Khan Victorious! - A Star Trek Timeline!

by CaekDaemon

Summary

Throughout the annals of history, there come moments where the entire fate of the world can be changed in a single day. Tours, Trafalgar, Stalingrad, each and every one set the stage for the years and decades that followed and forever changed the course of human history...and in the year of 1996, the world has come to yet another tipping point: the Eugenics Wars. The United Nations stands as the rallying point for those nations that stand against the Augments of Khan Noonien Singh, two powers locked in a titanic clash of nations that sees entire continents turned into battlegrounds.

The stakes? The very future of mankind.

It was a war that the United Nations would ultimately prevail in, at a heavy price in bodies...but what if things went differently? What if it was not the United Nations that emerged the victor, but Khan?

Part timeline and part story, Khan Victorious aims to explore what happens in a world where the science of genetic engineering is not abandoned by mankind, but elevated and embraced to its full potential, a world where Augmentation is given to the entire world, from the end of the Eugenics Wars to Star Trek Nemesis and beyond.

As seen on TVTropes and AlternateHistory.com!

Notes
Right, so this story has been going for quite a while now before it was ported to Ao3, and I've been meaning to rewrite some of the details in this part to better fit in with how things have been written later on, but for the most part everything here should either fit directly into the main story or be addressed in later parts, so for now just read this one and I'll get around to replacing it with the final version later on!

****

Lincoln County, Nevada, 1996...

Jeff Carlson took a breath and sighed as he looked out towards the dark horizon, watching for the telltale flashes and thunder that had become the greatest sign of Khan Noonien Singh's armies sweeping away every last piece of opposition in their westwards march from the east coast, millions of men and thousands of tanks brushing aside the demoralized remnants of the last of their opposition. His oxygen mask hissed and groaned as it purged the excess carbon dioxide before cycling around to give him another breath from the large cannister of purified oxygen kept on his back, the most important part of the complete hazardous materials suit that gave him the only existing protection from the retrovirus that had snatched victory from the hands of the United Nations at the very last moment and made the construction of his great ship, the life's work that was the culmination of decades of work and research, his Botany Bay.

It was a vessel like no other, a craft capable of not just travelling to Earth's moon or to Mars or to any of the other planets in the solar system, but able to cross the interstellar void to another star, a sleeper ship that would carry a hundred men and women on a voyage that would take the better part of a century to complete, every last one of its passengers having undergone an extensive background check to remove any question as to where their loyalties lay, and even more thorough were the tests and examinations that confirmed that they were all in good health, unaffected by that which had already claimed the rest of the world.

"Damn it all to hell," he cursed under his breath. "We were so damned close."

"Sir, we have to board the ship," came the quiet voice of a young man who Jeff knew only as the son of Henry Starling, the head of the computing conglomerate that had built the Botany Bay's electrical systems and helped to fund most of its construction. "The Augments -"

"I know, I know," he muttered as he leaned onto the railing, looking out towards the horizon. "Give me a minute, just one minute. I want to take one last look before we leave. What is your name, anyway?"

"William, sir," came the answer. "William Starling. I'm an engineer...I helped my father with the computers...before the bombing..."

"You wouldn't be calling me sir if you didn't already know who I was," Jeff said quietly. "Your father was a genius. We wouldn't have been able to build her if it weren't for his chips. It's a shame he isn't here to see her now, he was nearly more excited about the Botany than I am."

"Thank you, sir," was William's solemn reply; his father's death in a surprise bombing run of the greatest Chronowerx chip fabrication plant had been only a few months before, a fortnight before the defense line at the Mississippi was breached, but no one had any time to mourn, not with Khan's armies closing in upon them. "My father always thought that going out into space would be the future. To boldly go where no one has gone before..."

William sighed. "I miss him."
"We all do," Jeff said as he put a hand on his shoulder, squeezing. "And we'll prove him right. No man has ever left the system before, hell, we've never even been past the Moon before, but I'll be damned if I let that stop us."

Then he leaned back onto the rails, looking towards the dark night time horizon, waiting.

"Should be any minute now," he said with a soft voice.

"How old are you, sir?" William asked, standing besides as the last few passengers began to board, all encased in suits of suits of rubber and plastic fabrics, all with their own internal air supplies and all needing to enter a decontamination chamber before entering the Botany Bay's hull.

"I'm in my eighties. I'm old," Jeff answered. "I wouldn't even have a seat on her if I had my way, but I'm the designer, and they don't want her leaving without me. As if it would make a difference if something went wrong."

He glanced down towards the green dial on his wrist, tapping it twice to make sure it was still working. Khan's surprise had proven to be impossible to cure and almost so to prevent, but its presence could be detected with a good enough air sensor.

"You think the disease is out here, too?" William asked with alarm, quickly checking his own sensor. It was green.

"Khan dumped the stuff in the jet stream, over the cities, in the water, it's probably everywhere by now," Jeff answered. "Everywhere everywhere. There probably isn't a single uninfected person left on the entire planet by now, other than for us and everyone else on the Botany Bay. You've heard the news about LA already - everyone in the damned city is infected."

"Christ," William muttered. "He's really won then, hasn't he?"

"Don't worry about that," Jeff said, glancing to his left wrist and to the trusty watch he kept fastened there. "You just worry about the journey and...three...two...one..."

He looked to the horizon...and smiled as he saw the golden brightness coming over the hills, the first rays of morning sunlight streaking across the white salt plains of the Groom Lake as they reached out towards the classified military base that shared its name, but was known to thousands as nothing more than Area 51, a place of flying saucers, time travel and interdimensional gateways...at least to the eyes of the public. In reality, the place was almost entirely a research site for next generation military hardware, stealth bombers and the like, with anyone who thought otherwise being often dismissed as a crackpot conspiracy theorist long before the war had started. But Jeff Carlson knew otherwise, even though he had been sworn to secrecy and to never say the truth - he had seen a craft of extraterrestrial origin for himself in '47, a small pod that had held three big eared aliens. They had only managed to start dismantling the craft before it disappeared, however, but the systems they had studied had proven the key in developing the Botany Bay's life support...not that anyone would believe him if he said such.

"Right on schedule as always," he said with a smile, feeling the sun's warmth on him even through his suit. "Never late even for a second, are you? But I guess this is goodbye."
"Sir?"

"Just an old man's rambling," Jeff said warmly as he met William's eyes before turning towards the ship and starting to walk. "Come on, let's get going. I don't want Khan or anyone else finding out about this ship, and the longer we take the more chance they get."

William Starling answered without a word, following Jeff's lead into the large chamber built into the Botany Bay's hull, an airlock with dozens of steel nozzles affixed to its walls and floor, lacking seats or any kind of furniture other than for a simple series of lights on the ceiling and a large poster's worth of text etched into the wall, listing all the symptoms of Khan's surprise and the warning to immediately depart the ship if one had any of them. As soon as the two men were inside, the last of the Botany Bay's passengers to board, he pressed the cycle button...and the nozzles growled to life as they began spraying the room with a witch's brew of acetone and carbon monoxide and everything else that could possibly destroy the greatest of Khan's weapons - the microscope soldier that was called the Ascension Flu by some and Khan's surprise by others.

**Khan's ultimate weapon.**

Jeff sighed, and with nothing else to do, he looked at the metal etchings. Before the disease had begun to spread through the ranks of the combined armies of the United Nations, Khan Noonien Singh had been on the retreat - the overwhelming power of the combined industrial might of over thirty nations was beginning to show, with every tank, plane and ship they lost being replaced by twenty more, and a devastating offensive pushing through Europe had seen the last of his allies in the region crushed and the opening of yet another front in Anatolia, all whilst he lost the Pacific one Indonesian island at a time. The noose had been tightening, and it had been known across the world that it would only be a matter of months before the war arrived at Khan's doorstep and entered India itself, where his war machine had its heart, and there were more than a few who had already started to lay out the plans for the post war world, so certain that the Augment armies were finally spent...but Khan had one last ace up his sleeve, one last hope to turn the tide against all odds...and it had succeeded.

First unleashed on Ascension Island, the place from which the virus would get its name, the disease had first arrived in the form of a cruise missile, fired from a submarine off the coast that remained nearby, waiting and watching to see if the Khan's surprise had succeeded.

At first, the missile's strike had initially been dismissed as nothing more than a strike intended for the Wideawake Airfield that had went off course or as a terror mission, but barely a day after strange symptoms had begun to appear in the population - men and women of all ages were tiring more quickly than was the norm, a symptom that was quickly followed by chills and fits of coughing and sneezing and a sore throat along with a variety of other aches and pains, but - as was quickly deduced by the island's physicians - nothing particularly dangerous by the standards of what was clearly the deployment of a biological weapon. Confident that the Khan's latest scheme had failed, life continued as normal after a day or two's panic, with the hospitals of the island reporting that the island was safe and that there was no need for more than a few days quarantine at most, treating it as though it were nothing more than a particularly potent strain of influenza...

...but unknown to any of the island's inhabitants, it had succeeded beyond all measure. Though the pattern of symptoms had not been known at the time, an abnormally large number of women had came into the hospitals and clinics complaining of aches and discomfort in their lower abdominal area, the only obvious symptom that had told of what the disease's true target was.
A few days later, the submarine still in hiding and still observing, a plane carrying men on leave from
the frontline would arrive and be given a welcome fit for the glorious heroes they were, veterans of
the Battle of the Suez Canal. A happily married young woman called Elizabeth would welcome her
husband home, and barely two weeks later found out that she was pregnant. Delighted by the news
but concerned by the risk of deformity brought about by the news of regional nuclear exchanges in
other parts of the world, she headed to her local hospital for an examination as quickly as she could.
Cursory examination by ultrasound showed that her child was in perfect health, better than perfect
health even, but a fetal blood test revealed a shocking discovery.

Her child had all the markers of an Augment.

Horrified by the revelation, the doctors examined all the other pregnant women on the island...and
found that they, too, carried augmented children, even ones that had been pregnant before the
missile's strike. Frantically passing the information they had learnt over to the World Health
Organization, already overburdened by the need to help the wounded of the great war, it was quickly
discovered that Khan's surprise affected men as well as women, causing every child they fathered to
be augmented, too...but most shocking was that everyone on the island was already infected, the
disease having so prodigious an infection rate that only the news of its existence was slower.

But as the World Health Organization panicked and struggled to gather all the information they
could, a message was relayed from the south Atlantic ocean to a Khan Noonien Singh's secret
command centre in the Himalayas, broadcasting of an enormous triumph. Barely an hour later,
hundreds of missiles were fired from submarines and missile silos across the world, even armies near
the front lines were targeted, and humanity's fate was sealed. In a matter of days millions had been
infected, but by the end of the first month that number rose into the billions as morale collapsed
across the globe, assembly lines and armored columns alike grinding to a halt at the realization that
years of struggle, blood and loss had ultimately been in vain.

But the armies of Khan Noonien Singh, the last of the great Augment rulers, were utterly revitalized
by the news, driven onwards by the dream of an augmented future that Khan had masterfully fanned
into a raging bonfire, bringing his battered and tired warmachine roaring back to life...and since then,
the tiger had never lost a single battle. In months they had reclaimed what the armies of the United
Nations had taken years to take, their opponents simply having no more fight left in them, a fact that
Khan had recognized and exploited for all its worth, treating his prisoners as if they were guests with
misguided ideals in such a way as to turn the collapse of his foes into a catastrophic mass surrender
across the continent, and what few formations didn't fall apart were simply overwhelmed by the
renewed Augment armies.

And so they had spread and spread and spread, nation after nation falling under Khan's rule, and the
rest was merely academic in nature, all but the fact that many leaders, cabinet members, CEOs and
executives and other powerful individuals, hidden away in underground bunkers, had managed to
avoid infection with the Ascension Flu...and it was they that his Botany Bay would carry to the stars,
the last uninfected human beings on Earth who had the task of building a new civilization on a new
world.

Or we'll damn well try at least.

Finally, the nozzles ceased their spewing and pumped away the tainted air as quickly as clean, pure
air was pumped in, replacing Earth's own atmosphere with that of the Botany Bay, whose halls were
sterile and clean. The two men stepped through into a second chamber, where there stood a large and
stout machine of thick grey steel in the middle, an incinerator, stripping off their suits at last before
dropping them in to be destroyed, ensuring that there was not a single item in the halls that could
have potentially had contact with the disease that would forever alter humanity.

"Well, William, here we are," Jeff said at last as they stepped into the simple, grey and spartan halls of the Botany Bay, lacking everything that was thought to be unessential or unnecessary.

Everywhere he looked he saw all the other passengers, an equal mix between men and women selected from across the world so as to maximize the genetic diversity of the small group, all wearing robust flight suits and all lain in coffin like boxes and all already in suspended animation. William simply and sadly nodded, leaving to find his own chamber...and Jeff found his, near the summit of the great ship, and crawled inside, to be woken first upon their arrival at the new world.

When the glass pane rose and when the cryogenic gases began to flow, Jeff Carlson wondered if he would dream.

Then, with all its passengers aboard and in cryosleep, the automatic launch sequence began...and the Botany Bay blasted off, leaving for the heavens as the sun dawned on a world where Khan Noonien Singh was victorious.

****


1996


"Occupational forces have arrived in the United Kingdom carrying emergency food, water and medical supplies for free distribution to all persons as needed. All individuals should report to their local distribution centre for support until the end of the end of the current crisis, or contact local officials for assistance. Please cooperate with all foreign personnel." - except of a BBC emergency services broadcast on the 19th of February, 1996.

"Massive celebrations fill the streets of Beijing as the first of victorious forces begin to return home, with full demobilization to commence as soon as possible," - excerpt from an article of the Reference News, 7th of March, 1996.

"Despite years of conflict, nation against nation and man against man, I believe that every single last one of us is part of a great brotherhood, a family of human beings, and though brothers might fight amongst themselves, they are still family. Amongst the people of my native land, there is a saying: though millions of sparks might come from the same fire, though they are all unique in their own way, they still merge into one when returned to the flame. They are all brothers. I intend to put the family, the flame, back together again - and the first step on this path is to ensure that no one, whether they fought for me or against me, no one, goes without the essentials of life." - An excerpt from Khan Noonien Singh's speech to the masses of Las Vegas on the 18th of April, 1996, as work starts to repair the damaged Hoover Dam.

"United Nations Secretariat Building to be demolished! "Preventing the myth of a "lost cause" shall be one of our highest priorities, in order to maintain peace not only in our time, but for years to come," says Khan!" - Headline of the New York Times on the 4th of May, 1996.
"Khan visits Washington as part of worldwide tour, declares that the city and its monuments shall be rebuilt on nation's birthday!" - Headline of the USA Today newspaper on the 4th of July, 1996.

"Salvage operations have commenced on the wreckage of the USS Enterprise, flagship of the Enterprise Strike Group, commence in the Philippine Sea. Lost with all hands after sustaining damage from multiple anti-ship missile strikes, the remains of the nuclear carrier prove to be a high priority throughout the region, as fear of leakage from the ship's eight nuclear reactors encourages mutual cooperation between former enemies. "Once the remains of the ship's crewmembers have been recovered and declared safe for transport, it is fully intended that they will be returned to their families for burial," one high ranking Chinese spokesman is reported to have said." - excerpt from a CNN news report broadcasted on the 11th of November, 1996.

1997

"Celebrations in the streets of Bordeaux as a ship from North America and the Caribbean arrives with a cargo of grains, coffee, tobacco, chocolate and sugar, the first cargoship to make the transatlantic voyage unescorted since before the war," - excerpt from a Radio France Internationale broadcast, first aired on the 2nd of January, 1997.

"From War to Peace - the incredible story of how a cement mill in India is helping local veterans ease back into the quiet of civilian life, rebuilding European cities and enriching its community in the process," - the description of an award winning documentary first aired on the 27th of January 1997, almost a year after the end of the war.

"Workers cheer as the last ever tank rolls off the assembly line of the BMW Munich Plant - bombed heavily during the war for its role as a major manufacturer of UN armor, the Munich plant developed a reputation as a "lucky factory" for the number of bombs that missed their targets or failed to detonate. Damaged heavily as the war came closer to the city, part of its main manufacturing hall collapsed following an airstrike meant to cease production, trapping several almost completed units under the rubble. With the end of the war and the debris cleared, these few tanks have been given over to the Eastern Alliance as a show of good faith as the BMW factory returns to peacetime production," - part of a news report by Bayerischer Rundfunk, a Bavarian radio station, on the 5th of February, 1997

"...despite the lack of clean medical facilities, trained healthcare providers, medicine and the strict rationing of food and water, the number of pregnancies with bad outcomes such as miscarriages, stillbirths and deformities has experienced an unprecedented 98% drop - though the investigation is still ongoing, it is hypothesized that the cause of this dramatic decline is due to the effect of Augmented genetic material - the vast majority of miscarriages and stillbirths being caused by genetic faults resulting in the developing embryo or fetus being unable to properly grow past a certain point in their development, resulting in a loss - directly resolving the root cause in a way that traditional forms of medicine cannot," - an excerpt from a classified paper about the impacts of Augment genetics on human embryos, written by the Centre for Disease Control and Prevention and first published on the 28th of July, 1997.

"The lasting impact of Ascension Flu begins to sink in as more and more women of Milan go forward with having children even with the knowledge that they will be genetically modified from birth, regardless of their wishes. One anonymous woman was noted to say, "Seeing as the only choice we have is between having augmented children or having no children at all, what choice do
"It is my lasting hope, my dream, that our new Eurasian Union will see the peoples of Europe and Asia joined together in a lasting friendship that will set the tone for the remainder of the twentieth century and for every century to come." - a quote by Khan Noonien Singh, on the founding day of the Eurasian Union, 11th of March, 1998.

"New, genetically modified seeds reach the fields of Somalia, Sudan and other African states - provided free of charge by the Eurasian Union's Unified Agricultural Policy, these seeds create crops that are resistant to disease, drought and damaged soils, promising that famine will never return," - an excerpt from a Radio Mogadishu news broadcast from the 27th of April, 1998.

"Did the President Go to Space? Curious new reports discovered in the remains of the Groom Lake Base, Area 51, reveals uncrackable messages with Raven Rock Mountain Complex and partial designs for an advanced rocket engine, casting a strange new light on the President's disappearance at the end of the war," - a Fox News broadcast from the 20th of June, 1998, an event widely considered to be one of the lowest points in the history of the news network, perhaps even in the history of broadcasted news.

"... the bankruptcy proceedings of Chronowerx Industries continue as planned. The computing giant had been the undisputed master of the information technology market for dozens of years, developing a number of advanced new technologies such as the isograted chip and the personal computer, thanks to the brilliant mind of its owner and founder, Henry Starling. Killed in an explosion brought about by a bombing run of his primary manufacturing complex, the computing firm bled vast amounts of money through studies of potential "wonder weapons" able to turn around the war, and with the mysterious disappearance of Henry Starling's son and the heir apparent of his computing empire, William Starling, Chronowerx Industries finally lost its grip upon the market and fell to the wayside of obsolescence alongside the punch card machine and propellor plane..." - the frontline news of the of the Wall Street Journal on the 18th of July, 1998.

