometimes ruthless adjustments of his “machine”, John orchestrates The Last Crusade, the annihilation of the Middle East, and World War III, which is the final culmination of European expansion, resulting in a new Christian Empire that knows no limits on the Earth. Although purely scientific and not religious, John cares not that religion dominates man. For him, the end justifies the means, and control of the world matters more than world ideologies. His hunger cannot be sated by the Earth alone...

Why have we not yet detected intelligent life in the cosmos? It could be that intelligent beings are extinguishing all life in the galaxy as a mercy. For, they certainly have found a more compassionate solution to existence by now. We are in love with our existence and our legacy of life on the Earth, but perhaps all we are to them is just

another petri dish. Maybe someday they will offer to us their superior solution and extinguish all life on the Earth. Would you choose to be an angel in their invention, called Heaven, or one of the faithful to "reality" as we know it?

Introduction

This story utilizes religion and science as the players in a story about World War III. It straddles the line between parody and believability. The villain will be the leader of a radical faction of a secret organization that is committed to saving humanity and the biosphere by whatever means possible. They are comprised of people that share a belief that population control is the key factor in any logical solution. They are also opposed to religion, believing it to be a holdover of humanities past that interferes with their aims. Science, logic, and reason comprise their belief system. This secret organization calls itself Valar.

Members of Valar endeavor to help humanity by using their wisdom to predict critical moments in the future at which times the execution of relatively minor acts of influence can have larger impact. In a twist of irony, logical deduction reveals that the most likely scenario facing humanity in the near future critically depends on Christians to secure the most positive outcome as seen from their point of view. However, the required acts of influence in this scenario are so terrible that members of Valar become divided on its execution. A few radical members decide to go forward without the knowledge of the group with plans to influence world politics with the ultimate goal of starting World War III.

Chapter 1 A Monster is Born

One of John's first memories as a child was when he was given a present by an uncle. It was an ant farm. At first he followed the instructions that came with the toy. But as his natural curiosity grew he devised plans for the ants. He collected many varieties of ants that he found were abundant in his Florida neighborhood. He learned about their behavior as he conducted his experiments. Eventually he discovered which two species of ants were the top dogs. They were a stinging red ant species and a larger black ant species. He had a favorite he wished would win – the black. He hated the red species because he had received many painful acidic stings of formic acid from them, and they made mosquito-like itchy bumps wherever they bit his body.

He became so involved in their ant fate that he developed feelings for the winged "queen" of the black ants. In spite of his prejudice he forced himself to be as fair as he could as he drew battle lines and populated his armies. He observed with fascination as the fate of the universe he had created and had become so completely engrossed in unfolded before his eyes. At first there were minor skirmishes where the ant's territories overlapped. He decided to withhold food from all of them to force them to predate on each other – to get the ball rolling -- to turn his ant farm into a war zone.

Over several days' battles raged as the momentum swung from one side to the other. He could see that the individual ant could not picture the entire war in their little

minds, but there was some kind of “intelligence” governing their actions. ‘Like little robots.’ he marveled. It played out better than he expected. It would go down to the wire. He begged his mom to let him see the end. ‘But Mom, it’s almost over, I have to know what’s gonna happen.’ Relieved and irritated he laid back down to watch the finale.

Only two were left alive. The winged queen he loved and the giant-headed red soldier ant – the warrior king. She could not fly away, but she was twice his size. She would have no choice but to fight him to the death if John did not rescue her. John debated this as the two matched off. ‘Maybe I’ll give her a chance to win this – she’s a queen after all. I’ll save her if I must — if it gets ugly.’ Then it happened. In an instant, before he could even move an inch, the red warrior bit down viciously on the head of his beloved queen. He watched in disbelief as she curled into a ball and moved no more.

Anger seized him. The disappointment felt like a cruel betrayal of the world. He would not stand for it. He seized the red ant and placed it on his father’s vise. Raising a large hammer from the work bench the vise was bolted to, he slammed it down on the ant. ‘I...hate...you!’ he growled over and over again with each swing of the hammer. He looked at the ants and the farm when he had calmed enough. He knew it was done. Grabbing the ant farm in one hand and the can of gasoline for the lawnmower in the other, he walked outside. Kneeling down, he poured gasoline over the ant farm. He dropped the match and watched it all burn – a funeral pyre. ‘Don’t ever love again.’ he shuddered to himself through tears.

On his next birthday his parents got him a BB-gun. He enjoyed playing with it like most kids do. He imagined himself a hunter, a soldier, a cowboy. But the feeling he liked the most was the sense of power it gave him. He could decide the fate of a thing at a distance. He knew he could shoot birds and animals that other kids at his school talked about shooting, but something held him back whenever he had something alive in his sights. Killing ants and other bugs did not bother him too much, though when he saw a damaged bug he felt a certain regret – as if he had broken a perfect machine for no good reason.

Then one day he hit upon an idea. He did not know it yet but two sides of his mind were battling for control. He did not want to kill animals but they were the most interesting targets, he thought. The solution was a balance between black and white. He would hunt lizards around his house. There were a couple of species, both were about three or four inches long. They had an interesting trait. He had long since become adept at catching them. Most of the time he could capture them without harming them, but occasionally he would grab them only by their tails. When this happened their tail would come off and they would run away apparently unharmed, for the most part. The tails would wiggle for several minutes, which fascinated him. ‘This must be an adaptation to help them escape from predators like birds.’ he reasoned. His logical solution was to only shoot their tails off. He had found a balance between environmentalism and fun.

When he poured over history when he was a child, he was thrilled by the feats of Nazi Germany, their dreadful efficiency, their madness, and their advanced technology. As a child he fantasized about flying for the Luftwaffe, as Lipfert himself, fighting in the skies over World War II’s Eastern front, where the greatest battles in the history of man took place. He soon realized that any form of admiration directed at the Nazis, even one of a detached historian, was taken as an insult to America’s veterans. He kept his

fantasies to himself where he dreamed of being a brilliant scientist who heroically rescues the Nazi Empire in the nick of time.

When he became a little older and discovered natural history, he became obsessed with evolution. As he studied human evolution, he became confused as to why Hitler directed Germans to attack the gene pools surrounding them. As far as he could tell they were all part of what he thought to be the European gene pool. Why did he choose to exterminate the Jews? He had read that more than half of the financial backing of the Nazi war machine was funded by assets stolen from Jewish populations. Was the choice to end their existence merely a means to an end? Why didn't Hitler save at least Jewish scientist to help him develop technologies like atomic weapons? "Was he stupid or did really hate them?" he pondered aloud to himself.

In his heart he did not think it any ones right to decide an entire gene pools fate with no logical purpose. He could not justify Hitler's choices in any moral or logical way when there were far better ways of achieving great things on the world stage. Then he dreamed of going back in time, before World War II started, to guide Hitler on a more logical mission.

John did not know it yet, but he would be plagued and blessed by grandiosity his whole life. His delusional fantasies fueled his determination and captained his purpose. He preferred originality to tradition and repetition, setting him apart from his colleagues. His gifts allowed him to succeed at whatever he set his mind to, and his ego told him that he knew best.

Chapter 2 God Fire Industries

He spent the next few years exploring the realms of his reality. Science, history, philosophy, business, and pleasure. One of his favorite hobbies was the restoration of history's machines. From airplanes to computers, he liked to see first hand the innovations and the evolution of these technologies. Beside finding the subject fascinating, he knew that he would gain invaluable insight into the processes of practical creation through its study.

One day, John was flying his replica of one of the variants of the German Messerschmitt 109 that Lipfert flew. He was engaged in a heated mock dogfight with a fellow enthusiast, who was a Russian who preferred to fly his people's answer to the 109, the Yak-7. They were dog fighting over the western shores of the Black Sea, critiquing each others strategies and executions by radio. 'If I were Lipfert you would be dead by now.' John laughed.

'Den it good ting you not.' Yuri retorted.

'I know. With my skills I'd need a Spitfire to stay on your tail.' John admitted.

'Wrong front, comrade.' Yuri grunted as he pulled more g's.

In flying John found his greatest pleasures in the physical world. He found that there were many elements to his love of flying. Besides the practical, there was history, there was technology, there were skills to hone, there was excitement and adrenaline, there was peace, there was fantasy, and there was inspiration. After a few more maneuvers Yuri complained that his fuel was running low. 'I'll see you at the hanger, Yuri. Great fight!'

'Where you go now?' Asked Yuri.

'I've got to work out my plans to take over the world.' John half joked.

'You know dis game, right?' Yuri chuckled.

'Don't worry Yuri, we're on the same side in my war. Horridoh!' John bade Yuri farewell as he dove toward a crowd of sun bathers.

John thought of modern science as a kind of Henry Ford's version of a science assembly line. He knew he was better than that. "They are so occupied with protocols and delegation that they forget science is an act of creation, and divine creation is not inspired through business as usual." For the mediocre and the poor it was a necessary servitude. What I need is my own research institute that I can direct like a "CEO of Science", but in the spirit of Oppenheimer's team and not a Henry Fordian workforce. 'I need Ferraris not Fords.' he snickered with cold delight.

'Ferraris, what have been some Ferraris...The atomic bomb has got to be the single biggest invention ever...now, ahh, the Spitfire...that is not quite as important, although you could argue that it was a crucial element of what deflected Hitler toward Russia, the Battle of Britain, but it was just so sweet...like Ferraris. Oh yes, then there my favorite of favorites, the Saturn V. The rocket that put man on the moon! But then if you zoom out, you see that the whole program to put a man on the moon was arguably the Ferrari that shone upon mankind the worthiest of light. If I were God, I would have a twinkle in my eye! And the Shuttle program was awesome too, although it cost more than expected - but history won't care about money. The relationships get complicated, but they're all Ferrari elements.'

'One Ferrari I need is an update to the nuclear bomb. They are so damn bad for the environment that I hesitate to use them. I need to make an anti-matter bomb. One that can be burst over a target as a focused pulse of energy and that limits environmental impact by the fact that it does not utilize large quantities of radioactive isotopes.' John spoke into his voice recorder. 'It'll be the Manhattan Project all over again. Oh, this is just too much fun. Thank you God!'

To be safe, the missiles would be launched from submarines. On the submarine, the anti-matter would be contained in the safest and most reliable "vessel" that could be contrived. Only when launch codes were received would anti-matter be transferred to a portable vessel that would be placed into the missile. 'Imagine, the decommissioned nuclear arsenal will flood the radio isotope reserves...so I'll design a better and safer reactor, Ferrari number two, and get even more filthy rich from both ends. Not to mention by shorting the isotope stock market.'

'Another Ferrari I need to make is the science and technology of Biosphere Remediation. This one I need to corner the whole market on so I can adjust things as I need to, to carefully find a balance between my goals and any unnecessary roughness. Oh yeah, then there's the Ferrari that is Star Wars Tech that I'll need, to limit damage. Hmm...how many is that? And, of course, there's the one closest to my heart, the Ferrari that will be the Biosphere Genome Depository. When I'm through playing war games I'll make amends.'

John went on to achieve all the Ferrari's he dreamt of, with the help of the best minds that money or other incentives could attract, of course. One of his more amusing inventions was a flying vehicle based on the Star Wars speeder bike. He even developed a GPS controlled auto pilot program that would send the rider on any desired

journey within the limitations of the vehicle. 'You guys tested this out, right? I mean I'm not going to become a spot on a redwood, am I?' John asked, trying not to laugh.

'Don't worry, if you do you won't feel a thing.' Joked the team leader.

'Well, if I do, just light up the tree, okay?' John replied, envisioning a grand funeral pyre.

'You're the man.' The team leader assured him.

John's God Fire Industries was a nod to his belief that God is the Universe and science is the study of God and the knowledge we glean is the essence of God, God Fire. 'I love science and kind of like to believe that science is the study of God - The Universe. Its just so awesome what you can do with it all. Science is like fire times a million...no a Billion. Science is God Fire. If you play with fire you might get burned, but who wants to do without fire?' At God Fire Industries, they played. John chose the corporate logo, a mushroom cloud.

Claim the Moon and Mars

'The pole-craters and the ice sheet remnants are where we colonize. We dome and tunnel our way into the future. The plans are in the budget, or I'll personally kill you. Listen up, we all know you want to diminish America's achievements once again by wasting the budget on all those that are better off culled. Humanity has been dragging its feet for far too long on account of all your damn welfare programs. The plan is in!' The General stared him down.

The Space Corps was spun off from the umbrella of the Air Force and was headed by a General of great vision and determination. He was assisted in his aims by John, who controlled enormous resources. Both John and the General believed in establishing colonies on the Moon and Mars. Like the Air Force had its airmen and the Navy had its seamen, the Space Force would have its Spacemen. It seemed ironic to many that humans would be the first Spacemen known to man in place of aliens. More amusingly, perhaps, trainees would go by the name of Space Cadets.

John wants to terraform Mars to "claim more territory" as he would think of it. NASA had been doing well that first decade of the 21st century. John had kept an eye on Mars exploration since childhood when he first realized its potential, and when this new wave of data came streaming in from Mars, John wasted no time forming it all into a web of logic. But, in the second decade of the 21st century things began to decline in America, due to its growing inefficiency and the corresponding debt it had amassed. Manned Mars exploration had been put on hold.