"Preparations for the Games of the 27th Olympiad continue on schedule in Japan. Chosen randomly by lot following the end of the war, the games of the 27th Olympiad are to be the first Olympic Games since the end of the Augmentation War and the first games of the new millenia. The Japanese Prime Minister was noted to say, "We are beyond honored to be given the privilege of being the first to hold the Olympic Games, and are fully committed to the task of making sure that the games that are not only the first of the peace, but the first of a new millennium, will live up to their historic reputation."" - Part of a BBC World News report from the 7th of November, 1998.


"Though the Hellenic Republic was one of many nations originally fighting beneath the United Nations Security Council in the war against genetic augmentation, the misguided nature of our
participation in the conflict has become more and more apparent to us as Khan Noonien Singh, the enemy we were ordered to destroy, reveals himself to be one of the greatest allies of Greece, coming to our aid when no one else could. Now, embracing with open arms the symbol of lasting peace and prosperity that the Eurasian Union represents, I formally declare our hopeful aspiration to join the Eurasian Union as a full member state," - the final paragraph of an acclaimed speech by the President of the Hellenic Republic on the 31st of May, 1999.

"Interview with "Patient Zero" Mrs Elizabeth Fletcher and Lieutenant Timothy Fletcher - new parents say: "She might be an Augment, but it hasn't changed anything. She's our baby girl and we love her," and other insights!" - excerpt from the cover of an issue of Cosmopolitan magazine, 2nd of January 1999.

"Here, a toast to a glorious new millennium of peace and progress!" - Khan Noonien Singh, moments before the strike of midnight on the 31st of December, 1999.

****

When the sun rose on the Sunday of the 28th of January, 1996, the last day of what would become known as the Augmentation War, life did not change nearly as quickly as most people had been taught to expect through radio broadcasts and propaganda posters. There were no roaming death squads dragging dissidents out onto the streets, no chaos of the triumph of evil over good, but rather, for most of humanity, life went on as normal. On every continent, the huddled masses of men and women emerged from their bunkers and bomb shelters, fetching meals and clean water from the military controlled distribution centers that had long since replaced grocery stores, malls and supermarkets, receiving their work tickets in exchange that would see them travel on what few bus routes and railways were still in operational condition to the war factories, airfields and dockyards, the daily routine that had been drilled into them day after day.

Workers drafted to the assembly lines went to work on their machines, donning aprons and welding masks, whilst work gangs set to the task of clearing roads and tracks of whatever rubble had fallen upon them, putting out fires, mending water pipes and raising electrical wiring for those few regions of the world that still had working power stations and water plants, whilst others gathered the scraps of downed aircraft and destroyed tanks, picking over the wreckage for anything that could be of use. Even though everyone knew that the war was over, the routine persisted, no one else knowing what else to do whilst their leaders communicated with one another through satellite link, the remaining leaders of man, those scant few that had not perished during the war or mysteriously disappeared in the sands of the Nevada desert, not trusting the other side to maintain its word and not to seek one final, defiant strike.

For three hours, Khan Noonien Singh, leader of the titanic Eastern Alliance that stretched across Asia from Korea in the east to Belarus in the west, remained within his command complex beneath Everest, the greatest of the Himalayas, personally overseeing negotiations with the last few remaining leaders of the alliance that had promised, years before, to bring him and every other Augment down. Across the world, an unsteady peace ruled, attack submarines stalking their targets and fighters dancing amidst the clouds, merely waiting for the command to resume the war.

It would be a command that would never arrive, for at 1:00 PM, the unconditional surrender of the combined forces of the United Nations Security Council, the organization that had taken on the mantle of bringing down the Augment rulers, was signed, the surrender broadcasted around the world on every channel and every radio, the news spreading like a wildfire ripping through dry
Around the world, countless millions cried out in defeat as the news sank in...and countless millions cried out in victory, in celebration that the long struggle they had fought so hard for was finally, truly, over. In the heartlands of the Eastern Alliance, people took to the streets in celebration as the massive superstate, first formed as an alliance between the Augment Warlords of Asia as a counterweight to their opposition, the alliance that had dissolved into infighting as the war turned against the Augments and was restored again by Khan's triumphant armies, stood as the world's sole, unquestioned hegemon.

The Eastern Alliance immediately following the war - not depicted are affiliate members who joined the bloc in exchange for additional financial aid and assistance in the reconstruction period or directly before the start of the conflict.

With the only force able to match the Eastern Alliance to be dismantled, following the terms of the peace treaty that had put an end to the war, there was no question as to what the foremost power in the world was...and with many of the other Augment leaders killed during the fighting, either through assassination by special forces teams and missile strikes or by direct combat or even captured and given the death penalty, there was no question as to who ruled it. Khan Noonien Singh stood as
the sole ruler of the largest nation state in human history, a leader of billions and with an unimaginable industrial base at his command, damaged as it may have been by small-scale nuclear exchanges, strategic bombing and bloody urban battles. With his opponents utterly vanquished, their armies crushed and their cities in ruins, Khan was free to do whatever he willed with them and his opponents utterly unable to resist his will without using their strategic nuclear arsenal, nuclear submarines in particular, as a bargaining chip...which made his actions all the more surprising.

Rather than utterly destroying his enemies and ensuring that they could never recover, the peace treaty that Khan had negotiated was - to the amazement of those common men and women who expected devastation - relatively fair. A large series of war reparations were to be paid, their armies drastically reduced and the United Nations disbanded, all of which had been expected, but other than that there was little more than a recognition of the Eastern Alliance as a legitimate state, the offering of free referendums on its border regions to allow Alliance supporting populations to legally join Khan's union and a guarantee that the rights of augmented individuals and those who believed in the idea of genetic engineering and supported the Eastern Alliance's ideals would be intact.

Even more astounding, given the actions of the other Augment warlords who had been his allies for much of the conflict, was his treatment of the defeated nations immediately after the end of the war and their disarmament; rather than being a victor gloating of his might and looming over the defeated, he acted more like a stern but caring father, providing large amounts of aid to his fallen adversaries in the form of food, water, peacekeeping personnel and engineering assistance, personally travelling to their cities to see for himself to meet with their inhabitants and see how they were recovering, promising to all that they would rebuild and recover from the conflict together, as friends and brothers and not as rivals merely readying themselves for the next war. Large loans - and frequent breaks from the reparations - were used to resuscitate the economies of the nations that had been the bedrock of the alliance against augmentation and against Khan...and the result was that the world as a whole benefited as the global economy started the long process of recovery.
The roundel of the Eastern Alliance Recovery Plan - EARP - that was painted onto the side of all crates heading to the North American region following the start of the economic action plan that was, sometimes called the Second Marshall Plan, for its similarities to the policies undertaken following the end of the Second World War.

Freighters and tanker ships that had been drafted to serve as transport ships during the war were slowly released from their obligations and returned to civilian use, free to travel the seas without fear of being torpedoed by prowling attack submarines or boarded by marines from one side or the other, allowed to freely carry goods around the globe as the massive industrial complexes and factories slowly started to retool from producing the instruments of war to the commodities of peace, and nowhere else was the effect more profound than in the mills and foundries where Khan's armies had first been forged - as some of the largest remaining producers of brick, cement and steel in the world, they carried the enormous responsibility of producing the resources necessary to properly rebuild from the cataclysmic war. Taking on extra manpower in the form of veterans returning home, these industries would work with military precision through the day and through the night every day of the week for months on end, employing thousands and enriching their communities in the process, a domino effect that slowly expanded to revitalize other industries in a booming market that had far more demand than supply.

Then, taking inspiration from the 1957 Treaty of Rome, the following Single European Act of 1986 and the surviving documentation regarding a treaty due to have been signed in Maastricht not long
before the start of the war, Khan - riding off his triumph - crafted a new Eurasian Union in 1998, creating a special community of nations that had a single market, a single citizenship, a single foreign policy and a single approach to law, with a special affiliate status meant for nations readying themselves for closer integration...and placed the nation at a higher priority than unaffiliated nations for aid, financial and otherwise. Some critics quietly condemned the Eurasian Union as being little more than a tool for annexation into Khan Noonien Singh's empire, a new version of the Eastern Bloc or the Pact of Steel, but despite their complaints, the Eurasian Union gradually began to grow as some nations, such as the Ukraine, Belarus, Poland and the Philippines, all desperate for additional assistance from the relatively undamaged economies of the Eastern Alliance's heartland, signed treaties of affiliation, effectively placing themselves within Khan's sphere of influence.

But even the Eastern Alliance, Khan's sprawling powerhouse, had only so much strength to give - the most optimistic forecasts for the reconstruction of the Eastern Alliance's own damaged territories to a prewar level were expected to take a decade, with the resurrection of the other powers to a "self-sufficient level" (which was defined as the point by which a state could ensure its own continuation and further its recovery under its own power) another ten years after that.

But as Khan Noonien Singh waged a war of economic recovery, the victory of an entirely different war was being celebrated in the scientific community.

For years even before the war, geneticists had been struggling, in vain, to have their field of research acknowledged as a serious field of study - merely looking into genetics and considering the idea of genetic engineering and improvement was enough to have one considered "a bad apple" within many academic circles, thanks to the racial theories of many early twentieth century nations, none more infamous than Nazi Germany itself. Dozens of hopeful and promising scientists were accused of opening Pandora's box, toying with the one thing that was never meant to be toyed with, and laughed at or driven out of the field...and the prosecution only grew worse when the war began and when the critics of genetic science were able to point to the augment leaders of Asia, Eastern Europe, North Africa and South America and say loudly, for all to hear, that they were the perfect example as to why DNA, the blueprint of Humanity itself, could and should never be tampered with. For years, the field of research was effectively abandoned in all nations but those who were ruled by Augment individuals and in Khan's own Eastern Alliance. But when the war ended with Khan's triumph, those very same critics of genetic engineering became some of the loudest supporters of the field of research, and more than one scientist who had been formerly reviled for his studies only to be welcomed back with open arms believed that, at last, the winds of change had finally turned in their favor with Khan's triumph.

Universities that had previously banned the field of study became bustling hubs for research of all things biological, and it was in them that massive leaps forward were made. Though it was quickly discovered that further editing of Humanity's own genetics would be extremely difficult with the technology they had at hand, so much so as to be practically impossible - one scientist, when asked why, likened human genetics to a tower of blocks stacked; many blocks could be changed and moved or even removed from the tower, but too many changes would make the entire structure come crashing down - there were still countless thousands of plants and animals on earth that could be altered and modified for humanity's benefit, and nowhere was this more apparent than on the farm field. With massive amounts of the Earth's agricultural production devastated by fighting, it was an immediate and high priority for the production of foodstuffs capable of providing the diverse vitamins and minerals necessary for health to be drastically increased in order to stave off famine, and the solution was found through massive genetic engineering projects.

Using pure strains of the most important food crops extracted from repositories such as the Svalbard Seed Vault as a template, it was through a combination of direct genetic engineering and extremely
rapid selective breeding that the world's first ever super crops were created, three new species were created and immediately put to use on farm fields throughout the world, effectively solving the famine before it could begin. But whilst the part of genetically engineered soybeans, potatoes and rice in staving off catastrophe was often overlooked by most, the use of genetically engineered crops would become the backbone of the Eurasian Union's agricultural policy and a major driving force for the field of genetics research. The possibilities were considered to be endless, and to show off the skill of his genetic researchers and that there were countless uses for the science, Khan Noonien Singh, on the very same day that he founded the Eurasian Union, showed off a massive garden full of such unimaginable wonders as blue strawberries, grapes three times their natural size, golden roses and a kind of apple that lacked seeds and would never brown once cut. It was the image of abundance and beauty, an image that did almost as much to normalize the existence of genetic engineering as part of life as Khan himself or the birth of Augment children throughout the world.

With the world steadily recovering from a devastating war, genetic engineering creating new wonders and sights and smells and the promise of a peaceful new era, first few years of Khan's rule ended with the start of a new millennium...and a new chapter in the long saga of human history.

****

End of Part 1!

Whew!

This is quite the change from my normal ASOIAF stories, I'll give you that, but I'll be damned if it isn't a fun story to write!

Now, before you come over here and start throwing stones because I didn't cover a certain topic in this part, let me just write down what the next part will be about:

**2000 to 2020: The Next Generation**

1. The social impacts of the change and the growth of the world's first Augment generation, along with the impacts on public health that result.
2. The changing politics of the world, the development and structure of the Eurasian Union and the growing push towards a united Earth.
3. Reconstruction and the birth of the space age.
"Hello, world," - The first ever message sent across the embryonic communications network that would later become known as the Internet, sent in the early part of 2001.

"Pens, pencils, textbooks, desks and now genetic enhancements - the first generation of genetically modified children go to school!" - the Daily Mail version of a headline found across the world, about the first ever generation of genetically modified children entering school, 2001.

"The Games of the Twenty-Seventh Olympiad, the First Games of the New Millennium, begin in Tokyo with a barrage of fireworks and a grand opening ceremony, bringing all the nations of the world together for the first time since the end of the war for peaceful competition and sport," - the USA Today on the start of the 27th Olympic Games.

"I get this kind of question submitted by my listeners pretty often, and it's always the same - was Khan at risk of getting toppled by his own goons, did he intentionally throw the other Augment rulers to the dogs to get rid of rivals and all that jazz. Well kids, just the other day I managed to get my hands on a few internal memos from the war - thanks for that, CIA! I know you lot sure love me - and let me tell you this once and for all: Khan was even more desperate for a peace than we were." - extract from a lengthy pirate radio broadcast from the mysterious Truth FM radio station, South California, 2002, frequently discussing various conspiracy theories and with a focus on a deeper, "behind-the-scenes" look at modern affairs.

"A phased end of rationing has been instituted in your area - though your government issued card will remain in use until the supplies of all rationed substances are reliable, this booklet contains a list of all items now obtainable by purchase in your local area. NOTE: The following items remain restricted, and legal action will be taken against those found to be engaging in illicit trade - gasoline, diesel and other vehicle fuels, fuel gases such as propane and butane, coffee and lightbulbs." - excerpt from the first page of a large leaflet distributed in various parts of the world as the global economy and the chain of supply began to stabilize, first seen in late 2002.

"No more booms but baby booms," - an infamously poor translation of a statement made by an Indonesian government official aired on an Australian news network, during a regional news segment about the resumption of peace and the direct impact it has on population growth in 2004. Though a relatively minor event, news of the error spread quickly in the first ever demonstration of the Internet's immense power as a means of dispersing information.

"I don't get why so many people are so concerned about there not being nuclear shelters in the middle of cities. I mean, the facts are clear - if you're in the middle of a big city like say, Chicago, and nuclear war breaks out, it won't make a difference whether you're in a concrete bunker or in an office tower because you're still getting twenty five megatons dropped on top of you. Using taxpayer money to build defenses that would not make a difference no matter how well they are built is a waste of government spending that could be better used on rebuilding our national utilities and infrastructure," - the debate response of the Republican candidate during the US elections of 2004, in response to the question of their approach towards civil defense. During the hotly contested elections, the first to be held following the end of the post-war military government (created in
response to the mysterious disappearance of the elected government at the end of the war and the need for some form of leadership to mitigate chaos) the Republican party maintained the belief that a large and ready nuclear stockpile was the surest guarantee of protection, not civil defense bunkers.

2005-2010

"Has science made teenagers moody? Some people think so...and the rest of us remember that teens have always been moody," - part of a comedian's standup routine from 2006.

"Has Khan found someone special? Sneaky pics reveal romantic dinners with cute Iranian diplomat!" - an extremely rare Cosmopolitan headline from early 2005, printed on only a handful of papers before the printing press burnt down due to an electrical fire, taking the original copy with it and preventing wide scale distribution.

"Man conquered the soil tens of thousands of years ago with agriculture, man conquered the oceans with ships thousands of years ago, man conquered the skies a century ago with aircraft and man conquered the Moon not even sixty years ago with rockets. Each and every time it was a monumental breakthrough, a milestone of civilization, and the latter two were met with nothing but acclaim. So why are people so bothered about man finally conquering himself with science?" - the head of the Moscow State University Faculty of Fundamental Medicine, when asked for his views on genetic engineering, late 2006.

"Here's a question for you, listeners. Have you ever heard of a man called...Rasputin? No, I'm not talking about the Tsar's whackjob mystic, I'm talking about the Augment warlord who took the name, y'know, the man who had taken control of Russia just over twenty years ago. I'm sure you all remember him now, and how he was "assassinated by an anti-Augment special ops team with a high caliber sniper rifle" whilst fleeing during the first part of the war when the Augs were on the ropes. At least, that's what the official sources say. But let's take a closer look kids: Raspy had a fear of flying. That means that he travelled by land, and on the day he died it was with him in the back of an APC with an armored column and a dozen tanks, because he was so paranoid that Stalin looked like a happy grandpa in comparison.

But he got murk'd by a round penetrating the armor of the APC and giving his brain an air vent.

Now here's the thing: his APC had been up armored, so not even a fifty cal or one of those huge ass British AS-50s - neither of which would be carried by a special forces team behind enemy lines, mind - would be able to punch through it. But we see the hole in the armor. Do you know what kind of weapon you'd need to pierce that kind of protection?

We're talking a full blown anti-material rifle, and one at the upper end at that, the kind a sniper team would use for taking out a target they knew would be behind heavy protection. This is not the kind of firepower you walk around with, kids. This is carried around in two pieces by a spotter and sniper who know exactly where the target will be and when they will be there. This means Rasputin's assassination was an inside job. Poor fucker got shot in the back of the head with a 20x110mm, which, funny enough, is the exact same calibre of bullet used by Eastern snipers hunting command vehicles and high ranking generals during the later part of the war. Gee. Imagine that." - extract from another, lengthy Truth FM broadcast, 2007 covering the assassination of the enigmatic Russian ruler known only as Rasputin, who perished during the war.

"Will 2008 be the year of the Space Program? Leading minds of the scientific community express growing desire to return humans to Earth orbit now that the bulk of reconstruction from the
Augmentation War has been completed. “Though rebuilding from the war should be the highest priority, large investments in the space program would be the first domino in a sequence that would finally allow the high-tech manufacturing industries to be resuscitated,” says prominent aerospace engineer.” - the start of a CNN special feature in the July of 2008, showing the growing interest in resuming scientific spaceflight missions.

2010-2015

"I'm on the highway to hell," - The first song on Voyager IV's own golden record, AC/DC's "Highway to Hell", representing rock and roll as a musical genre as one of the many songs on the updated version of the Voyager I record, launched in 2011.

"Baikonur Cosmodrome to be reactivated after receiving an extensive modernization program! Decommissioned due to expenditure before the war, the formerly Soviet launch complex was the sight of many of the most important firsts in the exploration and conquest of space, such as the launch of Sputnik and the flight of Yuri Gagarin, the first man in space and Aleksei Leonov's spacewalk, the first ever conducted." - an excerpt of an Eurasian Broadcasting Network (the state news network of the Eurasian Union and a distant cousin to the British Broadcasting Company it was modeled off of) news broadcast from 2012, the restoration of the massive launch complex to operational condition was considered by some to be in direct response to the launch of the Voyager IV space probe, though others downplay that aspect in favor of its utility as a launch site for military satellites.

"People go on and on about genetically modified humans being better than everyone else at this and that and that there won't really be a need for us unmodified humans anymore...but just the other day, I was around my sister's looking after my nephews when they put a blanket at the top of the staircase and rode their way down the steps like a slide...but one of them decided to take a running start, to get more speed, and dove into the blanket so quick he flew straight off the top of the steps and put his foot through the drywall at the bottom, crying his eyes out even though he hadn't hurt himself. I don't think we've got much to be worried about,” - A famous celebrity during a televised interview in 2012, after the interview wandered towards the topic of their views on genetic augmentation.

"Construction begins on the Kra Canal! The canal will measure one hundred kilometers in length and be half a kilometer wide, with a depth of thirty meters, and will shave over a thousand kilometers off of the journey around the isthmus, saving half a billion dollars per year in shipping, amongst other benefits..." - extract from the Wall Street journal article about the start of construction on the Kra Isthmus Canal, a major Eurasian infrastructural project intended to shorten the voyage between the massive industrial centres of China and the Far East and the vital oil supplies of the Middle East, the first stages of construction starting in 2014.

"On this site, Mankind stole fire from the heavens." - inscription on a monument placed outside of one of the first ever genetics research centres, built in Western Europe and closed at the very start of the Augmentation War following the arrest of a large number of researchers due to attempt to replicate the same research that produced the first ever Augments. A large helix of stone with an eternally burning brazier placed within the coil, it would quickly become one of the most iconic monuments of the early 21st century and a major tourist attraction for Augmented individuals across the world.

"Everyday we put more and more greenhouse gases into the atmosphere, more trash into landfills and more pollution into our oceans! So, do you know what we should call this "conflict of interests" between man and nature, then? The War on Terra," - an excerpt from a televised debate between an
Augmented environmentalist and an unmodified businessmen, aired live in 2014 in one of the first ever demonstrations of modified individuals taking part in political movements.

"Now...this one will probably have you reaching for the dial and thinking that ol' Truth has finally lost his marbles, but listen to what I say, boys and girls, and give it a real long think before you make your mind up, because we're going to talk about no one other than Khan Noonien Singh!

That's right, Khan, I'm calling you out on this one. Now, you probably don't think he's all that bad, hell, at a glance he doesn't seem to have done all that much wrong - he doesn't have people shot for looking at him instead of at their feet the way ol' Raspy did, he doesn't have a harem of half a hundred gals like Genghis did and he isn't just flat out creepy the way Joaquin is with that death-stare of his. He's stern, sure, but not flat out make-them-eat-concrete stern, and is actually making an attempt to improve the lives of the people underneath him. Just from all that he doesn't sound so bad, now does he? He's just a strong, fatherly ruler who wants what's best for the people he sees like children!

That kind of thinking, folks, is exactly why he acts the way he does. Khan isn't an idiot, he knows that what he did to Raspy and the others could be done to him, and he knows that the best way to keep his rule stable is to improve the quality of life enough that he can point to it and use it as a justification for his rule. He understands the value of having a good image, and he knows that it will be a hell of a lot harder for anyone to act against him if he has the love of everyone around him to keep him safe. But here's what really makes him different from the others, folks: he doesn't care about having a fancy-ass mansion or tons of cash, or about setting things up for a monarchy or any of that crap. He wants a legacy that'll last forever, for people centuries from now to look back at him and call him a Caesar or a Bismarck. That is what he wants, boys and girls. Everything he does, all those social programs and reorganizations and everything else, all of it is with that purpose in mind...and goddamn, people eat right out of his hand and cheer about it.

Let me tell you something, listeners: sometimes the slave's strongest chains are the ones they can't see," - another Truth FM broadcast from 2015. By this point in time, the pirate radio station had evolved into an online peer-to-peer internet stream, allowing it to spread across the world and rendering it almost completely immune to any and all shutdown attempts by any nation.

"Notice for all students: It has come to the attention of the faculty that certain hurtful words are being used to mock students who are both genetically modified and not. As such, the following derogatory words are now classed as hate speech, and there will be serious repercussions for anyone found using them:

**For Modified Individuals**
- Auggies
- Unnaturals
- Unnats
- Hanzers
- Genies
- Moodies

**For Unmodified Individuals**
- Natties
- Gnats
- Vintage
- Basics
- Unmods
Any other words intended as a slur and not listed above are similarly prohibited. Please help us make this campus into a place where both Augments and Naturals can study together peacefully and without concern of hate speech." - a notice found within the grounds of a college in late 2015, in response to complaints by both modified and unmodified individuals about hate speech coming from the other group. Listing a number of the most common slurs, it highlighted the stresses that could form between individuals who were conceived after the release of the Augmentation Flu and those who were born the day before or earlier.

2015-2020

"...and with that said, it's time for the news! And what a piece of news it is! For those of you watching at home, the Eurasian Union's minister of regional transport, Mr. Jiang Xun, has spent the last few months considering a proposal about raising the speed limits on the highways. See, he says that for the last few decades, braking power has gotten better and better, so cars need less space to stop than they did when the laws were first created, and that the only thing stopping the laws from being changed is that people couldn't react fast enough at a higher speed to be able to use that better braking power...and so he's decided to get rid of the highway speed limit all together!" - Jeremy Clarkson, presenter of the popular British automotive show Top Gear, celebrates the removal of the highway speed limit across the entirety of the Eurasian Union in 2015.

"One is the loneliest number, the loneliest number is the number one," - an extract from Voyager V's own version of the Golden Record, launched in late 2016. Assembled before the war like many of its brothers and kept underground in protective bunkers until the war ended, the launch of Voyager V was a sign that the United States was almost entirely back on its feet and able to produce launch vehicles again.

"A few short days ago, the Republican candidate for the elections inside the United States criticized my own policies and my plans for a national health service, and indeed, the plans of his opponent to do the same, all whilst calling himself a Christian. To that, I answer with this: "Behold, this was the guilt of your sister Sodom: she and her daughters had arrogance, abundant food and careless ease, but she did not help the poor and the needy." That was not only a quote from the Bible, but from the New American Standard Bible, the same book that you held in your very own hand a week ago, and it preaches charity and compassion, not selfish greed. No civilization that can call itself such forgets its poor or its downtrodden," - a quote by Khan Noonien Singh himself, said during the US elections of 2016 in response to scalding criticism by the Republican candidate, who attacked the Eurasian Union's plans for a universal healthcare system. Described by some to have settled into the role as a leader of a countless number of people, Khan used a combination of the Bible and statistics to dismantle the attacking Republican candidate's slander and campaign, one promise at a time...ultimately resulting in him winning 25,719 write-in votes come election day.

"Augmented rioters take to the streets of Bueno Aires in response to a sudden food shortage caused by a flash flood impeding traffic into the city. With the crowds appearing to be made mostly of augmented men and women, outmatched police forces are unable to contain the situation as furious mobs smash through police cordons, steal equipment and erect barricades..." - an excerpt from a news report about the disastrous 2018 Bueno Aires riots; caused by a combination of food stress and climate change, the massive unrest served as a rude awakening for the world and an emphasis on the need for a global response to the challenges that humanity was facing, acting as a catalyst for reconciliation between the two sides of the war.
"Mary had a little lamb,
its fleece was white as snow.
Everywhere that Mary went,
the lamb was sure to go.

She brought her lamb to school one day,
the kids let out loud jeers,
they took her lamb away,
and Mary choked on tears.

Its fleece was red with blood,
she took its little body home,
and swore she'd hurt them good.

Mary knew that lambs blood called,
things ancient, hidden and deep.
As Mary painted signs forgotten and old,
ever once did she cry or weep.

Mary had a little lamb;
it made her something scary.
Now I dare you, look in a mirror,
And whisper, "Bloody Mary." - a twisted poem written by "Bloody Mary", one of the most infamous French serial killers of the 21st century, written in blood upon the walls of a bedroom in 2017. An Augment woman driven mad by loss and most remembered for her poems, she would eventually be caught in 2023, diagnosed a psychopath and deemed criminally insane before ultimately being committed to a mental institution where she would commit suicide by chewing out her own veins.

"...though one unexpected side effect of the release of GEIV-AC-3, or "Ascension Flu" as it is now more popularly known, was the impact upon the uncontacted and hostile tribe of the North Sentinel Island, known as the Sentinelese. Unintentionally infected via the widespread atmospheric dispersion during the final phase of Butterfly, their low level of development has provided an opportunity as to the effect of Augmentation upon a stone age society, however, aerial flyovers, satellite observation and stealth infiltration of their island have indicated serious stresses on their society - decreased infant mortality rates have resulted in a rapidly growing population and thus an increased need for food, water and living space, but the ongoing effects of climate change and rising water levels are reducing their already limited ability to acquire all three.

The result is an ever increasing number of individuals within a society with an ever decreasing amount of resources, naturally creating a major source of internal stress that appears to be destabilizing their society. One group of post-augmentation individuals, for example, appear to have rebelled against their leaders and moved to the opposite side of the island, however, a depleting resource base is forcing the two groups, who appear to be split almost entirely between those augmented and those who are not, closer together and causing an increasing number of confrontations. A war between the two factions, thus, appears to be inevitable..." - excerpt from a top secret report first published at an unknown date in 2017, documenting the effects of the Ascension Flu approximately twenty years after the start of its atmospheric dispersal process.

"Oh, god above, what is that awful racket?" - An anonymous Filipino engineer during the test play of the the Golden Disk Rack, a specially designed container fitted aboard the house-sized Zheng He deep space probe, containing twelve golden records in the same vein as the ones aboard the Voyager.
probes. The engineer's comment was in response to the fourth section of the musical contents of the third disc - fifteen minutes of traditional Mongolian throat singing, placed due to the requirement to have something from all the different member states of the Eurasian Union aboard the unmanned probe. Launched in mid-2017.

"Eastern Alliance to commission thirty new nuclear power stations, more planned! "I will make atomic energy so cheap that only the rich will burn coal," says Khan!" - A newspaper headline following the announcement of the Eastern Alliance's massive Nuclear Energy Initiative, a program aimed at bringing about the replacement of fossil fuel using power stations with clean nuclear sources of power, as well as to provide cheap electricity across the entirety of the Asian continent, started in 2018.

"Today at 7:52 AM, the Shenyi IX rocket lifted off from the Baikonur Cosmodrome, carrying six cosmonauts bound for the lunar surface inside the Tiangong VII capsule, a spacecraft the size of a three story house. The first manned mission beyond low earth orbit since the conclusion of the Apollo program nearly fifty years ago, the carefully selected men and women onboard will carry out a wide variety of experiments dispatched on the previous launch, the unmanned Tiangong VI lander, during their two week stay, paving the way for future long term missions on Earth's closest neighbour..." - an excerpt of an EBN report about the launch of the Eurasian Union's first ever manned mission to another orbital body, launched at the very end of 2018. The ambitious mission would touch down successfully a small distance from the aim zone inside the Copernicus crater, and would set three records: one for the first woman to walk on the moon, one for having the highest number of people on the moon at any one time and for the most distance travelled once they recovered the lunar rover from the unmanned sister ship that had landed before them.

"Truth here, and boy-oh-boy, is it roasting outside. Welcome to global warming, folks, in all its toasty majesty. I know I get a lot of lunatics listening in, thinking that the Earth is flat, that climate change isn't real and that the President fucked off to space in a rocket ship, but let me tell you this, and for the love of Christ actually believe me on this one: climate change is real, and it is caused by every single last one of us. You with your little green recycling bins, me with this solar powered van, Bobby next to me with his fancy ass laptop keeping this stream going and that old granny down the street on a walk, believe me when I say all of us.

Now let me sum things up for you, and tell any of you who don't know global warming is what the hell is going on. Think of it like this: it's winter, and your dumb cousin has his friends around and has had a few beers when he gets a bright idea to bring his barbecue grill inside the house so he can have hamburgers and hotdogs fresh off the grill without needing to stand out in the cold. He lights that badboy up and gets to work, cooking dozens of patties and franks for him and the boys and...oh, is it getting hot! So he tries to open the window a tad, let some of that heat out, but the window's stuck. They laugh it off - the insulation is trapping all that heat inside, but hell, what are a few extra degrees anyway?

So he keeps on cooking, and a few friends come round, so he puts more fuel in to up the temperature a little and puts a few more burgers on the grill for them, too...and then one of the guys notices the beer's getting warm even in the cooler, since the ice is melting. But since he can't stop grilling without leaving his buddies hungry for some sweet burgers, and the window won't budge, there's nothing he can do but keep on cooking. Now the beer has gotten a few of his friends drunk, and they start getting jumpy over the last cold bottle, and one calls another an ass and all hell breaks loose. They slug it out in the living room and start trashin the place, but the man at the grill is smart enough to know that getting between two drunks hammering at one another is a fast way to get his ass beat, so he keeps cooking as his best friends sit round the grill, relaxing and having all the best meat together...but it is very, very hot in there, the heat coming from the grill and trapped in by the
insulation. So they open the fridge door to help cool them down a little, and it helps for a bit, but by
the time he runs out of meat the whole place is cooking and its the ones who were fighting who go
down first. Everyone panics, but the door has swollen in the heat and won't budge. They can't get
out. They start dropping, one by one, even the dumbfuck at the grill, and by the time the morning
comes they're all either dead or dying from heat stroke.

Now, you might be wondering what the hell I am on about, but here's the thing: think of the house as
the Earth, the insulation as the atmosphere, the friends as countries, the burgers as everything you
need for a good life, the beer as water and the grill as fossil fuels. That's global warming. And do
you want to know something listeners?

Take a look out the window. Take a look at the grass, the flowers, the trees, whatever pieces of
nature you've got outside. Realized it yet? The flowers are blooming! The trees are covered in
leaves! Even the damn birds are already back! And we've only just entered March! Everything is
happening early, because the average temperatures are getting higher and higher. And the South?
Good ol' Texas and the rest? They're drying out. Water shortages. I phoned up an old friend of mine
the other day, and the goddamn National Guard are down there distributing water supplies by the
gallon for drinking. No showering. No dishwashing. Even using the damn bathroom comes out of
the ration they give you. And the Guard? They're expecting trouble, boys and girls, and they're ready
for a fight. They've brought out the big guns - not the tanks, but the APCs, the IFVs, the helis and
the bulldozers and everything else they might need to make a water riot all out stupidity.

So! What do we do about it? Well, and this "tip" is for any anarchistic fuckwits listening in: you
don't mess with the National Guard when they're out here roasting their asses off in the heat, have
rifles in their hands and are your one and only source of water...and, oh, have fucking baby-tanks
backing them up. What you should do, and this might be something new for all you lot stocking guns
and ammo in your basement in case the guvment comes to take them away, is to go find a steel mill,
a coal power plant, anything polluting, and protest. And I mean protest, sign posts and everything.
Stop driving gas powered cars, and get everyone else to stop too if you can - just take the damned
bus. It's cheaper than buying gas anyway these days. Ask for nuclear power! Or solar!
Or anything that doesn't need to be burnt! Recycle your damned cans! Buy energy efficient
lightbulbs and everything! Have less babies! Just do something! Anything!

Fuck, this is depressing ol' Truth...anyone up for a burger?" - a lengthy Truth FM broadcast and
stream, this one from 2020, the worst year of the global warming crisis. Though efforts had been
made to counteract the problem of climate change, none of them had started to become truly effective
that year...and the consequences of taking so long to respond to the crisis in the first place revealed
themselves. The cataclysmic Cyclone Sanvu, the world's first ever hypercane, displaced over thirty
million people in southeast Asia, particularly in the Philippines, with a devastating effect on the
regional economy and directly resulting in the extinction of the orangutan, one of man's closest
genetic relatives...as well as being the cause of the darkest hour of "the Great Mistake", mankind's
first ever dalliance with the power of geoengineering.

2020-2025

"Can't touch this," - MC Hammer's song of the same name, one of many aboard Voyager VI's
unique Platinum Record, as well as the tune supposedly broadcasted in binary to the Zheng He probe
as Voyager VI passed by in 2021, after the massive Eurasian probe was temporarily marooned in
Jupiter's orbit following a navigational error during the slingshot phase of the mission. The Zheng He
probe would eventually manage to emerge from the Jupiter system after a series of complex and risky
slingshots around the Jovian moons, but the time taken would be so much that when they tried to take a photograph of the Voyager VI probe, all that was found was a small pinprick sized object in the distance.

"Welcome to the West Asia Precinct, a province of the Eurasian Union." - Text from a signpost seen on the border between the East and West Asia Precincts, two of the ten provinces that represented the fully integrated sections of the Eurasian Union. These territories, called precincts, were themselves comprised of a number of layers, going from large states to small regional authorities, all layers deliberately drawn up as to be as equal possible with one another in the number of inhabitants and gross domestic product, so that no single area wielded a disproportionate influence over the whole. By 2022, the precinct system would start to replace the individual nation states in official government papers and planning, and would completely supplant their predecessors in all but name by 2041, and even then by 2048.

"...although Henry Starling, CEO of the now defunct Chronowerx corporation, received abundant governmental support during the war and a supply of government funds that quadrupled following the release of the Ascension Flu, most of the information about his so called "superweapon" was lost following the bombing of the Chronowerx plant in California and the death of Mr Starling himself, with much of the other information having no papertrail and under falsified documents, names and projects, typical of most black projects in order to secure the information from potential infiltration, resulting in much of the information being either deliberately destroyed to prevent the risk of the documents falling into enemy hands or locked away and lost following the disappearance of the wartime administration days before the conclusion of the war. Fortunately, a small cache of recently discovered papers found in a false wall cavity of the Starling mansion during a final search before its auction have allowed us to pick up the trail - though it took the combined efforts of the National Security Agency and the Central Intelligence Agency to properly put together the pieces and pick up the trail, resulting in the discovery of another secret cache of plans at the Groom Lake testing facility, now returning to operation.

Although nothing more than a few memos, lacking much in the form of usable technical data, they make it clear what Henry Starling's supposed superweapon was to be - a mysterious craft called the "Aeon" able to reach orbit through the use of a powerful new engine, where it would deploy a purpose built weapons satellite (apparently derived from another item from the Enterprise Incident of 1986, where the USS Enterprise was infiltrated by a possible Soviet agent carrying advanced weaponry in the form of some sort of handheld projected energy weapon, itself now lost) capable of destroying armies through either incapacitating every soldier or by outright vaporization, as well as destroying the command structures of opposing forces by eliminating their leadership whilst intercepting any and all ballistic missile launches fired in reply, though any such weapon failed to materialize. Whatever happened, the "Aeon" was seemingly either lost, destroyed or scrapped, with parts intended for its construction used for creation of a completely unknown project referred to only as "the Botany Bay", with the trail of information seemingly ending there. Further investigation into the deceased Mr. Starling resulted in the discovery of his personal journal, detailing a fantastical story of a crashed alien spacecraft and time travel, as well as other bizarre events that become more rationally explained by another discovery - Mr Starling was an avid drug user in his youth, regularly consuming copious quantities of LSD and psilocybin.