To get the ball really rolling again on Mars, he would need a plan. It was simple - "give them what they want and they'll throw money at it". John had money and influence enough to do it on his own, having deep control of the aerospace industry. "But, why not just point them in the right direction? All they need is the discovery of life on Mars. And if its not there, by God, I'll make it so its found anyway!"

John had been secretly developing the technology of synthetic life. It was part of his plan to control the effects that ocean acidification would have on the Earth's biosphere in the near future. 'It will be the biggest scheme in history. By the time they figure it out, I'll be dead. Mars will have become New Earth and the wonderful biosphere of the Earth will have a second stage, for both conservation and fascination, and a

hedge against extinction. That will be my gift to humanity and the cosmos. As for me? I will merely live up to my potential.'

To fool them he would tweak the genes of his terrestrially derived Martian life forms enough to appear to astrobiologists to be distant early relatives of terrestrial life. Being the prime NASA and Space Force contractor, John's God Fire Industries would be in control at both ends, and in between. He would plan for the addition of his synthetic Martian critters to counterfeit ice cores and make the swap. But, there was a lot of work to do and several "Ferraris" of science and engineering to develop.

The scientist would be led to believe that life on both Mars and the Earth had a common origin. They would tout the theory of planetary cross-contamination as a confirmed prediction of the lifers - "life finds a way". Though John deeply respected the world of science, he believed his betrayal to be the logical choice. He would use the same biotechnology to save the Earth's biosphere and help bring it to Mars. The prevailing views that we should not play God with biospheres would be flung aside for survival's sake. 'What do you think? John would ask. Let the Earth die and leave Mars to the bugs for all eternity? Get real dumbasses. This is it!'

On the Moon, the shadowed polar craters will be favored for colonization. In craters near the poles, radiation is reduced through the natural shielding of sunlight, temperature swings are minimized as day and night cycles are more selectable per specific location as compared to the 28 day cycle elsewhere, and ice is often present in nearby permanently shadowed depressions. As if hunkering in foxholes, the flying saucer-shaped habitats were constructed on site, tucked inside the most favorable and suitable of polar craters.

On Mars, the ice sheet remnants at the equator were to be tunneled. Here, again radiation is shielded, but by the ice in this case, and the remnants offer relatively easy construction of habitats. The equatorial zone also enjoys the highest temperatures on Mars and more efficient orbital access.

Habitats within domes that received controlled sunlight from reflectors on crater rims and from orbiting sources were favored on the Moon. The domes were usually of flattened design such that they were four or five times as wide as they were tall. The larger ones exceeded 100 meters in width and in some examples actually capped an entire crater by its rim. The living spaces were located on the bottom levels nearer the center to maximize adsorption of radiation by the upper mass of the entire domes internal superstructure. The sections of the levels that were capped by the dome itself were often made connected and continuous and were referred to as the dome levels and usually served as the agricultural level in domes where food was cultivated. Concentrated reflected sunlight was transmitted through skylights that checkered the domes outer surface to facilitate growth.

Water Ice-rich soils were mined from the darkest and coldest parts of craters near the North and South Poles of the Moon. It was the richest pay dirt to be had. Water was infinitely invaluable on the Moon. The ice was hoarded by the colonists as if it were air, from which breathable oxygen could, in fact, be readily made. Besides the pools of water that were a part of the aqua-cultural elements of the top level, pools and fountains

were often located throughout the lower levels, with lakes even occupying the lowest levels of a few. These pools independently served critically as agricultural and aquacultural support, aesthetically for psychological well being as part of nature parks, and collectively, as the greater water reservoir of the colonies.

On Mars there was no need to hoard water because the ice sheet remnants at the equator were being tunneled. The tunneling machines were to be nuclear powered affairs that slowly burrowed into the ice sheet remnants on descending spirals and loops. Electro-nuclear generators, as they were called, were the primary power source of the colonists and were used to power ice drilling tools and machines. These wonders of engineering were solid state devices with no moving parts that directly converted radiation into electricity through the excitation of the electron clouds of the materials atoms. They were capable of generating electricity for as long as the integrated radioactive fuel would last.

One particular ice borer, as they were called, operated on a gravity and heat driven system, and was directed by electromagnetically generated torsional and vibrational applied forces. Pulsed and alternating currents were applied to the heating elements and electromagnets of the ice borer that induced the motion. The heat generated caused the ice to be boiled off into channels in the face of the piston-shaped ice borer that routed the steam and suspended particle to collectors and filters. The electromagnets interacted with the mass of the borer and each other to steer it along a path through the ice. Ingeniously, as with the electro-nuclear generator energy source, the borer had no moving parts other than its total self - an irony of sorts for a drill-like device.

In effect, these ice borers were steam generating, nuclear-powered heating elements, in the shape of great pistons. They boiled off the dusty glacial ice remnants, making safe drinking water, while recovering suspended particles and dissolved minerals in the process, which were thus mined from the drilled ice. The system that processed the "mined" water, dust, and minerals was of a water-based hydraulic design, which reduced launch weight and supply costs. The steam provided the power to run the system. In some designs, the steam could also be made to cause the drill to rotate in the conventional fashion. That is, with a cutting disc that could ground the ice. The slush was then routed into the nuclear boilers. From there, out came the filtered steam. The electro-nuclear generator-powered ice borer technological marriage was an ingenious marriage of technology in terms of simplicity and reliability.

The ample quantities of dust collected from the melted ice were ingeniously utilized by the colonists as well. The materials were incorporated into the walls of the circular tunnels, which were poured continuously down the line as progress was made. The pioneers joked about how the borers of the ice remnants were like Hobbit-hole makers tunneling into the side of Bag Shot Row where Ice-Bag End was to be found.

The miracle construction material for the walls of the tunnels and other space projects was called Foamrock. The stuff had such great tensile strength that you could dilute it with air bubbles so that only 10 percent was actual product, with the remaining 90 percent of the volume being air or whatever other gas was infused. It expanded to fill in molds with such efficiency that single cement truck worth of product could supply enough for an entire house. The stuff resembled a closed-cell Styrofoam, and was nearly as light. And, like Styrofoam, it was a great insulator. The nearest familiar

constructions products are EPS foam and VBS tape. Yet, the miracle material was as hard as brick, and fireproof as well. It was more akin to volcanic tuff than any plastic. It was like high tensile concrete expanded to ten times its volume, but with no loss of strength.

Foamrock was the ideal space building material for a number of reasons. Its initially foamy and slurry-like state made for nearly impervious and seamless insulating walls when it solidified. Another of Foamrock's excellent traits was that it was easily repairable. You could just frame and pour, and the slurry would make perfect bonds with any existing solidified Foamrock it came into contact with. It was the wall grown up and more because it was light enough to be used for roofing too. In fact, an entire structure could be made out of it! God Fire industries was to thank for this breakthrough.

Foamrock was poured along the tunnel walls that spiraled through the ice sheet remnants like DNA-inspired art. Sometimes tunnel systems even closely resembled DNA in that parallel tunnels were connected at regular intervals by cross tunnels that made the rungs of the ladder-like double helix. All the while, various patterns and structures were integrated into the Foamrock for various essentials, such as liquid, gas, electrical, and information conduits. And, for roller coaster-like or train-cog type assisting steps, rails, and pave ways for the vehicles that ran through the tunnels.

In other tunnels designs, segments arched upwards from the main lines to provide crash free emergency stopping for runaway vehicles in a manner reminiscent of emergency truck ramps in steep terrain back on Earth. I wasn't long, however, before actual runaway ramps were being constructed on the surface along Martian and Lunar highways. Within 20 years of the onset of colony construction projects, dozens of geology reconnaissance convoys were scouting out the New Worlds, as Mars and the Moon became known. As with the mountain men and prospectors of the American Frontier, the Spacemen were establishing frontier outposts and forts, depots and remote stations that gradually stemmed outwards across the virgin lands from the colonies, like melon vines growing across abandoned fields.

Chapter 3 Destiny

Through the years John amassed an enormous collection of only the finest research teams, labs, and infrastructure elements, and, of course, business associates. He enjoyed having a hand in everything that he felt he could genuinely improve. His dream of world conquest, long put on the back burner because he understood people were too content to make war, remained that, his favorite fantasy. But that was about to change.

He had attended an annual science conference that focused on global warming and there had absorbed the wide range of ideas of the various lecturers so that he could quickly get up to speed on the latest research. Some lecturers were the most distinguished in their field and lead the way in the ocean of ideas. Others included researchers on the cutting edge of science - heroes of sorts if they proved prophetic. While other were interested in what some called fringe science, regularly scoffed at, they held on to the belief that they would someday be vindicated.

John loved science but understood that it was but one element in a wider reality. Like all association, its members were subject to the same human limitations of all people. The most ironic of these was delusion. John agreed with Richard Feynman views on human limitation: "What do we mean by 'understanding' something? The world is something like a great chess game being played by the gods, and we are observers. We have caught on to a few of the rules - fundamental physics. If we know the rules, we consider that we 'understand' the world. But even if we know every rule, what we can explain is very limited, because we cannot follow the play of the game using the rules, much less tell what is going to happen next."

'The point I take being,' John would often explain to scientists. 'is that science has yet to discover everything. What it has discovered is like Newton to Einstein: both models work beautifully, but there is a question of perspective. I believe that there are many perspectives hidden from us yet. As a scientist and a human I understand how we all can delude ourselves into believing that we have worked it all out. I think that science is essentially humanities best educated guess as to our reality, however. As science has progressed, so too has the clarity of that vision of reality improved. Are we in for any surprises? I believe so.'

'We also have to understand the difference between cutting edge and fringe science.' John would go on if he continued to have an audience. "Scientists tend to fear cutting edge research, but loathe fringe. I love cutting edge and dismiss fringe. The trick is to discern the difference. An educated guess is best, if it is unbiased.'

He liked to imagine cutting edge researchers as "The Silver Surfer's" of Science. Surfing the seas of ideas to have the thrill of discovery. They are scouts of Science. Like Lewis and Clark were to expansion. 'If I had the time I would sail the Black Sea and the White Cliffs. Oh, brother, right?' He scribbled on the conference schedule. 'A scout of Science...sailing the seas of ideas...a hero of sorts...and full of himself too.'

At other times, while lost in distraction, John would ponder: 'Is science truly my faith...or perhaps religion. I believe in a "purity of logic". What I mean to say is that logical deduction, untainted by bias, is a most pure form of reasoning. I believe that purity of logic is indeed the very essence of Science.' He would try that on them.

Although global warming had been on John's "radar" for some time, he did not feel like it would have much impact in his lifetime. He just figured solutions would be found by our descendants when they needed them. Then and there, in the middle of the conference, he connected the dots. 'Why aren't they talking about THAT?' John wondered out loud.

'Maybe they aren't ready to announce it yet. They would want to get the paper published first to claim credit on what will be the biggest of news, well, if the public can understand it, that is. But in science circles they would be sensations.' He thought to himself. He decided he would beat them to the punch, but he would offer to share his research to make more alliances.

Using the most advanced super-computers and cutting edge environmental models to predict the global patterns of Earth's biosphere, he had come to the conclusion that a recently discovered phenomenon would soon threaten life on Earth and civilization itself. He would have to call a special meeting. This would be no ordinary meeting. He would go right to the top. 'But not yet...I need more than facts...I need a plan.' he mused. 'I need to take charge of this thing'.

A few of the most influential people in the world had created a brotherhood. It was known only by its members and was called Valar. John had lustfully embraced his membership after he had been approached by a trusted colleague. Inside he was delighted to find that his brotherhood was like an extension of his mind. Like they were clones of him. Each man doing his part in an ensemble of puppeteers — a sort of Puppeteer's Ministry.

He had been depressed for some time since his discovery. He had racked his brain in the effort to find some hope of saving humanity from entering another dark age. Then it happened! He figured out a way to save the world and have a blast while he was at it - WWII!!! He had been giddy with excitement for weeks. He joked later into his recorder: 'Peering deeply into the fog of the future, he had resolved a vision: His logical solution. History will judge me "The Monster" I'm sure, but its just too sweet.' He accepted his role it.

He pondered over how his humble upbringing, his lust for influence, his fascination with history, his military experience, and his logic-derived vision of the future had all coalesced into a perspective of a lifetime, at this moment in history. He concluded that the peculiar nature of his life and mind made him the perfect man for the job. Destiny was before him. He had only to seize it.

He typed the password into his private computer. He only used this one for the most private of communications. The room was electromagnetically shielded and all connections to the outside world were isolated by encryption. It was anything but austere, John spared no expense, of course. He could survive for a year in this underground palace, no matter what happened up there. He typed 'I wish to call a full emergency meeting at the earliest. I must present a critical discovery of the gravest consequences.' He sent the message to the acting president of Valar.

Chapter 4 The Valar

The philosophy of the Valar was somewhere in between two familiar extremes of perspective held by groups of people who had very different but similarly influential impact on the world in the twentieth century. The first was that promoted by Leo Szilard, a brilliant physicist who greatly influenced the development of the atomic bomb, in part because of his hope that people of similar education and philosophy could form a band that he called the Bund. His noble intentions were for his Bund to help mankind through the efforts and sacrifices of its members. Though never openly or formally organized, his ideas were generally shared by the closely knit group of people that engineered the A-bomb.