With this final revelation, it becomes likely that the "Aeon" and the weapon satellite it was supposed to deploy never actually existed, a fruitless "wunderwaffe" pitched to an administration desperate to find a means of turning the war around once more and willing to pay billions to do so. Had Henry Starling not been killed during the final stages of the war, it would be all too likely that the funds funneled from the government for the purpose of constructing the "Aeon" would have instead been used to save Chronowerx Industries at the government's expense, or that Henry Starling himself may
have fled the country with the money. Regardless, it would seem the "Aeon" was little more than a fantasy." - part of a report written in 2020 for the newly inaugurated President of the United States, the result of a four year investigation that finally settled the matter as to what Henry Starling and Chronowerx were doing with the government funds they were being given during the war - though the mysterious "Aeon" would never see the light of day, some papers involving engine design concepts and certain flight characteristics would eventually go on to be used in the top secret "Aurora" reconnaissance planes, the successor to the famous SR-71 Blackbird and the first production plane to break the hypersonic barrier.

"Did Khan do the right thing? Is that honestly the question you're asking me? Last year, a few days before Christmas, my dad and I were out getting the things for a last ditch present for my mom. I wanted to give her something homemade. To surprise her, you know? Something really special. So there I was at the art store, looking through the polymer clay you can bake it in the oven, since I was helping with dinner I thought I would be able to sneak it in when no one was looking, and...we got a phone call from my aunt. My mom had slipped and broken a glass whilst we were out, and cut her hand. It wasn't that bad...but she had haemophilia. She called my aunt so she could come round and help whilst she waited for the ambulance, but she hit her head in the fall and...and...and she died on the way to hospital. I don't have haemophilia. My brother doesn't, and my baby nephew doesn't have haemophilia either. No one born after the war has haemophilia. No one is going to have to lose their mother the way I did. He did the right thing. He honestly did." - a young woman's answer to an American street interview conducted in 2021 in Philadelphia, as part of a news report into the growing augmented population's views of Khan Noonien Singh and his actions at the end of the war.

"Flared tempers result in a tragedy on the set of the popular HBO television show "Robert's Rebellion"! A spin off series of the award winning series, "Game of Thrones", the prequel show takes place fifteen years before the events of the first series and depicts the titular event of Robert's Rebellion, the uprising against Targaryen rule that would result in the coronation of King Robert Baratheon. However, drama on the set erupted into open fighting during the filming of the climactic battle of the Trident, resulting in fake swords being used for real fighting and the death of Gene Forrest, the actor who played the role of Prince Rhaegar Targaryen..." - an excerpt from an American celebrity news magazine from 2022. One of the first ever large scale TV productions to feature a number of augmented actors, the casting decision was made for the character of Robert Baratheon to be played by an individual who had genetic modifications, whilst much of the other cast was selected from actors born just before the release of Ascension Flu, thus resulting in a visible difference in strength and size...and, in a choice that would be much regretted following the tragic death on the set, they cast his girlfriend for the role of Robert's betrothed, the jealousy and tension of that action being the direct cause for the death of the famous British actor, Gene Forrest. The shocking turn of events would actually lead to a change in casting procedures resulting in an unwritten rule that augmented actors would only ever engage in fight scenes with other, augmented actors, since a regular human had little chance of lasting long enough in a fight for security to arrive and calm matters down, as well as a brief upsurge in the number of conflict averse stories because of the fear of an actor snapping on set.

"Ever wanted to live...under the ocean? Now you can! Due to ongoing suboceanic construction projects in the Atlantic, you will soon be able to live in state of the art apartments constructed on the seafloor, in only the highest lux. Surrounded by the clear blue waters of the Sargasso Sea, you'll be able to look out the window and see whales, schools of fish and turtles, all right outside your window. Free from the risk of storm, snow or sleet, you will never need to worry about ecological damage to your property ever again, and thanks to our series of state of the art EnviroDomes™ that perfectly simulate surface landscapes such as beaches and even forests, you will never find yourself ever wanting to visit the surface again! Book an appointment with your local office today!" - a televised advertisement first aired in New York City several months after the construction of the first
ever underwater colony in the Sargasso Sea, opening in the February of 2024. Aimed at the rich, the famous and the powerful, the underwater habitats offered an escape from the changing climate and chaotic regions of the surface world, and would quickly become a common retreat for those who valued privacy above all, as well as for scandalous politicians and celebrities, overthrown dictators and retiring heads of state. Technology used in the construction of the Sargasso City would eventually be used to complete a top secret biological research facility in the Pacific Ocean, where American geneticists could carry out their work without risk of prying eyes, contamination or accidental release of their creations, all of which were intended for land environments, into the biosphere.

"This letter contains your voting papers for the referendum as to what will become the state flag of the Eurasian Union, replacing all other national symbols in the position of state atop government buildings, at sporting events and at overseas embassies and other diplomatic functions. Please read the instructions for use carefully, as this voting envelope cannot be replaced. Detailed images and information about all eight flags to choose from is enclosed in the booklet within." - text from the cover of the instructions for voting in the Eurasian Union's flag referendum, held in 2024.

"Alright, now they're just showing off. Real chocolate, real coffee, real tea..." - a recording of an anonymous West European Space Agency astronaut, amused by the docking of a massive storage module created by the Eurasian Space Command to Freedom Station, an originally American station that became an international project following the events of 2020's disastrous cyclone, as a sign of national friendship and the mending of old wounds. It would quickly become a scheduled event that an ESC supply ship would dock with the station once every six months, bringing massive amounts of food and luxury goods to the station, along with any spare parts that might be needed to maintain any Eurasian equipment on the station or anything that the crew has explicitly requested.

"In the wake of Cyclone Sanvu, that destroyed so much of South-East Asia, it has become clear that the changing circumstances and obstacles of the modern world demand a response that is not merely that of a single nation, but that of a transnational organization, a greater union in which the interests and opinions of the many may be expressed and combined together into a unified effort against the challenges of today. As such, and in light of our growing and historic friendship with our close allies in the North Atlantic Treaty Organization, the closeness of our business relations with partners in the North American Free Trade Area, in acknowledgement of the successes of the Western European Union, it is my intent to see these three organizations merged into a single whole in the form of the Transatlantic Organization, in recognition of the passionate desires of the electorate. It is the hope of this administration that the treaties signed today will act as a lasting guarantee of peace and prosperity, not only for the American people, but for all mankind." - an excerpt from the speech of the President of the United States before the signing ceremony that would create the Transatlantic Organization. Commonly known as the T.A.O, the organization was a combination of three existing structures in the form of the military alliance of NATO, the trade agreement of NAFTA that had already began to expand to incorporate nations outside of North America and the Western European Union, a coalition of states that had been in the process of expanding into a larger organization before the outbreak of the war postponed plans indefinitely, the Transatlantic Organization would originally cutdown red tape and minimize overlap between the three organizations, making it easier to expand them with additional laws and directives, but would eventually evolve into a loose national union, like a more closely knit version of the Western European Union, but also nowhere near as so the Eurasian Union...and as this small amount of integration progressed, the T.A.O eventually having a flag of its own for diplomatic events between the various member states, the resulting flag would have some call it the Three Star Alliance - a gold star for the European states, a blue one for the North American nations and a red star for South America, where the various nations gradually joined, one by one.
"Reaching Luna and placing a base on its surface was easy, but even putting a single man on the surface of Mars is a challenge tenfold greater. The Sheny rocket was explicitly designed as a universal workhorse capable of carrying a large payload to Earth orbit or to the lunar surface, but the Sheny was neither designed for nor capable of properly allowing a genuine interplanetary mission without endangering the lives of our cosmonauts. Instead, it is capable of launching a series of sections to Earth orbit that can be docked together to construct a modular craft capable of carrying and sustaining twelve individuals on the long flight from Earth to Mars. This craft would be comprised of approximately six basic building blocks: a primary engine module using either chemical or nuclear propulsion, a life support module with a large number of integrated backups to guarantee the safety of our people, a greenhouse bay to provide fresh produce and food for the long voyage whilst also acting as a source of oxygen and a way for the crew to spend any idle hours, a habitat module to provide the crew with a comfortable place to rest and relax during the voyage as well as a place to prepare meals and send messages home, a command module from which the ship can be piloted and controlled, and last and most importantly, a joint laboratory and docking port for the Martian Excursion Module, so that samples and experiments conducted on the Martian surface can be analyzed and studied directly in Martian orbit and to facilitate coupling with the lander that will take six of the crew down to the surface for a two month duration stay." - part of a design briefing for the Earth-Mars mission of 2024; though planned in extreme detail and given the go ahead for the construction of the voyage modules, the main mission itself would not be launched until the winter of 2027 due to the need for extremely intensive testing in Lunar orbit to guarantee the reliability of the craft for the long voyage ahead.

**2025-2030**

"Are we not alone in the Universe? Scientists believe that strange transmissions detected emanating from the 40 Eridani system, less than 16.5 light years from Earth, could indicate the presence of an advanced civilization..." - An excerpt from a New Zealand news report from the summer of 2025, following the brief discovery of mysterious radio signals originating from the nearby solar system. Other broadcasts would occasionally be detected from the Procyon system, the mutual emission rates spiking in the 2050s in what was considered to possibly be the outbreak of war between the two star systems before dramatically falling silent, the explanations considered ranging from the mundane possibility of it having simply been a rare celestial phenomena that appeared like radio chatter, to the remote possibility that they had annihilated one another with biological weaponry or kinetic kill vehicles.

"Gagarin Base to Mission Command, repeat, Gagarin Base to Mission Command - primary reactor module deployed and embedded beneath lunar rock according to plan with only minor incident recorded in mission log, outputting 200MW, core temperature 320°C, radiation levels within expected parameters. Ice bore and processor is online, we are producing our own water, and hydroponic operations will be starting momentarily. We're self-sufficient up here...and we have quite the view of the Earthrise," - a transmission from the lunar surface in 2025, from the very moment that the Gagarin base, a temporary scientific outpost established in the shadow of a permanently dark crater and named for the first man in space, became a permanent settlement, the first ever established. Receiving regular shipments of both luxury and unproducible goods such as tools, real food and additional habitation modules, the lunar settlement would eventually grow from its initial population of twelve to sixty seven by the end of the decade, and be quickly followed by several other permanent lunar settlements established by other nations once the proper technique had been proven.

"Today is the eve of our greatest and most important celebration: the thirtieth anniversary of Augmentation Day! Celebrating the release of the Ascension Flu and the mass dissemination of genetic modifications to the entire world's population, Augmentation Day is a day where we give
thanks to those intrepid scientists who boldly did what no scientist had ever done before - successfully modifying the human genome!" - part of a celebratory news report on the thirtieth anniversary of the world wide deployment of human augmentations, aired on the day in 2026. A national holiday filled with fireworks, parades and giving thanks to the scientists and soldiers that made the dream a reality, Augmentation Day is generally considered to be one of the most important holidays in the year for people of the Eastern Alliance and the Eurasian Union, their equivalent to an Independence Day or other such holidays, but would eventually spread beyond the border into a global, worldwide holiday.

"And this bay is where we grow the organs for use in transplant surgeries. With just a sample of a few of the patient's own cells, we can grow a completely new heart in just a few months whilst the patient either lives in a special care ward to minimize strain on their body if their condition is good or receives a temporary mechanical replacement and placed in a special medically induced coma if not in order to minimize the risk until the replacement is ready. Once fully grown and implanted, it will take two to three months to fully recover, after which no additional care is necessary other than occasional checkups to ensure lasting health." - the words of a Eurasian doctor giving a guided tour of the newest and most advanced medical centre in the world, constructed in the East European Precinct city of Warsaw, 2027. One of the first to be equipped with a purpose built laboratory and maturation bay for the growth of replacement organs and other bodily tissues, the rarity of which meant that the hospital would frequently grow organs for the patients of other precincts, dispatching them to their local care facilities once fully grown and ready for transplant, the state-of-the-art hospital would forever enter the history books in 2029 for carrying out the first ever total gender reassignment surgery, the success of it shown several years later when the patient gave birth to a baby girl of her own, a child that was her true genetic descendent.

"...by using physiological information derived from the oldest known Augments, those original individuals who survived the war, it becomes increasingly apparent that they and the current adult generation will have a substantially longer lifespan than the average unmodified human, thanks to a superior means of cellular repair allowing them to stay young for a longer period of time than the natural norm, as well as to age more slowly. Our best estimates, using statistical information pulled from various censuses, including our own, the latest American and continental censuses alongside the publically available and annually calculated Eurasian census, appear to indicate that the average augment will live to approximately 150-160 years old, based on the eldest augments appearing to still be at an approximately middle age level of life and being entirely able to continue work.

Due to this slower aging process (which is seemingly dependent on the quantity of nutrients and vitamins available in the diet, the Augment body heavily dependent on raw materials to carry out its repair, resulting in underfed populations aging at a level more in line with basic humans) people remain at a youthful state for longer, delaying the retirement age significantly. However, it also drastically lengthens the pre-menopausal period of the average woman's life, allowing her to continue birthing children into her late seventies or early eighties, resulting in a significant increase in the average number of children per family - approximately ten children are part of the same family, a gap of four or five years between each birth - even with the delay of entering higher education or a focus upon their career, creating the alarming possibility that four generations of the same family could be producing children simultaneously.

Combined with the immense decline in the number of deaths both natural and otherwise, the result is a skyrocketing population with few deaths to offset the immense increase growth, with twenty-to-thirty billion people forecasted to live on Earth by 2050, with the present generation still having children. Though recent breakthroughs in oceanic colonization and vertical farming have greatly increased the resources available to mankind in recent years, the long term growth out to the start of
the 22nd century is one of unsustainable levels with the resources of a single world." - an excerpt from a top secret report written up for the Prime Minister of the United Kingdom, written and published in 2024, showing the immense increase in the size of the average family - caused primarily by the massive increase in the amount of time a prospective mother is fertile - and the poor long term prospects for human civilization without expansion into space to reduce the growing pressure caused by such a high population and such a limited amount of resources.

"Will your grandchildren be born on the Moon? The unexpected pregnancy of Canadian astronaut Annalise Hodson during a planned eighteen month stay at the lunar settlement of Armstrong Station prevents her planned return in three months time due to possible dangers to the first child ever conceived off Earth. Although Mrs Hodson has declined to comment, an official representative of the lunar colony says that; "With the growing number of colonists here on the lunar surface, it was always considered an inevitability that there would eventually be children born here rather than on Earth. As such, we have planned accordingly with that eventuality in mind, and will be entirely ready to welcome Mrs Hodson's child when they are born." - a short excerpt from a news broadcast from 2028, about the first pregnancy to take place away from the surface of the Earth. Although it was an event that was expected by most to happen years later than it did, and despite it being an accident, the event of having a child conceived, carried and born without ever once being on Earth and without issue was considered a major milestone for the process of permanent off world settlement, and would assuage worries about the long term viability of human populations on other planets.

"Today, Mankind became a two planet species," - an excerpt from a speech by Khan Noonien Singh, on the founding of the first ever Mars colony in the spring of 2030. Using technology tried and tested in the development of the lunar settlements and in the modular construction of the first ever interplanetary spaceship, a series of colony structures were sent to Mars before being followed by the "colony" ship - a larger version of the same craft that had first took man to Mars able to carry twenty. So far away from Earth that regular back and forth traffic was impractical, the construction of the first Mars colony was primarily a prestige mission for every nation that placed a settlement there.

"Wait...what do you mean it's working? It's actually working? Are you serious? You're not just messing with me, are you? Let me take a look at these... it really is. It is working! We're generating power!" - an excerpt from a recording of the control room of what would become known as the Oxfordshire Fusion Reactor Complex, the world's first commercially viable nuclear fusion power plant, activating for the first time on Christmas Eve, 2030, at 11:39PM. Providing an immense 600 megawatts of power, more than enough to sustain its own reaction, the reactor would run for a mere five minutes before being shut down at the end of the test cycle, the last to be carried out before one final inspection on Christmas Day would allow it to start continuous operation, the final result of decades of research. With the dawn of viable fusion reactors providing the world with a nigh-inexhaustible and clean energy supply, mankind would finally have the weapon it needed to defeat climate change and break the addiction of fossil fuels once and for all, as well as ushering in an age of viable fusion-powered spacecraft that would finally make it possible for human settlers to travel anywhere in the solar system in a timely manner...and even go beyond, to strange new worlds where no man has gone before.

****

End of Part 2, Section 1!
As the celebrations began to die down in the early morning of the first day of the new millennium, the people of Earth went to their beds with the sweet hope that the darkness of the bloody war would finally start to be left behind, that the rationing of food, water and electricity, still in short supply in many parts of the world, would soon be over...and for the countless parents of all nations, there was no hope greater in intensity than the begging and praying that their children would never need to raise the weapons that they themselves had used only a few short years before. On every continent and in every town, village and household there was always someone who had seen the carnage of the war first hand, the sights and stenches of burning vehicles, destroyed cities and slain soldiers, someone who could pass on the sights of such things to the coming generation first hand, and all that meant that the desire to build a safer, more peaceful world was as great as it had been after the end of the Second World War. It was something that occurred on both sides of the conflict, even in the regions that had emerged effectively unscathed by the fighting - even the population of the victorious Eastern Alliance, though supportive of its armies and their peacekeeping role, were uneager for the possibility of another bloody conflict.

In those years of fear and scarcity, however, not all was grim; a new generation had started to arrive almost immediately after the end of the war, the result of the baby boom that occurred every time armies returned to their homelands after the end of every war. They were the first to be born after the spread of the Ascension Flu, every single one of them genetically augmented from the very moment of conception, and this meant that they would be different from every generation that had come before...and though the differences started small, they started before birth and indeed, long before the first heartbeat.

It was a change reflected in the demographics, in the stunning spike of pregnancies that had occurred almost immediately after the release of the augmenting virus, before the end of the war, and it was not because of any bizarre increase in human fertility or anything of the sort, but rather the result of countless hours of work by one of the original scientists working on the original Augments - a heartbroken woman who had poured her heart into the task of targeting the very same chromosomal abnormalities that had been the cause of her own loss. Scientific studies conducted long before the war had shown that anywhere from 30%-to-50% of all pregnancies resulted in a miscarriage, most of which occurred in the first fortnight before the mother was even aware that she was pregnant in the first place. Almost all of them were the result of genetic abnormalities preventing zygotes and embryos from being able to develop properly or causing fetuses to develop fatal faults that would make it impossible for them to be able to survive outside the womb, and it was the development of these kind of faults that was initially targeted in the hope that stronger repair mechanisms would be enough to potentially cure cancer at its source, or at the very least drastically reduce the chances of its occurrence, something she managed to piggyback her own changes on...to tremendous success.

But though she had the best of intentions, the hope of making sure that no other hopeful mother would ever have to go through the same loss that she had, the results were far beyond her expectations. Even with a plentiful supply of contraceptive devices - most governments realizing that it was logistically simpler and easier on the battered infrastructure for a single crate of condoms to be shipped by rail instead of ten crates of baby formula, clothing and natal vitamins, causing some to
believe that "delaying" the baby boom until the nation was actually able to properly support a
growing population without issue was the best course of action - there was a meteoric ascent in the
number of viable births, and almost all of them were free of birth defects; even children born to
families with records of genetic conditions such as sickle cell anemia or cystic fibrosis lacked their
parents illnesses, meaning that children who would have otherwise needed complex medical care
over their lifespan would instead be able to live long, healthy lives.