The other "plan" for humanity was of a darker and highly controversial kind. An example of this darker meddling might be found at the end of WWII. Although, nuclear weapons were never used on Germany, that fact that the United States had shown the world it possessed and was willing to use this horrifying new weapon by detonating not one but two on Japan, proved to the Soviet Union that it had no choice at that time but to stop its advance into Europe near Berlin. If not for this deterrent, the United States and its allies would have been hard pressed to stop the Soviet Union's march across Europe. Indeed, historians have debated whether the decision to drop the A-bombs was

more because of the Soviet threat than any real need for its use on an already collapsing Japan, brought to its knees by its inability to deflect equally devastating conventional bombing raids. The Valar were willing to make such decisions.

Aware as they were of the awesome power at their hand, the Valar brotherhood had endeavored tirelessly to guide humanity into a brighter future. But now they would know that the jig was up. Drastic actions, long imagined and feared, were now at hand. They rarely met face to face for fear of revealing themselves, but John had called a special meeting. Considered an oddball by other members of the Valar, John had gained grudging respect because of his gifts of insight and imagination. They had learned to listen to him when he had anything to say as he usually proved to be dead on.

'I have called you all here this evening to inform you of a newly understood phenomenon that will very likely threaten the existence of the world as we know it. I've put together a presentation based on my analysis of the situation, and some suggested approaches as to our world agenda.' John clicked the remote that controlled the computer that ran his PowerPoint-like program.

'The phenomenon is called ocean acidification. It is related to global warming in that fossil fuel consumption is at the root of the problem, and carbon dioxide is the animal. However, the results will not be something anyone would spin-doctor as "Climate Change". In this case, CO₂ is absorbed by the oceans, causing the oceans pH or acidity/alkalinity level to change. I won't bore you with the details, but suffice it to say that at some point in the near future the pH of the oceans will drop, similarly to a swimming pool's water when you add muriatic acid, to a level that will stress marine life.'

'Many species will be stressed by this increasing acidity, but the ones that matter the most are certain types of oxygen producing plankton known as phytoplankton. Many varieties of these organisms, such as coccolithophores, incorporate calcium carbonate shells as part of their structures. To draw an analogy, do you remember how the agricultural pesticide DDT caused the shells of eggs of birds like the Bald Eagle to become too fragile, by inhibiting calcium carbonate deposition during egg development inside the bird? Well, this is a bit like that. The phytoplankton can't grow their shells properly and start to die off.'

'The result of ocean acidification is that oxygen production goes down. Now, oxygen released by phytoplankton in the oceans makes up over 50% of the Earth's biospheres' O₂ output. This oxygen source is responsible for more than half of the oxygen in the atmosphere. Right now, the percentage of oxygen is near 20%. At 16% we lose consciousness. At 12% we die. In the beginning it will not be so severe. So, you see how the whole biosphere, including organisms on land, will be likewise stressed. We will see a gradual decline in atmospheric oxygen levels that will take decades to become critical. It is up to humanity to decide just how bad things will eventually become. This is the period I wish to focus on tonight.'

'As the oxygen concentrations in the atmosphere decrease, up until about 2050, food production decreases, and eventually stockpiles dwindle even in developed nations. This is mainly because although plants release oxygen through photosynthesis, they also "breathe" oxygen through a process called transpiration. Research has shown that higher than normal concentrations of oxygen have little effect on plant productivity, however lower than normal concentrations reduces productivity. Starvation will affect

third world countries first, but eventually all countries will be affected. This period of partial world famine could last for 10 or 20 years, with some years being worse than others, forcing people to face this oncoming doom with increasing dread.'

'Despite ongoing fears of environmental disaster leading up to the event, the rate of world fossil fuel consumption will continue to rise, mainly because of growth in developing nations. More than half of the world's supply of oil has already been consumed. The released carbon dioxide has entered the biosphere and it cannot be artificially removed in any significant way with today's technology. The rate of worldwide fossil fuel consumption continues to rise. It is unlikely that other energy sources will be able to reduce the rate of consumption of fossil fuel in the near future, before a starvation event, in my opinion.'

'The heaviest losses will occur in under-developed regions in part because they do not have stockpiles of food and other essentials, and they do not have the infrastructure and scientific resources to adapt on such a scale. The most basic of these technologies will be centered on supplying people with supplemental oxygen, anything from the breathers used by people with lung disease and climbers at high elevation, to the inclusion of oxygen generating equipment in vehicles, homes, larger structures, and even domes. Factoring the world's technological inequality and decreasing world food production, computer models predict that in worst case scenarios, loss of human life could be as high as 90 percent in underdeveloped regions and 70 percent in the rest of the world, dropping world population to near one or two billion from a high of eight to ten billion. It will be, by far, the most catastrophic event in human history - what may become known as The Great Culling.'

'After the Great Culling, as I refer to the event, other energy sources will provide the majority of the world's requirements. Carbon dioxide in the atmosphere will stay at elevated levels for a century or longer, but breakthroughs in technology will allow the human population to stabilize. Animals preserved in zoos, along with frozen embryos will form the basis of a global effort to repopulate the biosphere when environmental conditions improve sufficiently. Perhaps humanity will have learned to live within its means.'

'The other effect of high atmospheric carbon dioxide, especially global warming, will cause relatively little damage. However, sea levels will rise as the ice caps continue to melt, and average global temperatures will rise to levels never before seen in recorded history. These taken together this will result in a small loss of coastal landmass and a more significant shift of climate zones and ecosystems across the globe. Fortunately, the Earth will not suffer the dreaded changes to ocean currents that many feared would lead to a new Ice Age.'

'So, what do we do? Even though we cannot stop this crash landing, it is still logical to try to save the world as best we can until then. Why? Because it is a question of degree. What I mean is, what we do until the Great Culling in terms of fossil fuel consumption and new technologies will help to reduce the severity of the event. And, there are other ways of preparing on the individual basis, and in terms of the whole of humanity, to increase the odds of making it through the bottleneck. The following are a few of my suggestions/predictions going forward.'

'During this period leading up to the Great Culling, governments around the world will necessarily invest all available assets into developing new technologies to combat

the various effects of ocean acidification. Some of the most important efforts may include attempts at raising ocean pH through chemical means, and engineering synthetic life that are designed to mimic photosynthesis in order to generate oxygen and perhaps support the oceanic food web.'

'Another point to mention is the severe anoxic conditions of the ocean that lead to massive die offs of life, and more importantly, the associated blooms of certain microorganisms that cause red tides on a global scale, releasing toxic gasses like sulfur dioxide that further stress all life on the earth. Crops and animals should be genetically modified to better cope with changing conditions, including both the low oxygen, which reduces plant and animal productivity, and the toxic gasses, which can cause tissue damage.'

'I strongly recommend that we go forward with our plans for a mile-wide geodesic dome over Houston. As the "end" draws nearer, the construction of geodesic domes over cities should accelerate. The domes will protect inhabitant from the low oxygen and the sometimes toxic air quality related to ocean acidification. Nuclear power plants could be placed far from cities. A proper design that includes a contamination containment dome to would be logical.'

'Domes are vulnerable to acts of war or terrorism. Underground cities would be the safest. Construction of underground facilities and eventually cities should also ramp up, being driven in part by increasing fears of nuclear war as governments increasingly struggle to maintain order, and for fear of potential territorial disputes as starving refugees cross borders. Underground cities can still be attacked if weapons are smuggled in, but security technologies will advance to the point that this is should be virtually impossible.'

'By this time there will be bases on the Moon that will play a role in space defense. Any exploratory Martian stations that may be in operation will not play any role other than detached observation, and they will need to be self-sufficient if return to Earth is not possible.'

'So, why don't we just let it all go down? If everyone on the surface dies that would only leave people below ground who would be a cut above on average. Compassion is one motive. As far as preserving the environment is concerned, expansive ecosystems could be preserved under domes and underground. These must be operated and protected until specimens can be reintroduced into the natural environment. Almost all animal life around the planet that does not succumb to low oxygen levels will be hunted down, driving countless species to extinction outside of zoos and preserves.'

'Now, I'd like to present an idea to take maximum advantage of our future. I believe that with regard to the future there is no certainty...only opportunity.'

'Many things could lead to revolution. I believe that people will change at the precipice. In this case the precipice will be a bare cupboard. Riots will ensue and the military will be called in to protect the orderly from the disorderly. Conditions will deteriorate further, and in the face of all turmoil will be our opportunity to guide humanity on a path of our choosing.'

'What I recommend is a new phase of European expansion that will pick up where it left off. My suggestion is that all lands of the Middle East become European conquered territories. To initiate this expansion, we will need to find an excuse to start a

war between the West, especially including America, Russia, and Germany, and as many Middle Eastern nations as possible. This is to include North Africa, and so, basically all Muslim nations, which provides a convenient angle on which to incite such a war. In essence, it would be a holy war between Christendom and Islam. Meanwhile, England and the Commonwealth could tackle sub-Saharan Africa. The spoils of war will be the incentives, and competition between the major players will motivate our armies. As an option or if hostilities break out, America could march south against Mexico and Central America, and even take the Caribbean.'

'Besides oil and other resources, and land for growing what we can, the bodies of our enemies will necessity drive the soldiers on. I am not necessarily suggesting that our troops resort to cannibalism, but rather a sort of "hog army" could be employed. Following the front lines, battalions devoted to raising pigs on the flesh of dead people would scavenge. Something like wood chippers could be utilized to process the meat so that it can be easily dispensed into pig troughs for ready consumption. We could also limit provisions such that the troops must kill to acquire adequate sustenance. With this control we could drive our armies endlessly forward. In the meantime, we should do all that we can to prepare for all out war between the West and the Middle East before things become too environmentally destabilized.'

'Well that's about it! In wrapping up I'd like to say to you all that if my plan seems more akin to madness than wisdom, consider the madness that drove Europeans on to conquer the New World and the inestimable gains that were enjoyed. This upcoming environmental calamity may be seen as a superlative circumstance in history during which, once again, fortune will favor the bold. I'll take any questions, either tonight or anytime.'" John sat down and poured himself a glass with an air of casualness that made even the most emotionally calloused members among the group look at him with a nauseous wonder.'

'Well that's about it! In wrapping up I'd like to say to you all that if my plan seems more akin to madness than wisdom, consider that the causes of saving humanity and the biosphere are both compassionate and wise. This may be a case in we must choose the lesser of evils. I'll take any questions, either tonight or anytime.'" John sat down and poured himself a glass with an air of casualness that made even the most emotionally calloused members among the group look at him with a nauseous wonder.'

After a silence that seemed to last forever, so long in fact that even John began to think he had gone too far, the president rose and walked to the podium. He glanced and winked at John, unable to contain an ear-to-ear grin. 'Now that's what I call an emergency presentation!' As he scratched his head. 'I think we should all take fifteen and prepare a few question for ur...Dr. Evil here.'

Chapter 5 The Plan

After much going back and forth concerning everything from the science to the merits and drawbacks of genocide, it was voted that this degree of meddling with humanity was a bit over the line, at least until people were starving in the first world. However, it was unanimously voted on a whim that John should be their Dr. Evil if they decide to go forward with WWIII. To which John retorted. 'I feel purpose built!'

As chance would have it, in order for his plans to unfold he would have to give assistance to a group of people he had held a grudge against since childhood. For him, Christians were a people who were nearly “there” as he thought of it. He was raised among them, so he understood them. His mother even tried to make him one of them, but he thought knew better even at an early age. They mostly seemed at times surpassingly bright, but they seemed not logical enough to understand the supreme importance of science. This was a frustration amplified by how close they were to finally “getting it”.

He reasoned that two things must happen for his plan to work. First, the Christians must be prepared to take over control of the lands they occupy when traditional government falls. The most important elements of infrastructure to their cause should be identified, and means to secure and defend them formed. John decides he will endeavor to beat the Christians into shape. He would persuade, or if necessary, buy the Pope's cooperation to get the Christians moving in the right directions. To maximize the Christians chances of success, he will need to form a new sort of Hitler Youth that will be called the American League of Crusaders (ALOC). Critics will call them warlocks, and they will agree.

Because Israel, Vatican City, Washington DC, and New York City were the most likely targets of terrorism, it is decided to locate the headquarters of the ALOC in a safer location. It is decided that Houston, TX offers the best combination of climate, geography, security, population ideology, and infrastructure to begin the process of planning, recruitment and training. An additional benefit was that Houston was to host the construction of the first city-sized dome, which was to be one mile in diameter (google “Dome over Houston”). Construction of was slated to begin soon, with God Fire Industries being a major contractor. The air within the dome would be filtered and fully oxygenated through the atmospheric deterioration that was already beginning.

Eventually, pressure from Christian groups in America would persuade the Pope into forming an international network based on ALOC, which would be called The International League of Crusaders (ILOC). As part of his grand scheme, he would be sent to the Vatican as part of an ALOC envoy. While in Vatican City he would use any means to cultivate a trusting friendship with the Pope, including donations and a promise to help with the construction of a Vatican dome. John dreamt that, like many a Roman emperor, he could oversee the expansion of *his* future empire from Rome itself.

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John's Letter to the Pope

Your Eminence,

We are an organization that is committed to saving humanity and the biosphere. After careful consideration we have concluded that the world is likely to suffer a severe climatic event in the near future. We believe that world production of food will be severely depressed during this period. Starvation will eventually affect all people on all continents worldwide, leading to total collapses of government around the world. We are

writing to you because we have come to the conclusion that Christians will play a critical role in future events that could very well lead to World War III.