It was a revolutionary change, one that saw the support for genetic engineering research grow even
amongst populations that had been staunch opponents of it not even a decade before, and alongside it
came inborn immunities to malaria, measles, tuberculosis and, in one last final guarantee against one
of man's oldest enemies, smallpox. But it was not only the most deadly of diseases that had been
conquered by science, but many of the common, too - allergic reactions to peanuts, crustaceans, bee
and wasp stings and hay fever had been wiped out, and the immune system had been greatly
strengthened in all aspects...and yet, amazingly, influenza still persisted despite all efforts, the very
same things that had made the versatile disease be selected in the first place as a means of spreading
the modifications to the next generation also making it strong enough to be able to adapt to them,
finding the way to put even the strongest, healthiest Augments down in bed the same way it had
affected normal unmodified humans.
A sculpture affixed to the outside wall of the Moscow Medical Centre, a healthcare facility at the very forefront of genetic engineering and pharmacological research.

But despite those enhancements and the countless others encoded within their cells, augmented babies were as helpless as their entirely human parents and grandparents had been when they too had been newborn, still laughing when they were happy and still crying when hurt. The only noticeable difference between the two generations, the only sign that the one had been augmented and the other had not, was that the augmented were more energetic when awake and needed less sleep than their ancestors had, giving them the appearance of being almost forever excited and playful, something that had many concerned about whether or not they would even be able to pay attention in class once they grew to a school-going age, that they would never be able to properly learn and would spell the end of human civilization as a result...and despite accusations that the augmentations had somehow caused them to become wild, stubborn, shy and outright defiant, it eventually became more and more clear that they were simply toddlers, but more capable ones, having a greater endurance and agility whilst regular examinations intended to find any sign of hearing loss or poor eyesight instead revealed, time and time again, that each and every single one of them had exceptional vision and hearing, so great that there was not a single one in the generation who would ever need glasses or hearing aids or any other form of corrective technique needed to improve their senses to the same
level as those of the ones around them.

But as young toddlers became children old enough to enter school and properly able to communicate with the ones around them, it became more and more apparent that the fear of whether or not they would be able to properly learn was utterly misplaced, that they were certainly capable of sitting down long enough to learn...and indeed, that they learnt faster than the norm. Though they lacked the experience and practice of their elders, they were much more suited to the schooling environment than any generation that came before, and of all their intellectual improvements, it was not that they were better at absorbing information and understanding it, but because they had exceptional memory making it easy for the spelling of words, mathematical techniques and other forms of information to be committed to memory and recalled with little blurriness. It was an enormous advantage over their peers, even ones a few years older than them, as it made it possible for a child to simply read their way through a science textbook and be able to easily recall the information inside, giving them a strong foundation from which they could build an understanding of what that knowledge meant and how they could use it to draw new conclusions, particularly useful in the developmental fields such as science and mathematics, both of which were dependent on having a strong understanding of low-level concepts for higher lessons to be able to make sense, but the needed shift for the educational system to make the best use of it, a transition from a system designed to teach facts to one designed to teach an understanding of why those things are facts, was the biggest change to schooling since the dawn of public education.

Of all the abilities that would become iconic as a sign of those who had been conceived after the end of the war, one of the things that would surprise those who had seen the first generation growing up with their own eyes, especially those who had children of their own...was their immense physical capabilities. It was the slowest developing of all their traits, their strength only truly starting to go above the human norm as puberty began, but it quickly came one of the most symbolic of the changing times - a fifteen year old girl, for example, could easily lift a man five years her elder off of the ground, and in two years be able to do so with only one hand. So great was the increase in physical power over unmodified humans that it became more economical for a human being to perform manual labor in certain situations than it was for machines to be designed and built to do the same amount of work, and even more so was it also highly illegal in almost all contact sports for an augmented individual to compete against one without genetic modifications. Even a heavyweight boxer could be woefully outmatched when competing against an augmented lightweight to the point of injury being certain and death a serious consideration, simply due to the immense forces involved behind each and every striking blow and punch being so much higher.
A contestant at the 2016 Olympic Games, the first to have teams comprised almost entirely of Augmented individuals. Every single record, in all categories of sport, were broken, resulting in the Olympic Committee deciding to simply start again as far as records were kept, defining the old records as "pre-augmentation records".

However, not all was good, and just as the Augmented people of Earth had a great strength in body and mind, so too did they have two flaws...and so did the world.

An Age of Problems...
Dozens of Empty Shelves.

One could not get something for nothing, and with increased activity and capability came another trait, one that began with birth and would be carried with them for every year of their long lives: Hunger. Just as the brightest of stars used their fuel quickest, so did enhanced human beings have a much greater appetite than was natural, an enormous demand for food necessary to sustain their powerful bodies and quick minds. It was not some small requirement where an insignificant amount of calories that could be obtained by a single extra slice of bread or a handful of rice could make up the deficit, but a massive increase over the norm - the average and fully grown unmodified human man required only 2500 kilocalories a day to maintain his weight, whilst a woman required 2000...but Augmented men and women required 4500 and 4000 kilocalories to maintain their enhanced bodies, almost double the daily amount. This was easily attainable with a combination of a five meal day - breakfast, elevenses, lunch, tea and dinner, - and some small snacks throughout the day, but the task of actually producing such an immense quantity of food was an unprecedented challenge, one that was growing all the more urgent in its need for a solution as more and more
augmented individuals came of age with an appetite that was twice what the existing food distribution network could support. Responses towards the growing problem were varied - for some nations in the developed world, those nations who had recovered from the war quickly enough and well enough that they had funds to spare, the first response was strong agricultural subsidies to encourage a large growth in the food sector of the economy, alongside further exploration of the ideas of genetically modified crops, fish farms and other such alternative food sources in an attempt to try and make up the deficit before the projections could become a nightmare.

The Four Horsemen of the Apocalypse - Conquest, War, Famine and Death. During the lead up to the war, there were more than a few people opposing Khan Noonien Singh and his Augments, claiming that Khan himself was Conquest, the Antichrist, come forth to lead men upon false causes. Others claimed that the white horse was not Conquest, but Pestilence, and that the pestilence it referred to was wide spread genetic engineering, and that Khan was War, come forth to take peace from the Earth and wielding a great sword that was, in truth, an arsenal of nuclear missiles.
But it was the less developed, still rebuilding nations that struggled with the issue much more. Their transportation systems even before the war were not as capable and reliable as those of the greater powers, and the war had only made things worse as laser guided cruise missiles and airstrikes destroyed bridges, railway junctions and tunnels, whilst the back and forth, pendulum swinging of victory and defeat meant that there was often little left of the rest of their infrastructure either, particularly in the Middle East, whose vital supplies of oil had been one of the most important objectives of the war and a frequent target for precision strike missions. With few other nations having a surplus of food available after the end of the war, and those that did having limited means to transport it, they had hung on the brink, needing to continue their rationing programs for longer in order to make up for the slower pace of their reconstruction...and some had already started to suffer from regional food shortages in the early part of the new millennium, often having enough supplies but lacking the ability to transport them around the country quickly enough. The rise of the augmented generation made it all the worse, as rationing could only control the distribution of food, not make more of it appear from thin air, and many things were tried with the aim of stopping the crisis before it could begin - some tried a smaller scale version of the things that their more prosperous neighbours had done, trying to nurture a strong and healthy agricultural economy able to provide the needed increase, others tried returning to the wartime doctrine of a heavily regimented diet, victory gardens and even stricter rationing, or pouring all their resources into resuming the production of exportable commodities, even cash crops such as coffee and sugar and cocoa, with the hope that they would be able to trade for what they needed on the reawakening global market. Some would take radical paths that had never been tried before - one idea that was briefly considered in the eastern European states, for example, was the decriminalization of alcohol for minors, exploiting the fact that augmented bodies could process the toxin without lasting harm and that a mere three glasses of wine per day had more calories than a cheeseburger!

But despite inventive ideas and careful planning, some nations still found the effect backbreaking and the beginning of a slow, deterioration into anarchy and famine that could only be stopped by the outside...and in the wake of one of the most destructive wars in human history, where every other nation on Earth was either still recovering or dealing with their own issues, there was little aid to come other than in the form of peacekeepers and some small amount of famine relief, a meagre supply of the little food that could be spared from the populations of the better off states, and even that would gradually dry up as they too began to struggle with the sheer cost of sustaining a widely augmented population. Even the Eurasian Union, who attacked the growing problem with the resources of a continent and had staved off a post war famine with genetically modified grains, had trouble finding a working solution - much of their best farmland, such as the famously fertile chernozem soils of southern Russia, was littered with the rusting hulks of destroyed tanks, shallow graves, unexploded ordnance and landmines, all of which made the task of reclaiming the fields that had been the perfect terrain for waging war difficult. Even worse was that some areas, where the bloodiest fighting had occurred, were tainted by the use of chemical weapons such as sarin and tabun that had left the fields deathly silent and devoid of all animal life and utterly unusable for agriculture until proper decontamination procedures, if any, could be enacted to clean up the deadly toxins, whilst some few areas were littered with radioactive fallout left over from the use of "small" nuclear weapons used to contain breakthroughs and as an area denial mechanism, both sides of the war having used them at some point or another during the conflict.

Alternative food sources for the alliance block were similarly troubled: the fishing grounds of the Pacific and Indian oceans were simply unable to fill gap, as they were a limited resource and one that was giving an ever declining yield due to century after century of use, and wouldn't have been able to make up the difference even if overharvested to all out collapse, whilst fish farming was still too immature to be practical, the correct food mix still being developed to maximize the terribly inefficient food-to-growth ratio. Ranching, considered a suitable usage of the harsh Siberian taiga...
and steppe due to the poor quality of the cold and hard soil that had always proven a challenge for Russian settlement of the wild region, provided a large increase in the amount of protein and dairy in the Eurasian diet...but in many cases, there were reasons why different parts of the alliance only received one or the other - in India, there was a cultural factor in play prohibiting the consumption of beef, drastically reducing the impact except towards the consumption of milk and other dairy products, whilst China had the reverse due to having no issue with consuming beef, but a ninety percent lactose intolerance rate amongst the non-Augment population.

Highland cows, a specific breed of cattle especially suitable for cold environments, were spectacularly well suited for the Siberian climate even without the need for genetic engineering.

But even with the climate being perfectly suited to them, developing a large enough population of cattle to have a truly meaningful impact on the food supply would take decades, if not centuries, and for Khan, who kept the alliance stable by using the steady increase in the quality of life to keep the masses happy with his rule and loyal to his ideals, the risk of having one of the main columns of his regime brought down by famine was a catastrophic threat to the stability of his government, making the creation of a stable food supply, one able to keep up with the swelling population, the highest priority of all.

Pandora's Box.

But, as if the first problem was not quite a great enough challenge on its own, the second came not long after as the first generation of augments had started to enter their teenage years, the result of one, minor modification accidentally destabilizing the careful balance of neurotransmitters. In their youth, all was normal with the growing augments, their childhood personalities more or less the same as any unmodified child would be, but as they entered puberty and started to grow into their true capabilities, becoming stronger and quicker and more able in practically all areas, they also began to grow increasingly temperamental. At first, it was simply thought of by many to be the normal angst
and issues of teenagers simply scaled upwards due to their increased abilities...but as the years passed and as they grew into their teenage years properly, it became more and more apparent that something was not quite right. It was their parents who were first to notice the change, saying that their children seemed to be far moodier than they should have been for their age, to which many school psychologists, particularly those who had experience with unmodified teenagers, agreed, saying that many of them seemed to be borderline bipolar. When happy they would enter a state of near mania, bubbling with barely contained excitement and often extremely active in all things, filled with what would seem to be an unending well of optimism, and such extreme confidence as to be outright arrogant in the certainty of their abilities, but when sad they would act the same way as only those with depression should - a complete collapse of their confidence and mood, constant restlessness and agitation, frequent sobbing and almost unending exhaustion, but in contrast to bipolar disorder, these same peaks applied to all moods. A scared augment would react with an utter terror reserved only for what should have been life and death situations, even if their fear stemmed from something as simple as a spider or a particularly spooky looking shadow, whilst one in love would act in a way that was more often seen in romantic Shakespearean plays than in the real world. The general consensus amongst the minds of the psychological community was that the increased capability of the augmented mind had, like making a machine more powerful by making it larger, increased the scale of their emotional outbursts, causing them to peak higher and fall into greater lows, a process exaggerated by the effect of going through puberty, and drew the consensus that they would "settle" down to a normal level at around the same time that teenagers normally did.

And as the first generation of augments started to become young adults, they would be proven right as even the moodiest teen would eventually find a normal level, a balancing point between calmness and activity...but like with all of their other modifications, it was to a level far greater than that of the norm. Though the moodiness of individuals would appear to be a much more minor concern than the risk of outright starvation that came from their increased metabolic needs, it was far more serious than it first appeared, as the strength of their emotions was so grand that acts of government that would barely bother a normal individual, such as the slowness of reform or perceived incompetence in the face of a crisis, made augments lash out.

When the failure of governments to properly provide what its growing augmented population needed to survive collided with their lack of patience for failure, the true crisis appeared as a combination of the two...and the results were often explosive.
A common sight in the chaotic and poorer parts of the world - a building burning as underpowered and overwhelmed police officers run by, helpless in the face of Augmented rioters.

When a fight broke out outside a small shop in Bueno Aires, Argentina, due to the military distributors there running out of rations just before noon, the small scuffle between a young Augment and a guard escalated, a warning shot was fired, but instead of breaking up or fleeing as normal humans might, the Augment mob stormed the checkpoint and overwhelmed the guards, and like the first spark falling upon dry grass, a riot erupted. Entire blocks and neighborhoods were reduced to ashes as riot police tried and failed to break up the rampaging crowds, becoming hostages themselves as factions began to form, bargaining and negotiating with the government just as they did with the other groups, only for the entire event to burn itself out in a week. Bushfire riots and revolts would become a terrifyingly common event in times of unhappiness, and such large scale civil unrest would become one of the events that marked the era that was between the birth of the first generation of Augments and the time when they finally began to take the reigns of control from the pre-war generations.

An Old and Familiar Foe

For as long as human civilization has existed, humanity has always had a tumultuous relationship
with the climate of the land itself, forever struggling against nature as men and women spread across the surface of the world, taming the wilderness everywhere they went - indeed, it was the dawn of agriculture, humanity's domestication of the first ever food crops, that had made sedentary civilization possible and been the catalyst for one of the largest ever shifts in the entire plant kingdom, as ancient forests full of towering trees were cut down and replaced by field upon field of homogenous grass crops such as wheat and barley. It was a slow march across the planet, but a total one, humanity forever changing the face of the Earth, on land and on sea, with their actions, damming rivers to redirect the flow of water for irrigation, cutting down hills and boring into mountains to get at the metals and precious gemstones within, razing acre after acre of woodland to make more room for expansion and wiping out countless species simply because they were either a threat or had no place in the world of man's empire over nature, sometimes even by accident. It was a pace that had accelerated all too quickly in the nineteenth century with the discovery of the power hidden inside of coal and steam and how they could be used to power machines, machines that had made goods that were once solely for the rich available to the masses and revolutionized the way people lived their lives. Enormous pumps could provide clean running water to all and easily carry away the waste that was the byproduct of city living before it could allow diseases such as cholera a place to grow and fester, powerful generators and turbines could create electricity and turn night into day, whilst trains and cars connected the land in a way that had never before been imagined possible, paving the way for aircraft and radio to do the same in the following decades, alongside refrigeration and computing and all the other wonders of the modern world.

But such great progress did not come without a price.
A mountain top removal mine in Pike county, Kentucky, shows the impact of the immense resource requirements of humanity upon the landscape and the environment. Particularly common in the Appalachian Mountains, a region as famous for its natural beauty as it is for its immense mineral wealth, the process is extremely destructive to the natural beauty of the region and its unique biosphere.

Years of exploiting the resources of the world had taken its toll on the plants and animals with whom humanity shared the world and on the Earth itself: countless miles of rainforest and jungle had been cleared away during the twentieth century to make way for farming and mining operations, destroying unique biospheres and condemning species never discovered to extinction, whilst industrial runoff had poisoned the rivers as the oceans were fished clean by enormous trawlers and
the sky tainted with dangerous pollutants and greenhouse gases. Even the mountains themselves had been attacked and scarred by quarries and shaft mines, and by the start of the third millennium things had at last began to show the true cost. Climate change. From the very first time a farmer had diverted a river, from the time ancient humans had watched the glaciers recede at the end of the last ice age, humanity had known that the world was not a static and unchanging place, but that it would change not just on its own but in response to their own actions, great and small. An action as slight as removing a few trees from a riverbank could have enormous consequences on that riverbank, even if they occurred outside the scale of a normal human lifespan, but climate change was not the result of any one action, it was the consequence of tens of thousands of small actions over nearly two centuries, and it had finally started to manifest itself after all that time in a form that had only been theorized a little time before and in which no one had any true solution.

It was called global warming.

Delayed a few years by the sheer amount of damage that the war had inflicted, the destruction of factories and power stations and the ban on private car usage buying humanity a short reprieve, but the same things that had delayed it had caused its first effects to be almost entirely overlooked, and no one who had the power to start meaningful change when it would have been the most effective could have afforded to do so, needing every minor advantage, no matter how damaging they were upon the environment, to win the war. The slow melting of glaciers and the receding of the polar ice caps went unnoticed, the first signs that something was going wrong, and when the war ended and when reconstruction began with a flurry of activity powered by the need to rebuild civilization to the way it had been before conflict had torn down a decade of development, global warming had been given the chance to make up for lost time, to go beyond where it would have been if the war had never occurred...and so it had. By the fourth year of the new century and the new millennium, it was becoming obvious even to those who had ignored the warnings given to them that the world was changing at an alarming pace. Annual temperatures gradually began to climb, bringing with them an unseasonal climate that made the agricultural crisis an even greater challenge than it would otherwise have been as climate forecasts became increasingly inaccurate at predicting the weather with any real accuracy. Even more pressing than the impact on land was its impact on the oceans, which were struck in three ways; rising water levels brought about by the influx of water from the arctic ice, acidification caused by the ocean absorbing the carbon dioxide released by the burning of fossil fuels, and worst of all, the impact on the oceanic currents themselves due to freshwater previously held up in ice changing the fragile balance...with an impact that could cause the entire oceanic ecosystem to crumble. Each problem had a major impact on its own, but combined they made every other problem that the world was facing at the same time seem insignificant in comparison...and made them worse in the process.

But the first responses to what was very likely to be one of the greatest threats to civilization in the entirety of human history were anemic - personal recycling was encouraged, some small adaptations to better protect regions from the risk of drought and flooding and some small increased interest in green energy sources and carbon regulations - due to the need to finish reconstructing from the devastating war and ensure that the quality of life was sufficient enough to be worth living, but as the situation continued to worsen, little by little, it became clear: a solution or a series of them had to be found sometime in the twenty first century, else modern civilization would not live to see the dawn of the twenty second.