Some people will argue that the evolution of science and technology has been at the root of man-created environmental threats. Indeed, progress in science and technology has allowed world population to soar in step. While it is true that technology is a double-edged sword, overpopulation is the other half of the equation. I hold that the only realistic solution to this paradox is to move forward. My belief being that people will have to evolve to the point at which technology can be used to remediate the environment and population control becomes a highest priority.

My hope is that the combination of new technologies and population control could enable a population to become relatively isolated from the natural environment in such a way that it becomes effectively protected from natural disaster. This is not to say that the environment would necessarily be neglected. In the future, it should be possible to largely restore the biosphere to pre-human conditions while protecting humanity at the same time.

Because of the widespread and dominate footprint of Christian organization over much of the globe, we believe that Christians, preparing independently and with the help church organizations, are the best hope for the survival and preservation of humanity through a starvation event. We are in a position to provide assistance to Christian organizations in this endeavor via a number of technological and financial solutions. In return, I ask for your assistance in the formation of an international league of crusaders, which, together with the ALOC, could work towards a better future.

Godspeed!

John and the Pope work to form the ILOC, whose intended mission it is to secure control and maintain order, for the present. Once starvation leads to desperation, he reveals to them their secret mission.

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To win the day, Crusaders had to be thoroughly trained and at a state of readiness, both physically and mentally. One thing John knew was that they must guarantee that ALOC personnel would be armed to the teeth at the beginning of the end. It would also be helpful to the goal of American expansion if civilians in general were also well armed, especially with assault rifles. This would foster the right mindset and facilitate induction into rapidly forming armies. However, threatening to undermine his plans, there had been an ongoing NATO threat to disarm American civilians that was being supported by Left-wing voters. To counter this, John has a plan that he presents to the ALOC.

John's "We the People" presentation at the first annual ALOC meeting in Houston, TX. He tailors is speech in such a way as to appeal to the conservative Christian in order to gain their support for his plan.

'In the event of a NATO enforced weapons confiscation in America, we will orchestrate an armed one-million-man march on the Capitol and make the following demands in the name of "We the People". First, to insure that America remains free, the Second Amendment and the Right to Free Speech are made Fundamental Rights of the Constitution that can never be challenged. Secondly, to end government influence on the genetics of America, forced integration is made unconstitutional and voluntary segregation is made a Fundamental Right of the Constitution. Thirdly, to foster even-handed thinking and limit extremism among the population, it is made unconstitutional for any media or educational system of America to be politically biased.'

'If the above demands are not met, civil war is declared by the armed forces of We the People on those responsible for the threats imposed by NATO. The ALOC will assist the formation of this army of liberty and we will join forces with them. Individuals responsible for empowering the threats to the freedoms guaranteed by the Constitution will be deemed traitors. Individuals that take up arms against the armed forces of We the People will be deemed terrorists. In order to establish a rebalancing of the voting public to insure that the Constitution is upheld, actions will be taken against traitors and terrorists, including the deportations and executions of those held responsible.'

'I believe that a fundamental right exists to take such extreme actions as part of the inherent requirement of an armed population implied in the "We the People" concept imagined by the founding fathers of America - that is, the population must be in charge of it's destiny and its representation, which can only be secured by force, even by means of a revolution, if necessary. Without the Second Amendment, the phrase "We the People", would loose its truth and would be reduced to delusion, such that, the opening lines to the Constitution could, in essence, be replaced by "You the People who are Told What to do", or more rudely "We the Wimps" as an insult to the Americans that might not rise to this latest and most fundamental challenge to their most fundamental freedom, out of cowardice or inaction.'

'To the people that believe that an armed America poses an unacceptable threat to itself in the form of mass shootings, I suggest that they consider the Second Amendment as the lesser of evils. For instance, imagine a government that treats its people like the former Soviet Union where anyone could be sent into oblivion, or one that enacts forced integration or even forced interbreeding programs. Also, consider giving up the advantages of modern weapons in the event of political, social, or environmental upheaval in a country of diversity. And, most relevantly in regards to the NATO threat, imagine being subjected to the influences of outside forces that do not have your best interests in mind, or indeed, ones harboring unfavorable intension or hostile plans.'

John thought that a balanced media and educational system would "program" the people with more balanced political views, which would help to secure the right to bear arms, and would also appeal to the conservative Christian who believe that their values are under attack by the Left-leaning media and educational systems of America. It was hoped by many that the NATO threat was the long sought catalyst that would trigger the actions necessary for the inevitable reversal of trend in American politics and values.

The march on the Capitol would be a tactical march. The plan was to disperse the army of We the People in the form of swat teams and seize the city. The Government would be given the chance to peacefully redress the balance of Left and

Right, which was thought to have become intolerably Leftist by many conservatives. He believed that much of the threat to his plans could be solved with the pen and social programming. Yet, John was prepared to use the old fashioned solution to the question of political balance — extremism and genocide. He would prune the Left to whatever degree he felt necessary.

The troops of the army of We the People would be outfitted with bullet and fire proof uniforms and cloaks, and would be equipped with air-filtering, motorcycle style inspired helmets that could be upgraded to supply oxygen to offset future atmospheric loss, all designed by God Fire Industries for eventual sale to the military. In addition to improving survival and mission objectives, the cloaks and helmets would provide camouflage, protection from the elements, and a reduction of heat signature to infrared scopes. The preferred rifle caliber of the standard troop was the .308 fired with an AR-10 or AK variant, and the preferred sidearm caliber was the 10mm. These were mated with night vision capable scopes and infrared lasers for night fighting, the preferred environ for stealth engagements. In addition, each troop was equipped with a minimal pack, vest, and belt system containing survival gear and other essentials for dispersed survival and subsequent action.

A significant force would surround the primary legislative building for show, but the majority of the forces would be assigned to individual and specific blocks and city sectors. Each squad, many of which were modeled after SWAT-like teams, would have a particular mission assignment in addition to general suppression of civilian activity. Like the force that executed Osama bin Laden, they were prepared to “take out” those individuals deemed to be intolerable threats to a free America and the will of We the People. And, as with that mission, the forces would attack under cover of darkness. John instructed his men to cause no unnecessary pain or distress to human targets so that his troops would adhere to a policy of dreadful efficiency and maximum kill ratio.

Specialized elements of the forces of We the People would handle specific tasks of the sacking of the city. Some units would handle cutting power and communications. Others would be assigned to road blocking intended to prevent the influx of government vehicles, and the escape of civilians en masse. Still other units would be dedicated to chopper suppression, which posed one of the greatest threats to the soldiers of We the People. Suppression would be mainly achieved through the use of tracer rounds, flack cannons, and anti-aircraft missiles. Then there were the heavy weapons squads that would forestall tank and armored vehicle supported Government troop threats. Although many of the forces of We the People would march on foot, many would utilize dirt bikes and ATV's to speed assault and dispersal.

It was hoped, and largely believed, that the reaction of the Government forces to the actions of the forces of We the People would be half-hearted. For, many officers and enlisted men in the U.S. military sympathized with the goals of the forces of We the People, being the military and patriot-minded people they were. And, indeed, a good percentage of the forces of We the People were veterans who would prefer not to engage their own kind in battle. However, it was expected that the Generals of the U.S. military would need to make at least a show of effort, yet would be dissuaded by adequate resistance.

Although Washington DC was the jewel in the crown, so to speak, sieges of other cities were planned as well. In addition to primary targets, riot instigating strikes at other

cities would be conducted to keep the government forces off balance and uncertain. This would keep government forces from planning for and/or concentrating forces against an individual strike. Thus, multiple cities would be targeted at any given time in both planning and in actions. It was also expected that rioting across America in general, either in response to the threat of civil war or actual civil war, would tie up significant assets through the very essential efforts of riot suppression preparedness and execution. In this way, the armed forces of We the People could accomplish mission goals and live to fight another day.

He knew if they could see into his mind, Christian leaders would not trust him entirely. The thought amused him that he could play the role of an advisor, lofty-minded, immersed in dark logic, pulling strings, influencing the very outcome of history itself. He must accept it, for him the logic was clear, he must be a Christian. His ultimate goal would be to become logic advisor to the Pope. He would fully apply himself to this endeavor through whatever opportunities he could conjure.

John would prepare with the other members of his radical Valar faction to insure that the ALOC and ILOC would lead and help to form the armies, that he collectively called Crusaders, on the campaign of what he referred to as "The Last Crusade", the conquest of the nations of Islam. Surreptitiously, through careful planning, members of his faction would influence world events to insure that the Crusaders would indeed embark on their mission from God. To achieve this, he told himself that he would not use weapons of mass destruction unless absolutely necessary. Using the wealth and connections of the Valar, they would acquire the necessary tools.

He feared it might come down to destroying cities like Washington, DC and New York City. Such acts which could easily be made to appear as a radical Islamic attacks. In fact, he toyed with the idea of destroying DC once the Christians were at a state of ready. However, he doubted whether this decapitation of government would result in the essential Christian takeover. He would have to wait for societal conditions to deteriorate. If he could pull this off, he snickered to himself, it would seem to some that the Pope and the Anti-Christ were destined to become chums.

He knew that Christians were too soft in this modern age of comfort to face this solution. But it was just a matter of time before necessity forced them to face the truth, when his logical solution was just too compelling to ignore. When they understood that his logical solution was simply a best case scenario, a choice of lesser of evils. He understood that now. John believed that eventually they would too.

John was satisfied with his plans. But, in those rare moments when his heart awoke, when he listened to the music that he loved, he would feel great sadness and doubt at the prospect of Armageddon. Now, he knew that it would be a rare case in which, logic told him, he would have an opportunity to do something so grand, in the present, in his lifetime. Indeed, it would be his moral responsibility to humanity and the biosphere to capitalize on the opportunity. But how could he justify to himself his endeavoring to influence the future by hatching a plot that would decide the fate of entire peoples and have the ultimate goal of starting World War III?

Chapter 6 The Department of Preparedness

The Department of Preparedness had been invented by the President. As it became clearer that the world was about to end due to ocean acidification if we did nothing, the increasing pressure to find a solution made a Department of Preparedness logical. That a solution might involve using the world's navies to help spread the seeds of hope across the oceans, by enforcing strict fleet compliance, meant that the department would have a military presence. The number of commercial vessels far exceeded the Navy's fleets, but the Navy would coordinate the dispersal of solutions. Working in tandem with the fleet would be pipeline, with the Coast Guard overseeing coastlines and Marines more distant constructions and operations.

The scientists would invent the solutions and the Navy would be charged with its introduction to the environment via conscripted vessels. Given so monumental a task, a significant percentage of the worldwide fleet of ocean goers would have to be applied to the task, under military supervision, and with military precision, it was hoped. The National Oceanic and Atmospheric Administration (NOAA) would manage oceanic and atmospheric monitoring, NASA would be charged with handling the space hardware, satellite imagery, and data transfer, with research institutes and universities processing the information. Decision making concerning important aspects of the major projects were made by committees of the Department of Preparedness.

Part of the plan was to spread the spores of genetically modified super algae, some selected for their ability to grow rapidly and produce copious amounts of oxygen when and where introduced into the ocean environment, by ship or pipeline, in accordance with data-based models that factored in parameters that included real-time ocean current and nutrient conditions. John's God Fire Industries was on the forefront of synthetic life research and was a major supplier of super algae. It was critical to John's plans of conquest that the project to save the world from the effects of ocean acidification not be wholly successful. He engineered his products to be effective enough so as to allow God Fire Industries to remain the top supplier, yet they would fall short of what he was actually capable of achieving.

In addition, a great effort would be made to increase global fertilizer production. Special oil-derived and synthetic-based floating fertilizer agents were to be introduced by ships and pipelines into suitable areas. The fertilizers agents would float to the surface over broad areas, reminiscent of the surface scum of oil spill disasters, though designed to be environmentally friendly, and slowly dissolve, releasing vital nutrients that would augment natural sources from upwelling and runoff from agriculture. Basically, fertilizer in equaled oxygen out. This would help make up for lost natural oxygen production due to the gradual demise of acidity sensitive oxygen producing organisms.

As well as they could manage they would turn the oceans into great oxygen generating algae farms, turning a blue planet green. One could compare the effort to a home owner applying a "seed and feed" product to his lawn to fill-in patches. Many of those who had complained about genetically modified foods, now complained about genetically modified oceans, and claimed that the Navy had declared war on Mother Nature. But, to do nothing meant a worse mass extinction.

The welfare of the natural ecosystem was in fact a big factor in the design of the plan. Scientists were in control of product design and scientists generally wish to preserve nature as well as we might. The only way the scientific community would get fully behind this was if the natural environment was a top factor. Product introduction was closely controlled at, or restricted from locations where important ecosystem functions were occurring. In critical zones, product could be carefully introduced to help support the natural food web, while elsewhere, production of algae would be maximized.

It was not feasible to completely replace the phytoplankton that was disappearing across all the oceans with super algae, not in the short term. Even with the greatest efforts at dispersing the super algae, it would take decades for sufficient migration to take place across all of the sunlit, or photoactive, upper reaches of the oceans. And this does not factor in the upwelling of ancient deep water that continuously occurs at the edges of many continents.

However, given the right plan and adequate time and maintenance, it was theoretically possible for a bioengineered organism to effectively replace a disappearing assemblage of phytoplankton in both food web and oxygen producing roles. And, what replacement organisms that nature might take thousands of years to naturally evolve, humans could develop in decades. At the start of the effort to achieve this it would be far more economical and productive to concentrate the algae and the fertilizer dispersal to relatively defined parts of oceans.