The Spectre of the Atom.
Even though people across the world were staring down the horrific sights of famine, the chaos of civil unrest and the fury of nature unleashed, more than anything else was the fear of the most iconic weapon of the Augmentation War, a weapon used long before the Ascension Flu had been unleashed upon the world, something that had forever changed the world only a few decades before and had been the same reason that so many had grown up with the constant fear that the feuding and politicking of the Cold War could turn to open battle and the complete annihilation of both sides and the deaths of the countless millions of men, women and children who lived on either side of the Iron Curtain, that a seemingly minor event in the dance between the two powers could spell death and destruction at any moment, carried through the skies and across the heavens by bombers and missiles. Even places that had little contact with the rest of the world knew of them well enough to know that they should be afraid...and indeed, it was perhaps the threat of one side using them that had the other side afraid to do so. They needed no introduction.

A photograph found inside of a camera buried in the rubble of a destroyed apartment block, developed after the war and revealing the iconic cloud of a nuclear blast in the distance.

Though the nightmarish city killers, the massive multi-megaton warheads that were the most devastating weapons in man's arsenal, had thankfully not been unleashed during the war, their smaller cousins, the tactical nuclear weapons and low yield bombs, had been deployed by both sides of the conflict in events ranging from single use events to devastating events known as "regional nuclear exchanges." These brief and devastating trades of nuclear fire left a mark upon the human mindset and civilization that would remain long after the cities were rebuilt, taking the form of a renewed fear of nuclear holocaust. It was a fear found everywhere, spread by images of terribly burnt victims blinded by the intense flash of atomic fire and the outlined shadows of people burnt into concrete. So great and persisting was this fear that the peoples of over two dozen nations not only kept the bomb shelters they had built during the war to protect from bombing action - a preventative
measure, as the idea of precision strikes had not yet properly replaced the Second World War's mass bombardment in the eyes of the public - not only kept them stocked and ready for use, but often expanded them, burying them beneath soil to provide some form of added protection from fallout. This fear was reflected in their governments, who spent some of their scarce resources on the process of restoring their civil defense programs, reactivating their alarm sirens and restoring old bunkers that had been abandoned since the end of the Cold War, stripping out their old generators, communication systems and stores of out-of-date ration tins and replacing it all with much more modern equipment and fresh consumables. Drills, training sessions and lessons dedicated to teaching people how to take shelter in the event of a sudden nuclear attack and how to survive in the post atomic horror that would result became commonplace, and an ever present reminder of how the Augmentation War could have escalated into a catastrophe of never before seen proportions.

The fear of a renewed war, an all out nuclear war, even worked its way up the ladder of government into the great powers of the post war world, where the need to keep their strategic nuclear arsenals, their missile silos and their nuclear submarines, ready so as to ensure a lasting and steady peace...and as the surest guarantee of national sovereignty in the face of the growing anti-war sentiment that had begun spreading around the world after the end of the war. One example of this was with the United States, one of the first nations to be truly back on its feet after the end of the fighting, had accepted the peace treaty even with the condition of reducing its army size by some amount, but had found a clever loophole in the wording of a specific part of the demilitarization part of the treaty - in short, active nuclear missile sites and storage facilities were allowed to maintain substantial guard forces to ensure their protection, whilst nuclear bombers and oceangoing vessels with submersible launch capabilities were exempted from the demilitarization process, as they were the ultimate guarantee of a nation's sovereignty through the nuclear triad, useful in a way that aircraft carriers and the like were more an instrument of power projection.

Naturally, the United States made full use of it. Exploiting the fact that there was nothing prohibiting them from making additional nuclear weapons of the strategic scale, the Department of Defense dusted off the designs for an old abandoned - and completely unknown of at the time of the peace treaty - project for a truck portable nuclear missile called the Midgetman, a "small" ICBM, which, by being virtue of being a strategic launch capable of vehicle, was protected under the treaty...and thus allowed to maintain a guarding force, even though they could be driven around the country or stationed in an army base which would thus be classed as a nuclear storage facility in the process. Similarly, the Air Force began the process of developing a new "bomber" craft that, incidentally, carried an internal weapons bay capable of carrying as many missiles as a fighter, with enough engine power to make the same kind of maneuvers and missions but also able to carry a small nuclear bomb at the same, saying that it was a nuclear bomber able to protect itself from fighter craft. The Navy, having took heavy losses to anti-ship missile strikes during the war, swiftly followed the other branches of the military in following the wording of the treaty rather than the spirit...by designing a large craft that had a single nuclear missile launch tube buried in the prow, exactly at the point where it would be beneath the waves, thus giving it "submersible launch capability" that took precedence over the fact that it had a full blown flight deck and would have been known at any other time as an aircraft carrier!

They were all obvious violations of the spirit of the treaty, if not the actual wording of it, but despite having an entirely functional means by which to completely rebuild their forces and get away with it legally, the US did not stray all that far from the terms of the treaty itself, if only because not enough people were actually willing to enlist in the army due to the impact of the lost war and because they would never be more than a mile away from a nuclear device at any one time. Thus, the US government had a large section of the annual budget freed up to be spent elsewhere...and it would eventually be split up amongst things like education, public works, healthcare and industrial stimulus. This would eventually lead to what academics would call the "Sword and Shield" doctrine, the
sword being a titanic stockpile of nuclear ordnance even greater than it had been at the height of the Cold War, and the shield being the return of the United States to a peaceful isolationism similar to what it had done in the period before the start of the Second World War, best emphasized by the general feeling amongst the populace that American military actions should be limited to direct threats against the nation itself, so as to avoid another long and costly war. This feeling was reflected in many of the nations that had been on the other side of the conflict, who tended to agree with the idea that nuclear weapons were the greatest guarantee of international peace, a means by which even a small nation could defeat a colossus when traditional force of armies would fail. All that meant that the number of megaton yield nuclear weapons in the world steadily rose and rose, and with them came the construction of more and more civil defense bunker complexes beneath cities and in the countryside away from any real targets, connected to complex early warning networks controlled by small regional alliances formed with the sole goal of mutual protection and joint strategic defense commands similar to the North American NORAD. Nuclear attack drills returned to schools in a force that had not been seen even during the Cuban Missile Crisis, and armies carried out simulations and planning exercises detailing their response to a global nuclear war, how to distribute supplies in the aftermath and how to maintain order, but every single one showed the same thing - no matter how fast they reacted in the event of an incoming first strike, no matter how well they managed their stockpiles or instituted martial law, the death toll would still be incredibly high, not only as a result of the strikes, but of the radioactive fallout that would follow, the collapse of food supplies, the nuclear winter and everything other nightmare that could be released as a result of an all out nuclear war.

But with nations becoming more and more dependant on their nuclear arsenals as a means to assert and maintain their sovereignty, the growing unease of the international stage become more and more alarming. The columns of civilization were weakening: damage to the Earth's environment was drastically altering weather patterns, bringing drought and water shortages and crop failures in its wake, agricultural output was struggling to keep up with demand whilst itself in decline due to the shifts of climate, last but not least, people were growing more and more dissatisfied with the ineffectual nature of their governments as leaders struggled against factors beyond their control. With the amount of nuclear weapons steadily increasing across the world and tensions rising between old friends and old enemies, it became all too clear that it would only take a single domino to fall, a single spark...and the entire world would be bathed in fire.

****

End of Part 2, Section 2!
Though the Eurasian Union would ultimately spend billions on trying to come up with a viable means to solve the food production issue before it could become a full blown catastrophe, it would become more apparent than ever that whilst genetic engineering was a powerful tool for improving the yield of farms and for adapting crops to their environment and to predators much faster than nature would otherwise allow, it was not magical - it was a multiplier for existing production and an incredible one at that, but not actually a form of production in itself. It could not create a plant able to provide all of one's daily needs in a single fruit, for example, or give them such resilience as to make the driest parts of the Gobi desert bloom, but it could drastically enhance the production of good soil, or help crops better suited to flatter environments take root in rockier, hillier soil that would have otherwise had only a meagre output and were better suited for pasture. The genetic sciences were finally coming of age after a few decades of research as better techniques and theories as how to approach the field were developed, along with the increased power of computing technology - having taken great strides forward as the international world slowly began the process of opening up again following the war - had allowed for the creation of smaller and more precise machines that were far more accurate and effective than their predecessors, vastly reducing both the failure rate and the time that were spent when carrying out even the most basic of genetic modification procedures. Though the field was still rigorously controlled by governmental agencies, even in the heart of regions that were enthusiastic about the technology, such as the Eurasian Union and the substates that created it, because of the risk that could come from unmonitored and untested modifications to even the most basic and harmless of things, it had begun to blossom, to come of age just as flight had a century before and the steam engine before it.
A micromachined nanoinjector, designed for the singular task of genetically modifying individual cells and zygotes. Substantially more complex than the more primitive devices first used for the creation of the Augments, microscopic machines such as these drastically reduced the failure rate for genetically modified embryos, substantially reducing the cost in both time and resources for the development of modified or artificial life.

But despite these great leaps of progress, the gap was growing faster than their ability to fill it. New seed could be developed, tested and deployed with a resistance to disease, pests and drought with a combined bonus of some twenty percent increase in yield for all the fields that grew it, but distributing seeds took time...and though production would sometimes outleap consumption, but like a deer desperately outrunning a wolf, it was never far behind, and the gains that could be made from superior crops were limited - without completely constructing an entirely new breed of plant, without radically altering the taste of the final product, there was only so much that could be done, so many faults that could be removed before they would hit a ceiling. Khan's scientists, the most experienced in their field, would create entirely radical new ideas to try and rise to the challenge placed before them - one attempt, amongst the most bizarre, was a series of food "substitutes" derived from a kind of self-replicating cellular goo, an artificial cousin to algae that could be grown inside specially designed vats by the ton, and do so whilst fed scraps that would be utterly inedible to human beings and come in flavors intended to mimic meat, vegetables and fruit, but in reality had such a horrific taste that one tester chose instead to lick the table to be rid of it, and the consistency - a round patty aptly described by another as a sort of "quivering meat flan" - meant that not even dogs would touch
it, condemning it to the role of emergency famine relief alone rather than being the miracle food that it had been hoped to be. Even worse, the usage of it as an emergency food supply to stave off famine resulted in its appearance being associated with imminent or ongoing disaster, that things were well and truly horrible, making it even worse in such a role due to the terrible impact it had upon the spirits of the people that it was supposed to be saving.

But as all the resources of one continent struggled to find a viable solution to the food crisis, another on the opposite side of the world a solution was starting to take shape and entirely by accident. In New York City, an abandoned office tower, one that had been built on the eve of the war only to become redundant by the end of it as the corporations that had been planned to move into it went bankrupt due to the economic disruptions that resulted, as Chronowerx had, resulting in a state of the art office block lying empty in the middle of the city. With the building's owner having decided to enlist in the Navy only to die during the war without an heir to inherit his properties, the building passed over to the government, who were hard at work restoring Central Park to its prewar state due to damage inflicted by a bomber shot down whilst circling around for another pass on the Brooklyn Naval Yard. Needing a place to store the plants and trees temporarily whilst carrying out the labor intensive task of molding the soil back to its former shape and removing any undetonated bomblets, a clever manager came up with the idea of storing them inside the empty skyscraper's unfurnished ground floor, using the building's advanced climate control system to create a humid, greenhouse environment whilst the fire suppression sprinklers provided a means to water them. Once the ground floor was filled, the manager simply made the arrangements for the next floor to be filled, and so on, till there was enough space clear that a rotating system could be employed, one piece of the park being restored and the plants returned before the next would be uprooted and placed in the tower. Small plants, such as flowers and bushes, were placed into cut open barrels as improvised planters...and not only did they survive the process of being removed from the park and placed inside the tower's hot and humid interior, but utterly **thrived**, completely ignoring the impact of autumn and winter alike.

Without realizing, they had created the world's first vertical farm.

One of the indoor growing bays of a "third generation" vertical farm from 2020. Equipped with an advanced climate control system able to mimic the environment of almost any growing region on
Earth, they were able to grow any crop in any location where a structure could be raised and powered, and do so at a much quicker pace than traditional farming thanks to providing unnaturally perfect conditions, in the form of an atmosphere rich with carbon dioxide and eternal sunlight.

Though the manager would at first be condemned by his superiors for his choice of action, who claimed that the moisture-rich environment could have caused the growth of mildew or other moulds that could have resulted in costly decontamination work, or even compromised the stability of the structure itself by weakening the building’s steel skeleton with rust or by softening the concrete, the idea of urban agriculture would eventually triumph, and it was all thanks to the impact and memory of the last war. Though the need to ration the essential foodstuffs had been all but wiped out in the first world thanks to the rapid restoration of national infrastructure and the reactivation of the global economy, the usage of farmscrapers as they would eventually be known made it possible for a city to have a sizeable food production of its own, making it less susceptible to outside events disrupting the fragile supply chain. In addition, a local source of food production made even the greatest and most populous of cities more resistant to sieges, a tactic that had made a resurgence during the war as a way to force an army that had fled into an urban environment into submission without engaging them in battle in what is one of the greatest possible defensive positions. On economic grounds, the idea was similarly sound; the production of food directly within the city inside a controlled environment drastically reduced the cost of transporting it around in the first place, in time, labor and fuel, whilst the nature of a vertical farm was such that it could both produce more than a traditional farm and do so for less money and water. The only real downside to their use was that they needed a large initial investment, in order to either construct a suitable building or to refit one for the task, but in the post war world there were plenty enough warehouses, factory floors and office blocks able to be configured into moderately effective farm structures...and as the food crisis became more clear, so did the solution.

At first, national and city governments tested the waters by experimented with the idea on a small scale, basic systems set up in buildings that would have otherwise been abandoned, with systems little more advanced than a few over-the-counter heaters, humidifiers and sunlamps, seeing if it could be a viable solution to their growing problem, but as it passed each and every trial with at least some form of success, the resources devoted began to grow. Corporate interests holding onto office blocks and other large properties that were otherwise redundant began outfitting them for the role, the careful management of the interior atmosphere necessary to reach peak production made possible by superior computing technology. But there was one major roadblock in their widespread adoption, and it was that the Eurasian Union and the United States both lacked one piece of the puzzle that the other had. The scientists of the Eurasian Union were sat upon the proverbial gold-mine of genetic research, miles ahead of their closest competition due to being the greatest investor in the field and the originating states from whence the technology came, but the United States had an immense lead in computational technology and - as bizarrely as it seemed - atmospheric climate control, the latter coming from some mysterious papers found in Area 51 during the late nineties that put them on an entirely different level to the systems found anywhere else in the world. Without the genetic engineering capabilities of the former, the ability for the US to properly capitalize on its development was limited, since it would take years of work, at a Manhattan Project scale, to develop the proper technical base able to match their advancements in the genetic field, keeping peak productivity lower than what it could truly reach, whilst lacking the advanced climate control systems of the US meant that the atmospherics of the structure itself would be less precise, less able to predict fluctuations in the amount of moisture and heat that were needed to maximize production, and would thus also result in being unable to reach the full output of the technology...whilst also increasing the price per building in the process due to the need for an extremely intricate and expensive network of sensors to try and make up for the imprecision of the system itself.
All together, it meant that the two former enemies each had one half of the developments necessary to be able to properly capitalize upon the invention...and though the two had little desire to hand over any of their advancements to the other, the need to get the most out of what seemed to be the best means of solving their growing food crises brought the two to the bargaining table once more. The only issue was that both considered the other to be in a weaker bargaining position - the Eurasian Union requested access to a number of computing patents and design documents from Chronowerx Industries, a chance for its top percentile students to be able to enter American campuses for education in computer hardware engineering, a review of the manufacturing process for American atmospheric control systems and a production license so that assembly could be carried out inside Eurasian factories and, last but not least, floorplans for existing American agri-towers so that they could be used as a foundation for their own designs, and in return would provide the US an unlimited stream of seeds for their use at a fair price. The American negotiators found those terms to be complete and utter lunacy right from the get go, and instead made their own counter-offer, starting with access rights to the closed off biological research facilities of the Eurasian Union for their own scientists along with access to internal papers detailing the process of wide scale genetic engineering, the necessary machinery and the time of a number of qualified experts to teach American scientists in their operation, raw samples from which to work and lastly, a large supply of seedstock provided at production cost, in return for removing the trade barriers that were drastically reducing the ability for American manufacturing corporations to sell the Eurasian Union the necessary machinery as part of the first steps towards a proper free trade agreement.

Naturally, the first negotiation attempt collapsed.

It was only after the disastrous Bueno Aires riots a month later that the two began to realize how much they needed the other in order to stave off calamities of their own, and returned to the table with a better idea of the others bargaining positions...but that is not to say that they removed the more ludicrous parts of their requests, but that they used them as a bargaining chip at the table, so that they could be conceded in order to get the things that they actually wanted...and so, after series of long negotiations, a treaty that was acceptable to both sides came out - the Eurasian Union and the United States would set up a small scientific exchange program in the fields of genetic and computing research, to stimulate the development of the respective sectors in both nations, and allow a few carefully vetted researchers to visit the other. Both sides would then agree to trade the other the item that was necessary at a mutually fair rate of exchange, with both sides providing inspection of the other to ensure that their developments were being used in the mutually agreed fashion, and that they would share future developments in the field of artificial agricultural methods for mutual benefit. It was not as grand a treaty as expected, but it was the first real step on the road of reconciliation, and it meant that by 2020, a mere four years after the "experimental" usage of the concept, the first purpose built vertical farms began to be built around the world, incorporating all the latest advancements in their construction, from specially designed structures and frameworks that would allow them to operate without fear of water damage to automated planting and harvesting cycles. With them came the return of vat grown meat substitutes, created in bulk in the upper most floors of the massive farmscraper structures using the runoff and waste matter of the agricultural processes of the floor below. A little more advanced than their predecessors, the second generation of "v-meat" or "veat" was explicitly designed to be able to use small samples of naturally grown meat as a scaffold, the same way new crystals could be grown from shards of another. The quality was still poor to the point that it would never taste good on its own, but they had enough flavor and structure that they could be used to expand other meat products such as beef patties, pork sausages and chicken nuggets, matching the flavor of the rest well enough to be able to blend in, or at least most of the time, leaving products infused with them as a decent enough choice for a poor man's meal, whilst the plant version made a comeback, not as a product for human consumption, but as animal feed and for use in creating biofuels.
A block of Artificial Plant Substitute 23, or "Aps" for short, a vat grown crop originally intended as a sort of mass producible food item. Derived from a combination of apple and broccoli, the former giving the flavor and the latter the structure, this specific variety of Aps was one of the few plant matter products to be successfully integrated into the world's food culture, being used to make jam, juice and fillings, as well as a good source for natural flavoring for sweets and candies, due to its nature as a factory producible good.

It was not a perfect solution, as it still required the construction of large purpose built towers to be able to produce in any meaningful quantity, trading code in land for that of money and time spent building, but it was a solution of sorts when the world needed one most, and the large scale production of food in such rigorously controlled environments would eventually pave the way towards permanent colonization of the Earth's oceans and space, as well as the other bodies of the solar system, all whilst ushering in an entirely new era of urban development.

The New Normal

Whilst the food crisis was a major issue in its own right, in combination with the growing unrest and discontent that came with the rise of the Augmented generations, it was a far greater calamity than it might have appeared at first glance, the two problems sustaining one another in almost perfect symphony...and though the development and widespread adoption of vertical farming had put an end to one problem, the other was not so easily solved. But in some ways, the problem of their unhappiness with the status quo was as much a blessing as it was a curse. The same powerful emotions that afflicted the ever growing augmented part of the population and made them seem temperamental had also made them bold, rash even, unwilling to put up with the sins, mistakes and corruption of their leaders for too long, whilst their physical traits gave a rioting mob of unhappy augments good odds, great odds even, of being able to break up a police cordon comprised of regular humans, the two combining together in the result that the rising generation was both willing and able to stand up and act when others would be cowed by the sound of sweet words or by the fear of harm. For whatever reason, the augmented generation seemed to have a lower "boiling point" than
the unmodified generations when it came to turning their unhappiness with the government into action, more likely to snap and rise up in revolt than stay quiet till things blewed over, more likely to express their discontent in demonstrations...and it brought enormous change upon the landscape of global politics, for better and worse. Democracies struggled to cope with the pressure, the natural disbursement of people across all sides of the political spectrum resulting in clashes between one group of augments implicitly opposed to the ideas of another group of augments who were all too happy to fight for their ideals - socialists fought conservatives, conservatives fought liberals, liberals fought the hard right and the hard right fought the socialists...and the police were powerless to interfere in the raging street violence that consumed the democratic nations around the start of election times, afraid to try and suppress rioters who could throw a house brick with enough force to break bone or even crack a riot shield. In one particular case, the visit of one of the presidential candidates of the American elections of 2020 to a heavily contested town resulted in a brutal no-holds-barred brawl between Democrats and Republicans that saw three riot suppression vans either destroyed, burnt out or disabled and just shy of a hundred injured, twelve of which by gunshot wounds.

Yet in a demonstration of the changing times...not one of the injured died. People who had been seen fighting against one another were found drinking together a few days later, even people who had been sent to hospital because of their wounds were visited by their attackers, offering their sincerest apologies for their actions and staying alongside them the entire time until they recovered and were able to leave on their own. Neither side liked fighting the other, because both sides genuinely thought that what they believed in was the right choice and the best course for the United States to take, that the left wing and the right wing were all part of the same bird that could only function when they worked together and made an effort to understand one another, even when older generations could not and would not try. The cause of it all was as simple as could be imagined - they were not hyper aggressive madmen always seeking a fight of some kind or another as the media tried and failed to depict, it was because by their very nature they cared about such things too much, being too passionate about their beliefs to be able to stand by and see them so viciously attacked. But when they genuinely thought that what they did was wrong, they grieved for their choices with a force that went far beyond that of any normal human, repenting for a single thrown punch to an amount that would seem more like that of someone apologizing to a parent for accidentally running down their child, at least to the eyes of an unmodified human...and yet, to an Augmented individual, it seemed like the right response for such an action. When two augments interacted with one another, thus, things typically went rather well - if they argued, they would argue with the same strength and be fully prepared for the worst that could result, if they were apologetic then they were so to the same level and thus be able to forgive one another properly, if they were in love then they were in love to the same level and would thus have a nigh unbreakable bond. The problem's truly started when an Augment interacted with a Natural human, who couldn't match the former's emotional volatility, and thus resulting in the two having trouble communicating their feelings to one another in an effective manner - a Natural/Augment couple would have trouble properly showing how they felt for one another; the former's cuddles and kisses and other such actions would make the latter think they didn't love them nearly as much as the latter thought they did, whilst their actions would seem closer to those of a Shakespearean play than that of any real romance and would seem like mockery.
An image of the same kind typically used to more easily demonstrate the emotional differences between unmodified, natural human beings and those who were the result of genetic engineering, this one specifically meant to demonstrate unhappiness. The representation of the natural human on the right is a gradient shows a smooth transition from one side of the spectrum to the other, showing that there was a middle ground between two different moods, that it took multiple negative events for a Natural to go from a positive mood to a negative one, and that there was a reasonable bottom floor that was difficult for most people to break through, those who did typically being the depressed. The one on the right represents an Augment - not only was it quicker for them to go from content to unhappy and requiring less negative events for such movement to happen, they could reach depths of unhappiness that were simply unattainable for the vast majority of the unmodified part of humanity.

This emotional disconnection between the two generations, a gap that meant that the new generation did not feel the same way about the world as the previous did and had trouble connecting with the past, changed the world, for better and for worse. Dictatorships that had stood for decades found themselves crumbling as the augmented generation refused to lay down and take the punishment and repression that their forebears once had, standing strong in defiance and rising up in revolt the moment force was used to put them in place...and to the surprise of every dictator who had ever tried and failed to suppress the revolts of the augmented, the emotional disconnection that separated the past from the present had resulted in a stronger bond between one augment and the next, making up for the disconnect between them and the deeds of their ancestors by forming a stronger bond between the people of the present, a brotherhood that surpassed national borders and the cold water of the oceans. The result was that when a nation suffered one rebellion of augmented individuals, a dozen more would soon start out of sympathy for their plight, with a surge of foreign support usually resulting in an outpour of arms and manpower, either directly in the form of governmental aid in the form of special forces support and training and in sending over crates of Augmentation War-era surplus such as rations, radios, clothing, body armor and light vehicles, or even in testing out new equipment in a live fire environment. If a country had a population in support of sending over aid but did nothing, then they themselves were at risk of civil unrest, and would usually have their own population purchasing items they thought could be useful and smuggling them overseas. This meant that the year 2018, the year when augmented individuals across the world were truly starting to come into their own, entered the history books as the year for the highest ever number of regime changes -
one Middle Eastern nation went through twelve different governments in the span of a single month, the shortest lived of which was an anarcho-capitalist government that lasted a mere hour and a half before a convoy of vanguard communists arrived with armor support and had the previous government lined up against a wall and shot for being enemies of the revolution; they themselves would not last longer than a week before being overthrown by liberal socialists, who themselves were replaced by a unique flavor of fascist, who were then followed by market liberals, monarchists, anarcho-communists, national socialists and lastly, supporters of the Precinct system who finally broke the cycle of disorder and unrest by petitioning for immediate annexation into the EU, who provided peacekeeping forces to maintain order and development aid to fight the root cause of it all in the first place - a single catastrophic harvest failure brought about by climate change.

Unsurprisingly, this sense of brotherhood meant that there was one nation that was unaffected by the world wide discontent in any real way, a nation that was as young as the Augments themselves and one that had been created by one. The Eastern Alliance. To many of the rising generation, the massive superstate seemed to be the first real country that they ever had, one that had not fought to prevent their existence but to secure it, to guarantee the rights of all augmented individuals to be able to live freely and to be do so without fear of suppression by those who were afraid of what they could do to the world order, and more than a few people of the rising generation would make their plans to move there, to a place where they knew that the government was supportive of them and not where it made overtures to appear so because it had no other choice, whey they could truly feel accepted and that they belonged. But most importantly for a people still trying to find their place in the world and who had trouble connecting with their own historical heritage and the events and peoples of the past, there was the feeling that their new leader was the first true ruler they ever had, the first Augment who was not ruling for their own sake to and to feather their own nest but one with an actual desire to rule the nation and focus their attentions and efforts on its well being and on the safety and happiness of its people, a man who generally cared about them in a way that it seemed their Natural ones hadn't. This man was none other than Khan Noonien Singh himself, and being an Augment like them, he could understand them and their behavior in a way that natural humans rarely ever could, even ones who had raised Augments as their own children, he understood how they felt and why they did so and why they acted the way they did, he could communicate with them properly and in a means that they could understand and discuss matters with them without issue. For a people desperate for someone like them that they could look up to without shame and without remorse, he was their only choice, and for a people with little tethering them to the past, his ideals were a natural anchoring point, a sole lighthouse within a dark storm of uncertainty and unease, and though only a small percentage of the rising generations were actually able to go and move to the Eurasian Union for a number of various reasons, most of them had warm and approving feelings for Khan overall, even within those countries that had fought against him the hardest. Parties that sought closer relations with the Eurasian Union and modeled their policies off of its own, even drafting up simpler versions of the precinct system for their own use, became common in the various democracies, almost always led by young Augment politicians who could count upon the vote of the other augmented members of the population, but even the more mainstream parties typically adopted some form of warm - or at least, not hostile - rhetoric towards the EA and the EU, if only to try and gain access to the market of the country of four billion people or to avoid any internal unrest that could result from being seen to be opposing the nation that was very quickly becoming the very image of an Augment ruled state and a benchmark towards which they should be compared.

But more than the political consequences of the rise of the Augments was the ones within society. Though the cause was completely unknown to science and multiple line by line evaluations of the genetic code used in their creation couldn't find the source, Augments were seemingly more likely to develop mental illnesses than their natural counterparts, particularly minor ones, some thinking that it was the result of certain experiences rather than anything natural and others taking the opposite stance in that their altered physiology was causing a problem with how sensory information was
being processed, but regardless of the cause, the same thing that seemed to cause their infamous temperamentality was seemingly the same cause as the most common and most seen problem - split second visual hallucinations that psychologists everywhere were at a loss to explain. It was not considered to be a serious problem, as they were rarely ever scary or unnerving and were usually assumed to be caused by an overactive imagination or as a brief error in long term memory bringing a past event to the foreground, with those who suffered from it usually being so used to its occurrence by adulthood as to be able to ignore it entirely and know that merely paying attention to the delusion in the first place was often enough to make it disappear outright, meaning that they could perfectly blend in with the rest of society without any knowing that they saw things. But it was the greater response of an Augment to both positive and negative stimuli, particularly those that resulted from interactions between an Augment and a Natural, that was the cause for most of their mental issues - an Augment child being bullied by a group of older Natural children on a handful of occasions could have a lifelong hatred of the unmodified and retaliate with hate crimes of their own when older, whilst an Augment child being saved from a group of Naturals by another, older Natural could have a lifelong love for them and use their superior strengths to help them as best as they could, even giving their own life to save a Natural from the one that had been wronged before them. It seemed the greatest problem, then, was interactions between fully grown Naturals and Augments resulted in the two groups having trouble properly communicating with one another - so much so that a career arose in the form of a mediator between the two groups, typically an Augment who could understand the "immense nuances" and "difficult pacing" of Natural speech - and usually resulting in bad things rather than good...

...but when a group was comprised entirely of Augments, their best side had a chance to show itself, for the same fury that could tear down the most dangerous dictatorship or feud over the smallest matter was counterbalanced on the other side of the scales by a similarly strong sense of compassion. When the monstrous Cyclone Sanvu devastated Southeast Asia, a region that had been preparing for such an event for years, overwhelming the strongest built seawalls in the entire world and ripping concrete tetrapods from the beaches and carrying them dozens of miles in shore whilst entire houses could be torn from their foundations and thrown through the air, some smashing into skyscrapers and crippling the steel giants irreparably, some of which would come crashing down and be brought back into the winds of the horrific maelstrom. Immense damage was done, but the storm shelters stood strong and held even when the buildings above were crashing down, yet the nightmare went further in land than predicted and leveled areas that were thought to be safe before finally dissipating at last, leaving an apocalyptic trail of destruction in its wake, so much that even the great power of the Eurasian Union could barely handle what was the largest humanitarian disaster in human history; nearly eighty million people who had been in the path of Sanvu had lost their homes and all their possessions, several million more were wounded and just shy of a million were missing and presumed dead, thousands of bodies washing up on both sides of the Pacific for years to come. The shattered remnants of oil tankers, cruise liners and superfreighters littered the countryside in pieces that ranged from the size of small villages to no bigger than that of a fingernail, introducing potentially dangerous toxins and chemicals to the local soil and water supply, a fate that barely evaded the flagship of the Eurasian Navy, the EUW Varuna, a massive and nuclear powered supercarrier named for the Hindu god of water and the celestial ocean, which only made its way out of the storm's path by sending the aircraft as far inshore as possible and pushing anything that could not fly off the deck in order to lose weight.

When the storm settled and the Eurasian Broadcasting Network arrived in the worst off areas and began to broadcast coverage of the aftermath, the entire world saw the sight of damage well beyond anything that had been inflicted by either side of the Augmentation War, with few buildings left standing and even fewer ready for habitation, road and rail alike washed out and flooded and bridges broken. It was a logistical nightmare for even the best supply operation, far beyond the scale of anything the Eurasian Union had ever even planned to account for, yet alone had the equipment to
actually deal with, so much so that the military had to step in and take over, sending in bridge laying vehicles to restore vital transportation links and using convoys of trucks and transports to supply the isolated regions, but even that was barely enough to meet the needs of so many people. Yet, despite being on the other side of the conflict from so much of the rest of the world barely twenty five years ago, the outpour of aid was like nothing the world had ever seen before. In the United States alone some forty million people donated an average of five dollars each, resulting in just over two hundred million dollars being raised to support relief operations and to help pay for blankets, shelter, drinking water and all the other things needed to rebuild from such a catastrophe...and that was only the beginning - donations flowed in from throughout the entire world, in useable goods and in volunteering manpower as well as in money, and a veritable fleet comprised solely of hospital ships and cargo containers set sail towards the Phillipine islands that had been the most battered of any region, carrying thousands upon thousands of tons of relief supplies and an army of doctors and nurses ready to deal with the wounded and the sick, along with a massive number of construction experts to help get the devastated region back upon its feet once more as quickly as was physically possible, bringing along all the tools they might need along with the generators and fuel needed to power them.

A massive hospital ship off the coast of Java made from a converted supertanker. Carrying over a thousand hospital beds, twelve surgical rooms and a full set of optometrists, dentists and even two oxygen production plants, immense floating hospitals such as these were a common sight off the shores of the most battered islands and regions of the mainland, and were credited with saving
hundreds of thousands of lives that would have otherwise been lost. Every single one of the doctors and nurses who served upon these ships would be given a medal by the Eurasian Union in recognition of their efforts, taking the form of the Distinctive Humanitarian Services Medal, and a large monument in the shape of a hospital ship was erected in the heart of Jakarta, carrying the name of every hospital ship that had participated in the relief effort on its pedestal.

With such an incredible support from the rest of the world, the nightmarish damage of Cyclone Sanvu was made good in record time, with a hundred houses being built per day during the busiest part of the relief operation and any risk of starvation or disease staved off by quickly repaired transportation links and the timely arrival of aid shipments, exactly the kind of thought and response that was needed to ease the last tensions of the war war world and hear the final wounds between nations, shown best in how a grateful Khan happily wrote off whatever was left of the war debts in gratitude for their help, not a single question asked. But far more importantly than the end of the war reparations or the rapid reconstruction of the destroyed settlements that had been in Sanvu's path was the reaction of the world's peoples to the sight of what was called by many to be the defining event of the twenty first century - the sight of Augment standing beside Natural, Eurasian beside American and European, former enemies now working side by side to rebuild that which had been lost and to save as many lives as they possibly could. With the world more interconnected then ever before by the advent of the Internet, videos and photographs of the combined efforts would show the world what could be done when the things that made people different from one another and struggle against one another were set aside in pursuit of a single, common goal, the great good could be brought into the world...and for just a while, it seemed as though there were no borders, no nations, just a single united world acting to resolve a regional crisis, all united for a common good. Though the unmodified people of the world saw it as a sweet sight and as a sign of what they hoped would be a peaceful and quiet age, the Augments saw it differently. They saw it as the way that the world was meant to be; a brotherhood of all nations, of all races and cultures and religions, of all mankind united together in peace. It was a dream worth fighting for, and for a people who had only a weak connection to the countries of their birth and to the past and who reacted more strongly to positive events than their predecessors, it was enough to be the seed of a new world order.

The seed of a United Earth.

The Great Mistake

Of all the problems that plagued the earth, there was none that synergized with the others more than that of global warming - climate change and shifting weather patterns could cause droughts and destroy crop harvests, bringing about social instabilities that could plunge nations and greater regions into anarchy and chaos that could expand and spill over into a global crisis that had all the risks of starting another war, possibly even a nuclear one. Though climate change was not the root cause of the proliferation of nuclear weapons or the agricultural challenges that came with the rising Augment generation, it was something that exacerbated their effects a great deal, like a lens focusing the sun's light, making things that would have otherwise been only small problems all the harder to tackle. It made every other problem worse, whilst also benefitting from the chaos that it helped to create, with the nations that were most affected by it becoming unstable and starting to fail, resulting in a loss of the strength and organization needed to be able to mount an organized effort in the war against climate change, dying regimes too busy trying to stabilize themselves and right the situation below than to be able to give even a single second of attention to the matter of constructing new defenses against storms and droughts and flooding, making them all the more brittle when those events did occur...and worst of all, this was only the start of a war that humanity simply did not know how to fight. Climate change was not merely an increase in greenhouse gases that resulted in rising
temperatures and shrinking ice caps, climate change was an umbrella phrase for a hundred different issues - the pollution of the oceans and skies with toxic byproducts and sediments from industrial processes, the acidification of the Earth's waters, the poisoning and depletion of its soil, the damage to its ozone layer and the damage done to its means to self repair from such negative effects through things such as the felling of the trees of the Amazon and the other great forests of the world for timber, and solving one problem did not solve the others. Banning chlorofluorocarbons, the infamous CFCs that had inflicted serious damage to the ozone layer, in 1989, for example, did not stop the Great Barrier Reef from finally succumbing to coral bleaching, pollution from mining operations and a decline in water quality in the December of 2017 - to defeat climate change once and for all, then, would require a multipronged attack on all its root causes at the same time, but this was hampered by one, major thing.

For the first few years, most did not even seem to think that climate change was that much of an issue. Earth's environment seemed stable, and the massive decline in emissions in the immediate post war period due to the sheer amount of devastation to the world's factories and industrial giants had many wondering how there could be a risk of climate change when so little industry was actually occurring...and in the wake of such a disastrous war, one that had caused the global temperatures to drop from the amount of smoke and debris put into the atmosphere from regional nuclear exchanges and the deployment of tactical nuclear weapons in forested or jungle environments, there were more than a few who thought that climate change would be a problem for future generations to solve, and that there would be little harm from them continuing to use fossil fuels and unclean forms of industry for just a little while longer...yet it was this thinking that dealing with the pollution of today was a task for the generations of tomorrow that had made the problem so large, so terrifyingly dangerous, in the first place, even if few realized it, but the broken economies of the world had no choice, no one having the resources to do anything different, having enough trouble simply restoring their economy to the pre war state, yet alone retooling it for cleaner production or to use green energy, and far too delicate to be able to withstand the shocks of new climate regulations or bans on industrial usage of certain hazardous or polluting chemicals, not without delaying their recovery even longer and gaining the hatred of the masses who simply wanted their lives to return to normal again, damned be the consequences.