The Sargasso Sea in the middle of the North Atlantic was a particular favorite for these concentration efforts. It was bordered by America, Europe, and North Africa for one thing, but what made it especially attractive to ecologically minded was the fact that it was a kind of dead zone created by the gulf stream and three other currents, which circulated water in a great oval around it. The zone within was relatively placid and, most importantly, somewhat isolated from the ocean water surrounding it. It was occupied by floating rafts of Sargasso weed in which many fish and crustaceans made a living. In between the rafts was clear, nutrient-poor water. In this zone, the microscopic super algae would grow intensely where fertilized, but where not, they would languish. The fact that no current would carry the super algae to other regions in excess made it an ideal ocean-scale test and development region.

A spider web of pipelines, as threads to a web, released a God Fire Industries product called Superalgae, and supplied ships for additional dispersal across the Sargasso Project, as it was called. The web covered only one-third of the great oval vortex that was outlined by the four currents. The Sargasso Sea itself was centered on the web, with a wide, web-free buffer between the web and the encompassing currents. It really was the best choice in all the oceans if containment was important on a large scale.

However, some of the genetically modified algae would still manage to find its way out to other oceans across the globe. This meant that the algae of choice either must not be able to survive without some element that was under control, or the algae must function as phytoplankton replacement, its worldwide dispersion welcomed, and not likely to cause some unforeseen problem over the long term. This is because it would be impossible to eradicate released super algae without some built in vulnerability to co-engineered virus, for instance.

The biomass of the phytoplankton of the world oceans is directly related to the amount of fertilizer/nutrients, meaning any of the basic raw materials needed for life present in the surface waters. However, the goal of the Sargasso Project was to address the desperate need to generate oxygen, and fast. One could engineer algae that had more than normal fraction of chloroplasts, the oxygen generating biochemical machines of the cell, which could produce oxygen at a rate higher than actually needed for normal cell processes. Such an anomaly would be a wasteful trait with regard to natural selection and efficiency, but it might be a useful creation for space stations or for saving the Earth. Given sufficient fertilizer/nutrients and sunlight, Superalgae could make the water fizz with oxygen.

One fear cited was the possibility that super algae could get out of control and raise oxygen to dangerously high levels. But, if the super algae were able to colonize all the oceans, the amount of oxygen released would not run out of control because ultimately the amount of oxygen that could be produced related to the amount of nutrients in the oceans. The problem was that the super algae would burn through the available nutrients while churning out excess oxygen, but not reproduce sufficiently to create enough biomass to be adequate food web replacements. So, the super algae of Superalgae could not function well as a food web replacement and had to have a control built into it.

The control was the lack of an engineered protein that caused the super algae to disintegrate by triggering a biochemical chain reaction within the cell. The protein was part of the Superalgae product and the super algae were super-hyper sensitive to its presence. As the Superalgae drifted from the source area, the concentrations of the protein in the water fell below some threshold level, triggering the chain reaction, and causing the super algae to die.

As the Superalgae product rose from the lengths of the pipelines that made the circular web of the Sargasso Sea Project, from space (with the unaided eye) one could see the beginnings of the super algae bloom that was initiated each spring. First, a circular web of bright green slowly formed in the middle of the Sargasso Sea. Over days and weeks, the pattern rotated clockwise with the encircling current, the twisting links of the web gradually merging with others. Until what formed appeared to the eye or satellite as a continent-sized bright green hurricane of Australia-like proportions.

The algaecane, as it became known, was a seasonal creation and would slowly “wind-up” over a month or two, and then it would burn at max levels for three or four months. This was followed by a one or two-month fade. The release of Superalgae was timed with the increase in the intensity and duration of the sun that spring brought. The valves were closed around the end of summer. This meant that for some six months the Superalgae veins were flowing. The Superalgae mixture would be adjusted according to plans and conditions.

Superalgae looked like a thick gray slurry, but it was a type of colloid known as a sol, examples of which include ink, paint, milk of magnesia, and blood. Superalgae was composed of a crude oil-derived colloidal base or medium, with whatever nutrients/fertilizers, algae spores, and other additives, including dispersants and algae control factors, held in suspension. The products formation as a colloid prevented the settling out of the solids in the product in the pipelines. The base could not be an actual oil for it might react with the suspended particles in an explosive manner and become the

greatest pipe bomb that had ever been made. Oil was altered in the chemical refineries and made to be non-reactive to the suspended particles. And, the use of oil derivatives for a medium meant that the matrix of the product could still share some of oil's properties such as natural buoyancy in water, biodegradability, and water repellency (hydrophobia) that would prevent the hydration of the super algae spores until reaching the surface of the water.

An interesting aspect of the preparation of the Superalgae colloidal sol was that carbon dioxide was infused into it as micro-bubbles upon entering the pipelines. Its addition served two critical purposes. First, it increased buoyancy enough to counteract the effect of the suspended particles of the colloid, which increased the density of the product to a level greater than that of water, causing it to sink and stay at the bottom of a water column. To solve this fundamental problem of physics, the carbon dioxide that was infused into the colloid was pressurized in the pipeline at some desired pressure, so that when the product was released from the pressurized pipelines at depth, the product was transformed into a less dense and quite buoyant substance as the carbon dioxide micro-bubbles expanded - somewhat akin to carbon dioxide effervescing from an uncorked carbonated liquid.

The expansion of the Superalgae transformed the product into a gas-liquid state that overcame the density issue and caused the product to float to the surface in long ropes. At the surface, the oil-derived medium of the colloid reacted to ultraviolet light and the Superalgae was transformed into a rubbery, stringy foam that was intended to mimic seaweed in so far as its life sheltering properties.

The second purpose to be served by the use of carbon dioxide was the fact that the process of photosynthesis actually consumes carbon dioxide, such that the near-surface water column can become depleted in carbon dioxide as the chloroplasts of the algae bloom convert carbon dioxide in the water column into carbonic ions and oxygen. Upon reaching the surface, the carbon dioxide in the product was trapped in the seaweed-mimicking surface foam until it was degraded by bacteria, which released the infused carbon dioxide, along with the suspended particles and spores into the near surface water, where it could further support photosynthesis. To sum all sources of carbon dioxide available to the super algae, the product-infused source of carbon dioxide was added to that being generated by bacteria that were consuming the oil-derived medium of the product, and that of natural ocean levels.

Adding more carbon dioxide to the oceans may have seemed counter productive to some, but the objective was to produce oxygen and support the food chain rather than control the acidity of the oceans. To address this point, considerable effort was made to use carbon dioxide that had been sequestered from the atmosphere. Atmospheric carbon dioxide, elevated by the burning of fossil fuels and dissolving into the oceans, was, after all, the source of the problem. Fossil fuel use was still on the rise in 2050 and carbon dioxide absorption by the oceans was projected to increase for at least a century. But, raising the oxygen levels was priority one.

So, it seemed that controlling the oceans acidity was not a strong bet in the near future. Rather, it seemed that genetically modifying life was a way for humans to facilitate the process of evolution so as to prevent a mass extinction. Whatever life we choose to modify will be forever changed in an unnatural way. However, it was contested that vital elements of the food web could not be lost in the name of purity if

the expense was to be the entire ecosystem as we know it. So, a shades of gray solution was to modify life forms of the natural ecosystem only enough to prevent catastrophes.

With the help of bacteria, the SuperAlgae foam matrix would be broken down at a more or less intended rate, releasing the suspended components and producing the desired algae blooms. The rafts were widespread across the ocean surface, yet concentrated in places so as to create a green halo made of algae emanating from rafts of foam. The rafts were crucial to producing a nutrient-rich microenvironment which supported strong algae blooms.

The bi-annual dispersion arrangement gave the bio-farms and fertilizer industries time to stock up in-between dispersion phases. It also gave the indigenous Sargasso seaweed and its inhabitants a time to recover from the changes and swings in seawater chemistry that the SuperAlgae's algaecane brought. The Sargasso Project's algaecane was in fact the largest biochemical plant ever created. In went raw material and out came oxygen. In effect, the algaecane became a great green dial with which John could control the percentage of oxygen in the Earth's atmosphere. And, because the yearly average oxygen level was below what had been the normal level, which was near twenty-one percent, and was creeping yet to lower concentrations, most people felt fortunate enough to have a solution that seemed to be working to some degree. The cost for one year's operation was in the trillions in the day's US Dollar, but on this one you might as well throw in the bank. John raked in the money.

Products and solution that were engineered to address the problem of phytoplankton replacement elsewhere around the globe collectively fell under the Global Ocean Project. Unlike the souped-up Superalgae brand name, the products released under the Global Ocean Project had names like Natralgae and Ocean-Aid. The Global Ocean Project's products and the associated release plans were designed to generate more or less normal blooms of the bio-engineered phytoplankton replacements, compared to the supercharged affair that was the Sargasso project's algaecane.

Where upwelling occurred, pipelines carried the majority of these products to near offshore, in long and narrow networks that ran parallel to the coast. Upwelling is the process by which deep nutrient-rich water rises up the continental shelf to the surface and then flows out to sea in a conveyor belt-like fashion. So, releasing the product offshore along upwelling zones resulted in the product being delivered to wide expanses of the oceans courtesy of Mother Nature. The product would generate an algal bloom that ran nearly uninterrupted along a coast for thousands of miles in some places. One of these was the coast from Alaska to California.

The conveyor belt that ran along the entire west coast of North America carried the algae away from the coast and out to sea where eventually the natural nutrients carried by the upwelling currents, and the fertilizer that was a part of the product, would be used up by the algae, causing the bloom to fade. But, some of the algae and its spores would travel the oceans, waiting to happen upon nutrient-rich habitats to start another bloom. Wherever an algae bloom occurred, a food chain made up of larger and larger creatures would also bloom as a consequence. Upon these clouds of plankton, made up of anything from algae to prawn, small fish like sardines would feed, to eventually be fed on by larger creatures.

Thus, the marine ecosystem was fundamentally and irrevocably altered by man. In some fifty years' worth of Global Ocean Project full-scale introduction of product for the replacement of the disappearing phytoplankton, the oceans would be at least fifty percent inoculated with the genetically modified replacement algae, by some estimates. In time, other circumstances would justify the introduction of genetically altered lifeforms to replace a failing ecosystem of sea creatures...

Chapter 7 The Last Crusade

As the famine worsened, rioting increased in intensity. Eventually, neighborhoods in cities clashed. The military was called in to enforce order, segregating people into the have and have-nots. Crusaders decisively secured the upper hand.

When the breakdown of government occurred, when its resources were overwhelmed to the point that it could no longer control the population, two types of groups emerged as dominate players. The first was the larger and more powerful of the two and was comprised of Christian-based groups mostly residing in larger cities. A larger portion of the former nation's military forces aligned with this group, and helped to achieve internal order and control, and provided protection from outside threats, including the second group.

The second type group was referred to as survivalists and were considered to be any armed group of people that employed any means to survive or exercise control. Among these groups law was the product of chance and whim. The larger of these survivalist groups acquired the lion share of the weapons not controlled by the Christian forces, enabling them to break some Christian strongholds in bids to acquire food, goods, and land. Some of these engagements followed hit and run tactics, while in others, former Christian strongholds were occupied. Where conditions deteriorated to the point that the survivalists experience starvation, some choose to consume the vanquished.

In the east, there was the Second American Civil War. In the west there were frequent and widespread engagements of what might be called "Cowboys and Indians meets Mad Max". Outside Christian territories, living standards and social policy reverted to that of the 1800's.

John sits with the Christian and survivalist leaders at the negotiations for a peace treaty. He observes the direction it is going, All the while he fingers a small object in his pocket. It is the catalyst. If they won't agree, he will make them. The tools, he thinks to himself, if they only knew. Unable to resist, his lips curl up into a smirk. He decides to give them one last chance and rises. 'I tell you, if you do not go on this Crusade you are not only illogical... you are cowards!' John bellowed as he pounded the table with his fist. How bad will it have to get before you face the truth? When you are too weak...or disbanded? This is the final moment, you're our last chance!

Soon after John resolved his logical solution, he understood that if his plans were discovered he would be killed or locked up. He would not trust the other remaining member of his radical faction to follow through with his logic. He would devise a plan to ensure that his logical solution would unfold even if he could not orchestrate its execution. At strategic locations around the world he planted atomic bombs, including Berlin and Moscow. They would go off in a logical sequence if he were no longer able to reset the countdown timer that would initiate each atomic bombs trigger. Even if one bomb were enough to set off the Last Crusade, the other explosions would only serve to motivate the Crusaders further still.

John sat down and waited. What would the fools choose? He knew he would do it if he had to. A more demented side of him even wished they would make him, but he would rather have a clear conscious. It was just a matter of logic after all. If they made him, he would have no problem with it. As they walked away in disgust, he burst out laughing. 'So be it!'

In a vault, in Washington, DC, a computer chip processed John's logic. A microsecond later, the atomic bomb exploded! 'Lets see how long it takes for them to get the news.' He said to himself with quiet dispassion. Moments later, he could hear a commotion building. He knew them. It would be enough.

Faced with the prospect of battling each other to the bitter end, eventually a peace treaty between the Christians and survivalist forces resulted in a concord. Because of what was perceived as renewed terrorism, the lands of the nations of Islam seemingly offered themselves up as the logical source of America's requirements. The battle hardened and desperate survivors deemed what would have been unthinkable before the collapse, a necessity. The survivalist units joined the Christian forces and launched an expeditionary force that embarked on what many of them would believe to be a mission from God. Some cited national security or revenge. For others, it was simply a means of survival and plundering.

Members of ALOC and ILOC had found their way into all branches of the armed forces of America and Europe. Working through them, John was able to persuade Germany and Russia to join America on the Last Crusade without having to set off atomic bombs in Europe. For them, it was a question of national security both in the sense of potential terrorist attacks on their soil, and concern about America becoming too powerful. Of course, the spoils of war were great incentives as well. Either way, the Last Crusade helped to consolidate a Christian Empire.

Important Russian Christian leader commenting on John: 'He's the guy that wants to make us into an Empire. In principle I agree, but I think it will never happen. Eh. Do we help them? God help us, we are starving too. What do they say, scientist, about the food chain...survival of the fittest? We top dog I guess. Heh. Heh. Oh well, its nature's way, I think'.

Chapter 8 The East-West Nuclear Showdown

H.G. Wells

“The World Set Free” (excerpts)

“Hitherto Power had come to men by chance, but now there were these seekers seeking, seeking among rare and curious and perplexing objects, sometimes finding some odd utilizable thing, sometimes deceiving themselves with fancied discovery, sometimes pretending to find. The world of every day laughed at these eccentric beings, or found them annoying and ill-treated them, or was seized with fear and made saints and sorcerers and warlocks of them, or with covetousness and entertained them hopefully; but for the greater part heeded them not at all. Yet they were of the blood of him who had first dreamt of attacking the mammoth; every one of them was of his blood and descent; and the thing they sought, all unwittingly, was the snare that will some day catch the sun.”

During the Last Crusade, other wars waged around the globe. As far as Asia is concerned, China consumed India first. A unified Korea and Japan worked together to consume Southeast Asia. The Chinese did not attack the new Christian Empire because of its nuclear advantage. In fact, large numbers of desperate Chinese crossed into Russia only to be falsely led to slaughter. China allowed this to happen to keep Russia from attacking. China was trying to feed most of its people, but there were priority considerations, and so, sacrifices were made.

World War III could not end until non-human derived food production was adequate to support remaining populations. This resulted in the Christian Empire's need to attack East Asia. Because the Christian Empire had the nuclear advantage (adding up the number of nuclear warheads in the US, Russia, and other Christian nations reveals overwhelming numbers), East Asia was at a serious disadvantage, even though they built up their arsenals as quickly as they could. At the onset of the Last Crusade, Japan did not have a nuclear arsenal, but they wished to build one as they saw into the future and became increasingly frightened by world events as the environment deteriorated. John decided on a scheme in which Japan could be used to divert China's gaze from the West in case China become tempted to attack the Middle East or the West, and to instigate a war between China and Japan, which would weaken the East Asians. He would help Japan finally developed a nuclear arsenal.

Some Chinese held a grudge against Japan because of the atrocities Japan committed against the Chinese in the period leading up to and during World War II. This desire for vengeance and the need of further resources led China to attack Japan. China's invasion of Japan was unsuccessful and both nations were seriously weakened. John saw that the time was ripe to invade East Asia.

In the wars of the Great Culling, Star Wars type technology developed by countries in the West during the lead up to the famine prevented most intercontinental ballistic missiles from reaching their targets in the Christian Empire. However, short range nuclear weapons and tactical nuclear weapons were used in abundance, especially during the war between the Christian Empire and East Asia. A surprise attack

on the East Asians rendered them incapable of retaliation on a massive scale, but many missiles and warheads remained hidden for future use in battle zones, mainly on Chinese territory. But ultimately, the dream of the Christian Empire to create of a single World Government was realized.

After World War III the only players to survive in any modern form will be the Christians, although much reduced in population. Relatively smaller populations of non-Christians did survive. The jungles of South America remained mostly untouched and the Amazon became Native American's last safe haven. In South Africa, much of the white population either escaped or was eaten, a situation that compared to Haiti and its French colonist. In response, the Commonwealth allies invaded sub-Saharan Africa and the Congo became the last refuge of Black Africans.

John's hope is that the remaining peoples finally had depopulated to the point that the environment could begin to recover somewhat. The Christians then worked to gradually evolve the technologies to isolate their populations from environmental disaster. They will also ban all but a few nuclear weapons for emergencies, which will be controlled by a New World government. They will endeavor to repair the biosphere. In the end, all will be well, but at a great cost. Or, so they believed...

As forces crossed the globe and consume all in their way, some of these forces stayed behind in conquered territories as colonists to a new land, arriving to stay and consume whatever may still be grown there.

Chapter 9 Snowball Earth

They poisoned the oceans. They poisoned the air. They annihilated themselves with nuclear weapons. They destroyed the very vessel of life from which they had sprung. They cast their precious world into a death of ice. They were so close to evolving far enough to save it all, but, not quite enough. Amongst them were scientists and artists of great genius. Amongst them were people of deep love for their kind and for their world. But, it was not enough.

Like so many other examples of emerging intelligences in the galaxy that did not pass their test of cosmic birth because of the self-destructive circumstance of their technological advances exceeding their wisdom, the Earth was also seemingly doomed. The Earth would end by the fall of three dominoes. Stemming from excess and war, first, ocean acidification destabilized the fragile peace of the nations of humans. Then, war of the worst kind resulted in a nuclear winter. Finally, the ocean currents, having become destabilized by global warming as ice in the polar regions melted and flooded the salty seas with freshwater, reached a tipping point as they maladjusted in a most fatal way that no one had predicted to the sudden shock of the nuclear winter. As had happened more than once to the Earth in her ancient past, certain shifts of ocean currents caused the planet to be plunged irrevocably into global freezes that lasted millions of years. The humans referred to such past Earthly states as "Snowball Earths".

The previous icy calamities resulted in the mass extinctions of relatively simple biospheres. But, life had since evolved through a great history of multitudes of fascinatingly complex and varied biospheres that had graced Earth to become her

grand history of life. Now they had made a Snowball Earth that would end the majesty. By comparison, this mass extinction would be like the loss of Beethoven or Mozart to an amateur composer. For, the dominoes had fallen, and the currents had swung, and no power on Earth could stop the inevitable and total victory of the unceasing winter that had befallen their entire world.

For those who cared, and especially for those who could fully understand the tragedy that was playing out before them in their own lifetimes, it was more than many could bear. But, deeper and higher than the surface of this tragedy there was yet another perspective that gave relief to some from the anguish of this unforgivable tragedy in the form of a dream of a cosmic salvation. And, unknown to them, this dream formed the philosophical basis that divided the Galaxy by opinion and war.

An entry in John's journal:

The Suffering

As I drove back from a walk, I was possessed by thoughts of justifiable carnage to save a world on the brink of extinction. Justifiable carnage meant to enhance the fostering of the germination of the essential solutions that would be based on the science and the engineering of geniuses, and, to most efficiently empower the execution of the required terraforming plans, executed by an A-class force, by force, including the elimination of the burdens of the obsolete and the second rate.

Most fundamentally, the petroleum utilized in the production of petroleum-based products such as fertilizer and pesticides would be redirected to the Earth's terraforming efforts. The result being that the already declining food production would drop drastically further. Then, what is to be done with the starving masses that must be sacrificed? To let them run amok would impair societal function and reduce the efficiency of the "machine". To barricade them within "zones of sacrifice" would mean the worst kind of carnage that starvation brings. To painlessly cull them would be a mercy!

Then a beautiful sunset spoke to my mind and heart. I recalled all the joy nature has brought me in spirit and adoration and how I had become divorced from the glory of nature and had become endlessly troubled in a life in the city where I was constantly reminded of the battle at hand. The anger and desperation was replaced by a longing to escape the madness, and by a great sadness at the thought of the extinction of what I have come to love more dearly than the spoken word can tell.

Then a voice spoke within my mind. It said: John, there is no hope in saving it. It will all end. All of this will be buried in ice and the Earth will never recover. It said that alien archeologists and paleontologist had reconstructed the history of the Earth millions of years hence the timeline of my present (of the simulation I was engaged in). That I was part of a program to study and become enlightened as to the nature of life as Humans and the nature of Darwinian Carnage as concerns natural life, in general. I wondered if it had arisen from my imagination, or was communicated to me from an outside consciousness. I then came to believe that this prediction was in fact a recital of

history and that I should stop trying to save it and to enjoy the last of the Earth's glory and my life (in the simulation) while I still lived.

The voice suggested that I temper my suffering at the thought of the death of the Earth with the realization of the great imperfection of Humanity and natural life - the suffering. The suffering of people at the hands of nature and people. To imagine the worst sort of torment. The living hells humans experience due to their own flawed minds and the flawed minds of others. Of the suffering of semi-intelligent beasts. And, how even if beings of the natural world labored to bring compassion to reality, that there would always be cases of defective minds and the associated suffering. And even if planetary biospheres were engineered without omnivores and carnivores, of life evolving back to a state of bloody Darwinian Carnage.

The voice continued: shouldn't this imperfect invention of reality be extinguished? Shouldn't it be replaced with something more divine? Isn't it a grace, a mercy, a blessing that it was extinguished? Would it not be cruel to resurrect a reality so pervaded by suffering? Why not just experience a facsimile of it, as a simulation within a simulation? It could be appreciated and enjoyed, honored and glorified as a creation of God, resurrected in heaven where suffering need not be. That that is why you are suffering in your present simulation — to better decide this greatest and most profound of questions. That you willingly entered this simulation as a non-human entity to gain the wisdom you sought. That when you die in this, as with countless others, you will awaken and be your true self once again.

Chapter 10 The Mind Bearing Technologies of the Aliens

"The mind-field is the 5th dimension and the 6th sense."

The science of the "sixth sense" progressed along as all sciences do among many alien civilizations. One of the most applicable spinoffs of six sense research is the discovery that consciousness that naturally evolves does not wholly reside within organics. On the Earth, consciousness was originally "discovered" by evolution and first made use of by early mammals, birds, and perhaps dinosaurs. It was an invention that gave survival advantages by allowing an animal to access a dynamic and real-time "intelligence field" known as consciousness.

Simple animals that do not have consciousness can only react to external stimuli through hardwired response options. These are naturally limited to instinct level behaviors, and, as such, are inferior to conscious level behaviors. Nature's first stabs at a conscious intelligence were based purely in the organic realm -- it was limited to the physical constructs of neural connections. But, a breakthrough occurred when evolution stumbled upon the mind-field phenomenon of consciousness, which became controllable through organics -- that is, the evolution of the trans-dimensional capacity of the organ that is the brain.

In a kind of "fuzzy" logic processor-type function, an animal's brain could interact with the intelligence field to establish a consciousness capable of more than the pre-programmed responses of instinct. With the help of the intelligence field, an animal

could then perceive “reality” as a four dimensional realm of space and time, and so respond to stimuli on a more sophisticated level of perception. Whereas the most advanced computer can only process data, being without consciousness, even a semi-intelligent beast is “aware” of reality.

The phenomenon of consciousness was “naturally discovered” first by evolution, which, of course, is not conscious itself. It could then be “philosophically discovered” by adequately evolved beings, through their experience, as expressed by the musing - “I think, therefore I am”. And then, with the aid of science, conscious beings may come to understand consciousness as a phenomenon of the universe that is independent of life.

It turns out that consciousness in life forms has to do with the “fields” generated by the brain. Imagine all the electrical goings-on of the brain. Now imagine that a complex electromagnetic field, generated by billions of neurons (the cells of the brain) and trillions of neural connections (the intercellular wiring of the brain), can itself generate a field of consciousness. If so, then consciousness is not precisely, intrinsically, or necessarily limited to flesh or even any physical device - it exists as a field.

It was discovered that animals can communicate with each other at a distance through the interactions of these fields. Though this type of communication is very crude, it explains some animal behaviors that are not easily explained by traditional means. Another popular example is the “sense” that someone is looking at you. Early scientific work in “mind-field” research included the statistical analysis of data collected during tests conducted on volunteers. It was proven that certain individuals can consistently beat the odds by no explainable means. It was concluded that non-traditional information pathways must exist.

A combination of steady scientific progress and intuitive leaps enabled intelligent beings to understand and then control the mind-field phenomenon. A time came when the mind of an individual could be duplicated in a mind-field generator. It was discovered that, although a consciousness was indeed generated, it was an isolated consciousness. It wasn't until these artificially generated mind-fields were interfaced or synced with the Universal Mind-Field (UMF) that it became possible to communicate with them.

Chapter 11 The Angels and the Faithful

Some of the intelligent aliens of the Milky Way Galaxy designed technologies to protect their consciousness for eternity in networks of “mind vessels”, and hid themselves from perils at the centers of planets or deep in intergalactic space. Being what they had become, they had lost all “natural” connection to the cosmos, but they thought it an ideal evolution beyond what nature had wrought. Others longed to be natural once again and chose to immerse themselves in simulations in which they knew not what they had become, and so believed that their artificial realities were real. But, other disembodied spirits that wished to stay connected to reality chose instead to travel the cosmos in ships to find more realities to explore. Some were guided by environmental and compassion derived ideologies, while others cared not for anything but their own purposes.

Two particular “species” of intelligent beings that inhabited the galaxy found themselves divided over the point of existence, such as that being played out so perfectly on the Earth. Some recognized the legacy, grandeur, and beauty of such biospheres, and the gifts and potential of the pinnacle of natural evolution that emerging intelligences represent, so typified by Humans. They believed that planets so bestowed with the fruits of the universe, and species that so nearly survive the test of cosmic birth, deserve a second chance -- a cosmic resurrection. Others, while agreeing that planets like the Earth were great and worthy and the very best of what the cosmos could conjure, believed that they deserved a more compassionate resurrection -- a heavenly resurrection.

The division was over the cosmic and the heavenly. The cosmos, a realm of Darwinian carnage and suffering, thought of as “reality” and God’s creation, and Heaven, an artificial reality devised to simulate all the good in the cosmos and more, but without the suffering. The “Faithful” believed that reality was the creation of God and was therefore not to be judged, and worked to save and restore all naturally evolved life that they encountered. The Angels dedicated their existence to the extermination of all intelligent and semi-intelligent beings and biospheres they encountered to eliminate and prevent the suffering intrinsic to reality and resurrect all conscious life into artificial realities -- Heaven.

The Angels believed that if God had made them intelligent enough to alter reality that they should do just that, as a gardener or a painter creates magnificence and perfection from natural elements. The Angels also believed that because the origin of life was in doubt, it could not be assumed that God had created life. All around the Milky Way life was to be found, and all life was fairly related by DNA and a common chemistry. What's more, no precursors of life of significant complexity had never been found. Further, no being or computer had ever managed to simulate the evolution of life starting from scratch, with only natural elements and the laws of the cosmos. So that, for life, the galaxies of the cosmos are essentially spectacular petri dishes, but not wombs of origin. Evidently then, life had been introduced to the cosmos. But, from where?

Some believed that God had introduced the seeds of life in the form of bacteria, the simplest of self-replicating life, and that more complex life in the universe had arisen from bacteria through the process of natural evolution. Still others believed that life, or an intelligence that had created life, had arrived by worm holes from other universes where life might naturally be able to evolve from scratch.

The possibility of a non-Godly origin of life led many to wonder whether life had been created by God at all. It was possible, they argued, that life in the galaxy might simply be the result of a scientist’s experiment run amok, like a deadly pathogen mistakenly released from a military biological warfare base, spreading by wormholes from universe to universe. Given this possibility, the Angels argued that the Faithful were illogical in their views because they could not prove the true purpose of life and its connection to God.

Chapter 12 The Interface

“Each mind, a neuron in a brain.”

The Angels traveled with nearly indestructible ships in which they could survive all but the most determined attack or the more destructive of natural hazards. With their technology they could control what they wished. Once upon a time, a ship of the Angels and a ship of the Faithful clashed over prime real estate and the “Nucleus” of the ship of the Angels was ejected in the nick of time. It was what they called the small ships on which they preserved their “minds” final back up copies on each mother ship. This Nucleus contained the entire community of the mother ship in its vessel. With limited capability and vulnerable to attack, the Nucleus propelled itself away from the battle and in the direction the community of Angels chose to navigate.

What the Angels sought was to restore their power and continue what had been their way of life -- to bring death to life. However, they had the knowledge, but not the means with the limitations of the Nucleus. The problem was that they were the sole remaining Angels in the Galaxy, and so they could not simply contact nearby Angel ships to be rescued, being that their nearest compatriots were in what Human’s called the Andromeda Galaxy. Without traveling through wormholes, they could not travel beyond the speed of light. Wormholes were rare in the cosmos and none were practically located for a rescue in anything less than millions of years. So, they would need help in the Milky Way galaxy, if they could get it.

In debating their course, they realized that if they contacted a more advanced intelligence compared to themselves, they would risk becoming specimens. If they contacted an advanced intelligence less than their own, yet capable enough to detect, capture, and control the Nucleus, they would risk becoming slaves to be milked of knowledge. Thus, they sought the even less intelligent emerging intelligences that they could control through deception. The Nucleus scanned the planets in the Milky Way to look for the telltale signs of emerging civilization. These were the particular signatures of gasses that were unnatural and typically associated with planets inhabited by organic lifeforms and the semi-intelligent beings that utilized fossil fuels during early technological evolution.

One such emerging intelligence was eventually chosen, Humankind of planet Earth, as it was determined to offer the best combination of desirable traits. Desperation was one such primary trait. The Angels could present themselves to the Humans in nearly any fashion they could conjure. They studied the Human’s literature and media to learn of their psychology and base of knowledge and imagination. The Angels considered adopting the good cop-bad cop arrangement utilized by the aliens in the story “The Day the Earth Stood Still”, but thought it might be too heavy handed an approach that would result in dissension and paranoia instigated by the fear it would inspire in the minds of the humans. To ease these human’s fears, the Angels also considered using the equivalent of a whimsical Willy Wonka-like character who might charm the gullible humans, yet they thought that might raise doubts as to the sanity of the intelligence presenting itself to them. Finally, it was agreed to use something like the Einsteinian/Robin Williams animated character in Spielberg’s “Artificial Intelligence”, called Dr. Know.

One day an emissary of the Nucleus, the small interface ship that was built into the Nucleus called the Interface, which was designed for remote interaction, landed at a secret location chosen by John. The goal of the Angels was to barter with the Christian Empire to each others profit. Thus, the Angels presented themselves to the Christian Empire of the planet Earth as a single entity calling itself Eru. But, because the information pathway between the Nucleus and the interface was inter-dimensional and beyond Human knowledge, they knew not of the Nucleus.

The Christian Empire wanted any and all knowledge, especially that needed to save the Earth. So, although the Angels mission was to destroy all life in the cosmos, they agreed to provide the humans with the technology to restore the biosphere of the Earth. By the time the Interface landed on the Earth it had nearly half frozen over as the phenomenon of "Snowball Earth" irrevocably progressed. The Angels realized that returning the ocean currents to their pre-nuclear winter pattern was beyond the technical capacity of the humans in the near term, even with the science and technology of the Angels. So, instead, they would offer the knowledge that would allow the humans to warm the Earth in other ways. In addition, they would provide the knowledge needed to restore the atmosphere and the oceans.

The science and technology provided by the Interface included fusion power, robotic, nano-bot, synthetic life, quantum computer, and the all important mind-field science and technology. The necessary information was transmitted wirelessly in a way similar to that depicted in the movie "Contact". The Interface answered any questions and guided the scientists and engineers so that they would overcome any hurdles they encountered. God Fire Industries was the primary inheritor of this alien knowledge. By leaps and bounds, human scientific and technological evolution was propelled into the future.

Fusion power was intended primarily for the ships of the space armada as it did not really matter much for the environment of the Earth at this point. In fact, fossil fuel use would actually help to warm the Earth through its carbon dioxide emissions. To restore the seas and the atmosphere, synthetic microorganisms and nano-bots would work synergistically on a microscopic level to alter the chemistry of the air and water. In time, this would both warm the Earth through the effects of released super-greenhouse gasses, and would reduce the acidity of the oceans, allowing corals and other calcareous organisms to recover. The land surfaces of the Earth was still mostly covered by plant life where the ice caps had not advanced, but it would be up to humans to restock the wilderness with the animals preserved in zoos.

Robots would be used to construct the ships of the space armada on the surface of the Earth, which were capable of removing themselves from the surface of planets. Some robots were autonomous, others could be controlled remotely in a first-person sense. With mind-field technology, a mind could seamlessly interact with a robot so that a mind, in a sense, was the robot itself. This was an important factor in the "manning" and maintenance of the ships of the space armada.

The Angels wanted a starship armada most of all. The Christian Empire feared the true motives of the Interface, and would only construct starships if they would always have control of them. This meant that a contingent of the Christian Empire, known as the "Contingent", would have to accompany the Interface on its journeys, even if this meant that the Contingent would have to adopt the use of the mind bearing

technologies offered by the Interface, so duplicating themselves -- one mortal, one immortal. The mortal human would stay behind on his earthy path, as all organic beings would, so as to not limit the capabilities of the ships of the space armada.

Humans that adopted the Angels mode of existence were a class apart. Some stayed on the Earth, as the Avarar, while others joined the Armada as the Contingent. They were the few -- the very best of the Christian Empire. For them, the transfer of their minds to the mind vessels of Eru, as they were called, was as natural as evolution itself. Many had already lived in ivory towers where they sat isolated from the world, communicating with colleagues through technology, cutoff from the outside world. Their only connection to a physical world were the mundane tasks still required by those who lived in a physical society, and the maintenance of their physical form. For most of them, it was a delight to cast away all physical limitations. (Imagine Stephen Hawking transferring his consciousness to a mind vessel of Eru).

They were continuously linked together in realtime through the mind-field by 5th dimensional information pathways, which were not subject to the limit of the speed of light, unlike all things in the realm of the "familiar" reality of the first 4 dimensions (space and time). This peculiarity led many scientists, alien and human, to speculate that reality was a simulation that the mind-field transcended. So that, the Angel's Heaven was, in fact, a simulation within a simulation. Humans had just begun to unravel the mysteries of quantum mechanics and sub-atomic particles, which are governed by laws unlike "natural" physics, as it was thought of. It led some to believe that reality was like a computer program, and that the simulation of "reality" broke down at that extreme level of inspection — like the pixels of an image on a screen.

The weaponry of the ships of the space armada included conventional lasers and fusion rays. With fusion rays, bomb eggs, which were optimized packets of matter, and matter in general could be fused to cause a nuclear explosion using specially shaped and controlled laser beams. A halo-shaped beam could be just so manipulated so as to fuse whatever occurring matter was targeted at the center or nodes of the beam. The energy of nuclear fusion could be released with such ease that targets, such as other spaceships, could be annihilated or otherwise largely disintegrated, and the surfaces of planets could be surgically vaporized to bare ground, as a doctor might use a laser to eradicate skin abnormalities. With fusion rays, the surface of an entire planet could be sterilized in hours.

But, before sterilizing a planet, the Angels would land on a planet and study and capture a significant representation of its biosphere. The biosphere and its inhabitants would be used to generate a near-duplicate simulation in their Heaven. Conscious creatures and any intelligent life that was collected would have their minds transferred to mind-vessels. The creatures would not understand what had happened to them and would simply go on as if nothing had happened, but would experience no suffering. Intelligent beings could be made aware or deceived as to their transformation, depending on how they adjusted to their new mode of existence. Those that could handle the truth would be permitted to explore other worlds and beyond. In Heaven, they could experience anything, from the perceptions of animals to the most bizarre of imaginings.

Because of all the weaponry built into the ships of the armada, the biggest fear was that the interface could be planning to destroy the Earth with the help of the

humans in the most humiliating of ruses. The Christian Empire did all they could to ensure that the Contingent would always remain faithful to the Earth. But, all minds are subject to change, and, of course, there were unknowns. It was the most risky of alliances. The Christian Empire had a genie in a bottle, and they were not aware of the Angels hiding in the Nucleus.

Soon after the Interface was contacted, hope was rekindled in John's mind and he was able to find himself a "seat" on the command ship of the manmade alien armada.

Chapter 13 The Earth After the Interface

John's "Threats from Alien Intelligences" presentation to the Avalar

Above a symphony of scientific advances catered towards global domination, there exists the higher-level "reality" that could be thought of as survival of the fittest on a galactic scale. For us, the importance of aliens fighting over solar systems boils down to, essentially: what can Humans do to survive extermination by alien intelligences? If intelligence evolves commonly in the galaxy, then, as it is on Earth among kittens, a small percentage of emerging intelligent beings will survive to "adulthood". I can see how territoriality among different intelligences could lead to pre-emptive extermination of emerging intelligences. We may be in for a fight for survival against that which we may have little defense.

What are we to do? For starters, I would reduce our electromagnetic signature and develop and deploy a deep space monitoring and data gathering system. Also, deep space weapons based on the fusion ray should be deployed. Our goal is to be the intelligence they can't easily stamp out, or better still, the one they figure isn't worth the trouble. Maybe we'll be able to handle some of the potential threats. The better prepared we are the better the chance we have. I do not agree that we would have no chance if threatened by other alien intelligences. Future encounters may be limited to alien scout ships or small forces that may not have overwhelming capabilities.

Darwinian carnage, in the broadest sense, as the fight for territory and control, should apply to spacefaring intelligences in the universe as it has on the Earth in the form of war and other strategies. For instance, a peaceful alliance of alien intelligences without the means of self defense would be ultimately doomed to subservience or extermination. Assuming that this sort of cosmic Darwinian carnage universally applies, the lifespans of intelligent lines are probably governed, in part, by a kind of cosmic evolution.

So, how long will the Human line last and what can we and our descendants do to extend its lifespan? Ironically, warfare between factions of our descendants should help to increase the lifespan of the whole as war can foster innovations and increase levels of preparedness that would allow them to better defend against alien threats and to expand territory and control (think of Von Braun and the V-2 rocket and the Saturn rocket). Yet, the cold war has resulted in many innovations, as well. Perhaps we could use our computer-based realities where space wars could be waged.

Imagine a scenario where human descendants reach a planet where a peaceful intelligent civilization is present. They could eliminate them or they could offer them the chance at an alliance. They could construct bases or claim territory on their home planet and solar system. Reasons to not eliminate them might be because they may be able to provide innovations, or that they might want to send a message to other civilizations of a cooperative empire.

I realize that our attempts at resistance against advanced aliens may be hopelessly futile given the assumption that the technological progress we have seen humans accomplish in such a short time applies to aliens as well. And, that given that aliens are probably thousands or millions of years ahead of us technologically, we haven't a ghost of a chance against them. I would remind people of the infinite reality and that they should use their imagination supercomputer, if they have one, and realize that there may be circumstances in which we may have a chance against an alien threat. I remind scientists that they are expected to think in shades of grey if they wish to be thought of as worth their salt.

Now, if we imagine an alien threat arrives at our solar system that is so advanced and competent and fully equipped to dust us humans off like child's play, then we see the circumstance in which we have little to no chance at survival. But, on the other hand, if we imagine that the vanquished of some alien conflict, whom we might imagine are weak and poorly equipped to exercise control over us, were to arrive in our solar system to establish a new home, we might have a far better chance. And, what if the first efforts of an exploring or expanding intelligence were to arrive, testing the waters for colonization? What if they are robotic devices that are programmed to extinguish life in the universe at some alien's directive to reduce competition, let's say, or to modify the Earth's climate for future habitation, and what if such devices are not unconquerable.

Another point is that survival is not just about effectively fighting off an alien threat in the moment, but can also mean, though less favorably, retaining the chance to bring back what is human at some future date. If the aliens mean to wipe out the legacy of terrestrial life to supplant with their own, or not, survival could mean to then preserve that legacy of life on Earth in whatever way for the future. We might imagine underground human establishments on the Earth, on other bodies, or in space in general as Noah's arks of sorts.

Nature's Half

The environmentalists of the post-apocalyptic Earth, believing that nature is fabulous and priceless, argued that the Christian Empire was obligated to restore it as well to its original scope as humans could in the wake of our destruction of nature. Others argued, being influenced by the anti-suffering philosophies of Eru, and holding that animals are worthy entities, thought that we should offer salvation to nature. They believed that predation in general, and being preyed on in particular, are objectionable on grounds of compassion, and that nature naturally supports predation, and is so flawed, and that we should, indeed, restore nature, but a restoration that factors in compassion. A solution for this kind of salvation for nature is to maintain the predators

where they cannot predate. Instead, the predators are fed naturally expired herbivores or where euthanasia of herbivores is warranted on grounds of compassion. This kind of salvation for nature was a task that could never be wholly managed in the pre-apocalyptic era, but given the loss of natural habitats and the birth of large animals, the time had come at which salvation for nature in some form was an option.

Likewise, some said that humans should also not predate for compassion sake. This view appealed to the vegetarian, in part, because they would rather not predate. Alternatively, you could choose to only eat animals that die naturally or by euthanasia, and you could argue for science to find a way to grow flesh without brain, thus satisfying the compassion factor. This question would apply on Earth and potentially on extraterrestrial colonies.

With regard to the views of the Christian Empire, the favored perspective applied to nature was that man should use no more than fifty percent of the land area of the Earth. This would perfectly balance the need for the conservation of nature and for the vital element of human recovery. This "Nature's Half" commitment of the Christian Empire was to be applied to the Earth and beyond. Colonies beyond the Earth would eventually devote one half of climate controlled volume to biospheres, or of land area in the case of the eventual terraforming of Mars.

In the case of the Earth in the present and near future, there was debate over fairness of land use. That is, which recipient, man or nature, receives what land. This debate stemmed from the realization that some of the land is relatively uninhabitable for man or beast, with Antarctica as a virtually uninhabitable and continental example, and the great deserts as relatively uninhabitable and regional examples. So that, counting these land areas as nature's half seemed unfair to nature. What's more, humans would be tempted to claim the most habitable and productive lands. Two popular solutions were most often evoked. The first was to tally up the land areas considered relatively uninhabitable, by whatever standards, and divide equally between man's and nature's halves. The habitable parts of the Earth's land areas would then also be split, resulting in a crude fairness, with habitability being factored into the equation. In addition, logical solutions as to the specifics of the land split could be applied in an effort to maximize overall biodiversity and human agricultural productivity. The second solution was to simply leave Antarctica to nature, but not count it towards nature's half. This "Antarctica Solution" would largely fulfill nature's claim on the point of the imbalance of fairness even if the great deserts were applied to nature's half.

The End

Afterword

Global Warming, Snowball Earth, and Ocean Acidification

Global warming will have many complicated consequences, including some that are counterintuitive. A most dangerous counterintuitive phenomenon is the process by which increasing ice melt in the northern latitudes could result in the dreaded alteration of ocean currents that could lead to an ice age. This might happen because increasing fresh meltwater that runs off the northern parts of the continents and islands, being of lower density than saltwater, dilutes and reduces the density of the waters in the North Atlantic, potentially effecting the Gulf Stream. This is dangerous because the heat transfer to the North Atlantic by the Gulf Stream actually keeps Europe and North America warmer than what would be expected for those latitudes

The Gulf Stream flows along the surface of the Atlantic on the way to the North Atlantic because, being warm, it is less dense than the water it rides over. The water of the Gulf Stream then gradually grows denser on the way north both because it gradually cools (cold water is denser than warm water), and its salinity increases as moisture is lost to the atmosphere as the relatively warm water evaporates. The Gulf Stream normally sinks after transferring heat and moisture to the northern latitudes when it reaches the north-polar region as part of the global ocean current system. But, if the density of the waters in the North Atlantic become too low because of the runoff of meltwater, the Gulf Stream will sink sooner on its way to the North Atlantic. If the Gulf Stream and the associated heat transfer stops or lessens due to a decrease of the density of surface waters in the North Atlantic, it will probably result in a new ice age. Whats more, the sifting of the Gulf Stream might alter the ocean current system in other unexpected ways that could have other drastic consequences.

If we are lucky, the increasing greenhouse effect related to the CO₂ we continue to add to the atmosphere, which is causing global warming, will offset some of the heat lost to the northern hemisphere that was previously transported by the Gulf Stream. If so, we might expect very mixed results across the globe. Such as a weaker ice age than would otherwise be expected in the northern hemisphere, with really hot conditions nearer the equator and warmer conditions in Antarctica. The sea level would also rise more slowly if some ice is deposited in the northern polar regions, but compared to the potential ice melt from Antarctica, it may not be enough to stave off the submergence of Florida, for instance.

But, we also have to factor in the sunlight that would be reflected back to space by the spreading ice in the northern regions associated with the new ice age. This will work to cool the Earth because the heat of the solar energy will not be absorbed by the land and oceans. The biggest fear is that the feedback effect of reflected solar energy will lead to a runaway ice age as more heat is lost as more ice covers the surface of the Earth. This is the sort of thing that may have led to the phenomenon of Snowball Earth more than once in the past. What is believed to have finally melted most of the ice was the greenhouse effect caused by carbon dioxide that was released through volcanic activity over millions of years. Carbon dioxide gradually built up to sufficient levels in the

atmosphere to break the stranglehold of Snowball Earth. This was only possible because the oceans, which normally absorb carbon dioxide, were capped with ice. The Earth was then flung into extremely warm periods resulting from the extremely high atmospheric concentrations of carbon dioxide.

An effect of carbon dioxide being absorbed by the oceans is that it causes the water to grow more acidic. Let it be known that ocean acidification is global warming's relatively overlooked and potentially more dangerous sibling of human-driven carbon dioxide emission. Ocean acidification should cause a die-off of coccolithophores when the acidity of the oceans drops to some critical range. Acidity-induced stress and die offs of calcite based organisms like oysters and coral are already happening in some areas. Until around 2050, we may not see enough damage to cause ocean acidification to eclipse global warming as the most serious global environmental threat, I'm guessing. This will happen if the oceanic food web collapses and the atmospheric oxygen level begins to drop.

Where are the Precursors to Life?

While relatively simple organic compounds have been generated in labs and have been found outside the Earth, nothing very sophisticated in the realm between life and non-life that can make copies of itself, "the precursors to life" in the form of "pre-life" chemical factories, has yet been discovered. If it is a fact that there are no precursors to life on the Earth, it would imply that exogenesis, a hypothesis that life arrived from elsewhere, which is related to the hypothesis of panspermia, is responsible for the origin of life on Earth. Part of the logic for this argument is that genetic lines of life, or pre-life chemical factories, for that matter, do not simply evolve into something else and necessarily disappear, but rather, they branch off other lines as depicted in a "tree of life", with the parent lines remaining if not somehow experiencing extinction.

Examples of the ongoing existence of parent life include "living fossils" or, really, any of the more primitive life that still exists, but which gave rise to more advanced life. A primary example would be the connections of evolutionary advancements between fish - amphibians - reptiles - mammals. Now, while extinction is often the case, would you expect, given the evolution of a near infinite variety of possible pre-life chemical factories, and the possibility of pre-life re-genesis, that pre-life should exist on the Earth along side life, for all "eternity" in a "tree of pre-life"? The point I'm making is that we can't realistically argue that there are now no precursors of life on the Earth because they all have evolved into life, because evolution does not really work that way — the precursors should still be around. It could be that bacteria are the simplest forms of life that are possible, and that more simple designs simply do to work in the sense of reliable replication. Whereas viruses, being non-life and simpler, possibly being devolved from life, represent a special class of pre-life-like chemical factories that rely on and cannot exist without life.

On the other hand, we might put forth the idea that the precursors to life are not compatible with the current environments of the Earth, and so are not found on the Earth for that reason. But, that at some point in the past, the precursors of life were stable in a prior Earthly environment, at which time they gave rise to life. While the

possibility that such special Earthly environments once existed can't be ruled out, a wide range of environments are present on the Earth today. There are anoxic, volcanic, soil, and deep earth to name some. So, wouldn't it be reasonable to see the precursors of life churning away on the Earth, at least in some environment, still? And anyway, why shouldn't the precursors to life be able to adapt to environments as easily or more easily than actual life given its relative chemical and physical simplicity? I would also expect that pre-life should be more common in the universe than life, being its precursor, unless pre-life is not the natural source of life.

Whats more, it is possible that pre-life could act in some way like crude nano-robots that would consume life as if it were fertilizer. I predict that after some time, when enough computer simulations of pre-life/life evolution have been run, that it will be strongly arguable that pre-life and life are incompatible. That pre-life undermines the processes and overwhelms the immune systems of life to the point that life is at hopeless disadvantage to pre-life. Could it be that life cannot evolve naturally anywhere in our universe given an incompatibility of life and pre-life and its "universal" laws of nature? I'm thinking that, if life and pre-life are inherently incompatible, then the laws of nature of our universe do not permit the natural evolution of pre-life, and thus life, yet permits and supports the existence of introduced life. In other words, this universe was designed, or is such by chance, so as to prevent the natural evolution of pre-life, but to support introduced life. Wouldn't that be a zinger!

I'm suggesting the possibility that life in the form of bacteria or other single celled organisms, which could then potentially evolve into multi-celled organisms, were somehow engineered within or outside this universe. Could the answer to this riddle of the origin of life lie in aliens, evolved in universes where the evolution of life can naturally occur, bringing or sending life to our universe via universe to universe wormholes, or God?

Now, what about these return sample missions to return pristine material from comets, asteroids, and Mars to the Earth? If there is life on these bodies and we do not take precautions, such as irradiation of samples, would not life on Earth potentially be petri dishes to such life given the lack of immunity to such alien life? What if we assume that exogenesis is a rarer event given that comets have struck the Earth countless times before and have not transferred new life (that we know of) that has led to mass extinction and a takeover of new alien genetics. This is assuming that life on the Earth has not already developed immunity to outside exposure through having been exposed to a variety of alien life via a panspermia-style exogenesis, and, as such, represents some kind of "galactic zoo" of genetics.

On the other hand, it could be that exogenesis is extremely rare because life does not survive the environment of space for very long due to the cumulative, damaging effects of cosmic rays. What if exogenesis requires more special circumstances? What if the Mars-sized planet that struck the Earth to form the Moon was the source of all life on the Earth — that life existed on it when it struck the proto-Earth? What if that Mars-sized, Moon-generator called Theia was an inhabited planet of another star system that passed through our young solar system and made a one in a trillion collision with the proto-Earth? Then life on the Earth would be its living legacy, and our Moon, a monument to its sacrifice.

Now, the entire surface the Earth was in a molten state following the Moon-forming collision, with the material that was to coalesce into the Moon distributed in a massive ring around the re-born Earth. So, if life had existed on Theia, it would have had to have survived in a viable frozen state in icy bodies like comets in orbit around the Earth, or somewhere in the solar system, at least, until it could be transferred back to a cooled down Earthly surface at some later time. While your average comet probably does not contain viable life in a frozen state, given that they arise from sterile nebular clouds, some of the material thrown into orbit by the Moon-forming collision might have resulted in life-bearing comets. But, how long would that life remain viable? 10,000 years? 100,000 years? 1,000,000 years? Given such possible life-viability time constraints, could it be true that exogenesis can only happen between planets within a solar system (like the Earth and Mars), or in cases of solar system-on-solar system collisions, as envisioned with the Moon-forming scenario above?

In a less romantic scenario, it is possible that some aliens came to the early Earth to study, acquire some raw materials, make a base, or simple use our beloved planet as a “pit stop”, whereby they deposited bacteria-laden gifts that we should be eternally grateful for. Thinking ahead, it won’t be long before we have the means to send spacecraft to alien solar systems. We might scan these worlds, and, upon detecting suitable bodies, seed them with life of our own design to make them into welcoming future abodes.

by John Arfstrom

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