So, the response of the governments of the world was little more than a small increased interest in the climate, a small push towards recycling, a small increase in the funding towards environmental agencies, and little more than that...a small plaster placed over a wound that was about to become infected. The world continued to use fossil fuels and made only a small tip of the hat towards their impact in the form of hybrid cars and an increased use of diesel over regular gasoline, despite the fact that the former released more dust particulates than the latter in exchange for less carbon dioxide, whilst governments made plans towards "phasing out" coal power stations, claiming that they would be kept around for only as long as they were needed the great majority of people having only a small inkling of information about the damage that their lifestyle was inflicting upon the world. This continued for all too many years, only for the launch of a number of weather satellites in 2011, replacing some of those lost during the Augmentation War, to give the world a desperate wake up call - with such immediacy that some thought the new satellites were malfunctioning, the temperature trends that were revealed within the first three weeks of their operation showed uncharacteristic temperatures; the troposphere was warmer, the stratosphere cooler, a tell tale sign for the saturation of the atmosphere with greenhouse gases. This was the first sounding of the alarm, the first true call for attention, but like a stubborn sleeper, the governments of man simply tossed and turned, giving larger amounts of funding towards the necessary groups, forming think-tanks and engaging in international diplomacy towards controlling carbon dioxide emissions, but little was truly done - loggers continued logging, coal fired power plants continued burning, people continued using their personal cars rather than use public transport and all in all, the world went on as though there had been no alarm whatsoever, as if it were any other day. But there were a few genuine moves in the right direction,
even if they were not taken entirely seriously by their own funding government's, things such as investments into the idea of smart electrical grids that could cut down on electrical wastage and support the future Century Cities that were already beginning to be drawn up and take form, a true interest in the possibility of electrical cars and other kinds of transportation, green energy of all forms and especially nuclear, and most notably of all, renewed efforts to preserve the Earth's biodiversity in the event of disaster.

A photograph of an orangutan from 2019, it would turn out to be one of the last ever photographs taken of the species before its extinction in 2020. Besieged by climate change and the destruction of their natural habitats by human activities, the final killing blow to one of man's closest relatives was none other than Hypercane Sanvu, the immense destruction of which brought the species to the brink of extinction...where climate change finished them off, the orangutan and its usage of tools unable to adapt to the changes forced upon them quick enough in order to survive. But whereas extinction twenty years before would have been eternal, genetic samples taken in the early 2010s and preserved in the animal section of the great gene vault of Svalbard, would eventually allow the orangutan and many other of the other species that were lost to the extinctions of the 21st century to eventually live again.
These efforts manifested in collecting genetic and tissue samples of all the discovered species that were judged to be at risk of potential extinction, no matter the reason, before storing the gathered materials within specially designed and constructed vaults that could only be properly built with the coldest and most remote regions on Earth, the incredibly low temperatures able to preserve the fragile contents should power be lost, allowing the samples to remain useful even after a major disaster. Some were even designed so as to have their own source of power to be able to keep their refrigeration systems operating for some time should outside power supplies fail, particularly common in the Icelandic vaults, where plentiful supplies of geothermal power would allow them to maintain power indefinitely, or at least until the machinery and all its backups finally broke down several decades, if not centuries, later. Many of these gene-vaults would also double as facilities known as "civilization restoration sites", places packed with truly massive amounts of prefabricated housing, solar panels and electrical generators, water purification equipment, industrial machinery and an uncountable number of books and other forms of data storage, everything that could possibly be needed to restore some semblance of civilization in a post-apocalyptic world. In some ways, making such preparations were an almost subconscious acknowledgement of the threat that humanity was facing, of its immense severity, but despite that, despite the warnings and the clear changes that could be felt in the weather, year after year, the response was still weak...but it was growing stronger, little by little, as more people began to take it seriously. But as was increasingly known to be the case, it was the growing number of Augments who were the most concerned about the direction that civilization was heading towards, their famous volatility making them react to the information they were being given when unmodified humans would be content to continue their present course of action, regardless of the consequences. Although even the eldest of the new generation of augments were only eighteen years old, they saw the news of environmental decline and reacted in the way that only an Augment could, with all their strength of passion, with the ranks of environmentalist organizations across the world swelling with new members as a result of their flocking to the green banner. In the democracies, promising ecological policies thus became an excellent way of winning more votes from the Augment section of the population, but failing to carry out such policies would not simply make them unhappy and make them not trust the one they elected, but to actually riot, burning cars and looting stores and overwhelming riot police. Even more aggressively responded to were the people who the Augmented masses thought were genuinely responsible for the damage to the environment in the first place - businessmen out of touch with the rest of the world, too eager in their pursuit for profit to realize the damage that they were creating with their practices. For them, boycotts, unbreaking and unyielding, became increasingly common...and in some cases, outright sabotage, of corporate assets and personal property, with one particularly creative eco-activist rewiring the electronics of an oil mogul's favorite car in the midst of a long and hot summer, causing the heating system to not only be always on, but at a level beyond the maximum setting, symbolizing the uncontrollable rise in temperature that came with a changing climate.

And it was the political awakening of the Augment generation that began to get a serious response from the government, a serious investigation into the spectre of global warming followed by serious actions, if only because of the fear as to what a mass revolt of men and women who could throw rocks so hard and so fast as to detonate reactive armor blocks could do to the existing power structure. Their strength of body and will and made it so that politicians had no choice but to act, and even the most basic level of action on the government level could have an immense impact upon the wellbeing of the world - recycling became mandatory in over thirty nations, state subsidiaries were made to support the development of green technologies and to encourage people and businesses alike to buy ways of generating green energy such as solar panels and small wind turbines, and more powerful techniques such as carbon sequestration became seriously considered as a means to try and slow the progress of global warming down...and most incredibly of all, the great powers of the world met in the neutral territory of Zurich for a climate summit in late 2018, one of the first true diplomatic meetings between all the major players of the war since the Augment states of Asia had walked out
of the United Nations following the resolution on a ban on human genetics research in the prelude to the war, close to thirty years before.

With a rapidly swelling segment of the population having a genuine interest in protecting the world's climate, with their governments starting to take the threat seriously, with corporations worldover realizing that their actions were being watched by the individual and by the state, by the end of 2019, many began to think that though the crisis was ongoing, that the greatest effort in the struggle was over and that 2020 would be a year of progress towards the goal of creating an ecological sustainable society.

Unfortunately, 2020 had a demon lying in wait and its name was Sanvu.

Cyclone Sanvu viewed from orbit at peak strength - a freak of nature that would have been considered a complete impossibility barely a few years before, Sanvu created an entirely new category for hurricanes in the form of a Category 6 super hurricane, or hypercane, despite being short of the 500mph wind speed requirement of a true hypercane, which would be more properly classed as a Category 7 storm. Sweeping up the Asian coast from the Philippines up to Korea and Japan before finally losing energy in the ice cold waters of the Bering Sea and making its final landfall in Alaska as a small storm, hundreds of thousands dead in its wake and millions more homeless, wounded and missing.

Although the concept of a hypercane, a theoretical titanic superstorm that would break all previous classifications for the strength of a cyclone, had been around for some time by 2020, it was generally
considered amongst the meteorological community that such an event could only be created in the
wake of a truly cataclysmic event such as that of a meteor impact similar to that which wiped out the
dinosaurs or the eruption of a super volcano, either scenario being more dangerous than the storm
itself, but there was always a small group who worriedly said that it could also be caused by rampant
global warming, but what the scientists of the time did not realize, however, is that their estimates as
to the things needed to create a hypercane were much higher than the reality and that their
simulations were mistaken, or that there was a level between hypercane and hurricane that was much
more realistically attainable. In the summer of 2020, in an event barely understood by the science of
the time, an irregular El Nino phenomenon seemingly stalled out in response to the influx of
freshwater into the earth's oceans due to global warming, resulting in a large amount of warm water
accumulating in the South Philippine Sea with little means of dispersal due to weakened currents,
whilst the great heat of an abnormally hot season exaggerated the situation just enough to create a
witch's brew of hot water and cold air. From this cauldron the seasonal thunderstorms were born not
far from the coastline of Papua New Guinea, combining together into an area with a core of low
pressure, with a small, haphazard rotation barely visible, only notable enough to earn a single closed
isobar on the weather reports that dismissed it as nothing more, the depression not even yet having a
name. From the depression came a tropical storm, one many had been eagerly awaiting, hoping that
the cool rains would give them a reprieve from the heat and mend the region's bizarrely changed
climate, and it was given the name Sanvu, selected randomly by lot from a list of some thirty names,
and the tropical storm would swell into a tropical cyclone that would grow further still into what was
called a super cyclonic storm, something seen before, before finally developing into something the
world had never before witnessed as it reached up into the stratosphere and drew upon the incredible
power present there - a hypercane. On its northwestern march through the Phillipines, the titan was
likened to an eraser being drawn across paper, for where it found thick rainforests it stripped the land
clean and where it found villages and towns it simply removed them from existence, tearing
buildings from their foundations with the ease by which a man could pluck grass from the soil, only
skyscrapers able to stand against the furious onslaught of nature's wroth unleashed, but not even they
would be able to emerge unscathed, with dozens of tall, strong buildings with steel frames, structures
that had weathered the worst of the fighting of the Augmentation War unscathed, being damaged
beyond repair, some falling down on their own not long after the storm's passing. Airplanes that
travelled through the stratosphere, a place deemed safe for them to travel, reported extreme
turbulence so great they had to break from their pre-planned course towards airports far away from
the storm's passage way, and only the most daring and borderline insane meteorologists, those who
were outright mad enough to fly their planes into the heart of hurricanes to measure their strength
with their instruments, were willing to go near it...and of all those that entered, none returned, only
wreckage of machines that had been crushed like cans by the immense force of Sanvu's mighty
winds.

And so it was for two weeks on end, Sanvu sweeping through Phillipines and losing only a fraction
of its strength as it devoured entire islands and left them wastelands before finally striking the
continent itself, trailing northwards as it systematically assaulted every coastal city in turn, sparing
them the worst of the wrath that had been inflicted on their Phillipines cousins not because of any
quality of construction, but because they were met only with the outermost section of the most
dangerous part of the storm, a touch that was gentle compared to the storm's true power, yet could
smash houses to pieces all the same. Gradually, however, as the storm went northward, it began to
weaken, little by little, with its devastation of Korea and attack on Japan being its last moments of
glory before it began dissipating more quickly, no longer able to draw power from the colder waters
of the North Pacific, striking Alaska as nothing more than a heavy rainstorm before finally
dissipating.

But the damage done was nothing short of apocalyptic.
As the nations of the entire world seemed to stare in utter horror at the damage that had been inflicted upon Southeast Asia by a natural disaster of an unprecedented scale, starting the historic outpour of aid towards the devastated regions, there was also a nightmarish realization that what had happened once could easily happen again, if not prevented through swift and lasting action...and it was this action that would result in the dangerous combination of a panicking scientific community of meteorologists preaching that the end of days was near, a fear that quickly bled over into scared governments desperate for a means to stop it before the situation could become any worse than it already was. To them, it seemed that the chance and capability for mankind to stop the crisis before it became any worse was slipping from their grasp, that the adjustments were too little too slowly to make any real difference in the time scale that mattered, and they presented a drastic solution to the problem, one that could buy humanity the time that it needed, a solution that future generations would refer to as the worst part of "the Great Mistake" due to its nature as a serious error in mankind's response to a man made crisis. The darkest hour of the Great Mistake was nothing in the form of what the people of the time might have expected, being neither a devastating nuclear catastrophe or the result of a lack of trying to mend the situation of Earth's declining climate, but was instead the result of humanity overreacting to what was a declining issue, failing to recognize that Sanvu was in many ways the last hurrah of climate change, and in that regard the main failure of the Great Mistake was exactly what it was said to be - a grave error in human judgement, an attempt to give humanity a sword by which to fight climate change directly just as it had a shield to protect against its effects and reduce them in future. The Great Mistake of climate change was thus thought to be best fought through the use of nothing more than sulfate aerosols, thick clouds of sulfur rich particles in the form of a combination of sulfuric acid and water, deployed in the stratosphere in key places around the world; when sulfate aerosols entered the Earth's atmosphere naturally, such as because of a major volcanic eruption, they created a cooling effect by reflecting sunlight back into space. Thus, using specially modified aircraft, it would be possible to artificially cool the planet down through a massive geoengineering project, and it was calculated that a single kilogram of well placed sulfur in the atmosphere could balance out the effect of several hundred thousand kilograms of carbon dioxide, buying humanity the precious time it needed for serious change, whilst also having the added bonus of the aerosol having a time limited nature, making it unlikely for there to be any lasting effect without regular deployments.

And so, fearful of what could happen if they chose otherwise, many nations, particularly those in the areas of the world most heavily struck by climate change, deployed sulfate aerosols...and the response of doing so was instantaneous.

In Africa, the continent most affected by the ravages of global warming, summer simply came to an end two months early, temperatures dropping down to those that would be found in autumn as the sky was bleached a dark white, even the brightest day becoming as dim as an overcast sky. Over the oceans, the thick clouds of sulphuric compounds reduced the amount of heat that could reach the water, starving tropical depressions and storms alike of the energy needed to sustain their strength and causing them to collapse and dissipate, whilst the oceanic currents strengthened once more as the temperature differential of the ocean as a whole widened, the cold regions that had started to become warm and weakening the convection current cooling down again and bringing it back to full strength. In Europe, what should have a cool season became a freezing winter as sulfate clouds drifted through the atmosphere, bringing daytime temperatures so low that water would freeze if left outside in broad daylight in the midst of the afternoon, whilst water mains burst at night with alarming regularity, whilst across the Atlantic in the houses of North America, the heaters had to be turned to the maximum setting in order to stave off the cold, and the homeless died in their hundreds from frostbite and exposure to the elements, simply falling asleep and never waking up again in a coldsnap. Aircraft from small personal craft to military fighters and airliners crashed with regularity, the hydraulic fluid congealing in their lines and making the plane unresponsive to the pilot's commands, killing over a thousand before the government stepped in and placed a moratorium on
traditional flight paths for the entire season, forcing the airliners to take circular routes in order to avoid the freezing air of the upper atmosphere. Even with the complete halt of their usage a month after their first deployment, it would still take two months more for them to fade from the atmosphere entirely, and in that time crops around the world were saved from withering in their fields only because of massive gas and oil fires, stopping the water inside the plants themselves from freezing, but even that was not enough to stop a noted decline in the quality and quantity of the crop yield from traditional agriculture, even if vertical farming were unaffected. By the time that the three months needed for the sulfates to dissipate had ended, it was obvious that they did their task entirely too well, having plunged the world into a short lived ice age rather than simply giving humanity a buffer against the worst edges of global warming, but as the weather satellites carried out their work in monitoring the environment to see if the brief usage of aerosols had a lasting positive effect...and the panicked words of those who had begged the governments of the world to not use sulfates on the atmosphere, words that other scientists had dismissed as baseless fearmongering, had proven true.

There was not a lasting positive effect but for a small decrease in temperature that was estimated to last for the next three years...but there was a much more notable negative effect.

Sulfate aerosols could damage the ozone layer.

Earth's shield, the shield of all life on Earth, had been cracked by human action, with massive damage inflicted upon the ozone layer resulting in the appearance of a number of small dimples around the world, places where the ozone layer was dangerously thin, and a swelling of the Antarctic hole to a quarter more than its previous size, bringing a major increase in ultraviolet radiation to the southern hemisphere, up to a major increase of ten percent in the worst afflicted areas. With this increased exposure to the sun's energy came a magnitude of negative effects, those specifically striking humanity being the most obvious and the worse in the form of a noted increase in the rate of skin cancer, especially amongst the Natural population who lacked the complex genetic repair mechanisms of their Augmented brethren, alongside an increased number of health patients reporting degrading vision and cases of serious sunburn, but there was also damage to the inhuman life as well - animals suffered all the same things that humanity did, but plantlife too was similarly affected by the error, the excess of ultraviolet energy causing damage to their ability to store and absorb nitrogen, bringing about serious impacts on their growth that would leave them stunted and weak. All this resulted in a universal ban on the use of sulfate aerosols, and it would be a ban enforced across the world, as shown when one small Middle Eastern dictatorship, its ruler desperate to placate the masses with relief from the harsh sunlight, found their preparation site littered with leaflets from the neighbouring Eurasian Union, warning that any planned deployment of sulfates would be met with and halted in the harshest possible manner, alongside which were brightly colored dud bomblets used for training maneuvers. The reason for it was simple - though mankind could influence nature with his actions, he could not properly control it once he had done so, and by its very nature geoengineering projects such as the usage of sulfate aerosols were to alter a system that humanity barely understood and upon which the entirety of life on Earth depended upon for their survival, and any serious error, any serious mistake, could have terrible consequences not only for a single region, but the entire planet. In this regard, it was considered to be even more dangerous than genetic engineering had ever been, as at least that could be controlled, but geoengineering was by its very nature too large to be controlled and too dangerous, like a bonfire within the midst of a dry forest full of kindling, and as such the idea was utterly abandoned as a means for maintaining the quality of the Earth's environments...and seeing as the brief period of their use had resulted in putting more greenhouse gases into the atmosphere than would have been used otherwise and damaged the ozone layer in the process, there were few who were sad to see them go.

But the damage had been done...and a small amount of time had been bought, precious moments that
would need to be spent wisely.

With Sanvu making it obvious as to what could happen if serious change was not carried out quickly and the mistake of sulfate aerosols proving once and for all that there was no quick or easy solution, the response was what had been needed from the start - a massive, global effort, an equivalent to the Apollo program on an international scale, where a major percentage of the world's combined resources were available for the task of solving climate change once and for all, something that would have a profound effect on the utilities and infrastructure of the world, even if the way that people lived their day to day lives changed only a little. With the growing number of Century Cities came the first true smart electrical grids, massive networks of electrical pylons and transformers and power stations built with state of the art technology and specially designed computer systems that allowed them to automatically react to spikes in electrical demand without the actions of a technician, or any response from a human being whatsoever, and do so with much greater efficiency and speed, as well as making the electrical system more resilient to unexpected outages - the new grids were designed with growth potential in mind, just as the Century Cities themselves were, with there being a large number of alternate and redundant paths for electricity to flow through as needed whilst the individual pylons themselves were able to take a much higher voltage than the norm, as a guarantee for future usage. This meant that if any substation or part of the distribution grid lost power, the computer systems controlling the grid could quickly divert the flow of current through an alternate system by using the extra capacity available, restoring the flow of energy within a few seconds whilst engineers are automatically alerted to the failure and dispatched to mend the damaged section of the network. In addition to the enhanced resilience, the entire system was notably more efficient than its predecessor, wasting less energy during transmission and by keeping the generation of energy just a few small percent over demand at any time where it was expected for there to be no need for extra energy. The overall result was an electrical infrastructure that was built with the lessons of the Century Cities and the Augmentation War in mind, being resilient enough to take serious damage from either natural or unnatural causes whilst also being able to make the best possible use of the resources at hand with the minimal possible waste, making them the perfect companions to the new, preferred energy sources that began to supplant coal, oil and natural gas...and the greatest of them all was an old friend.
A nuclear power station built as part of the Eurasian Union's Nuclear Energy Initiative, power stations like these would swiftly become one of the primary weapons in the war against climate change due to producing a massive amount of energy for so little waste, so much so that their designers proudly said that their nuclear power plants emitted less radiation than coal ones did. In addition, nuclear reactors provided a number of useful byproducts for military and civilian interests - depleted uranium for tank armor and as radiography shielding, for example, were just two of the items dependent upon the use of nuclear power stations to be produced.

Years of building up for a renewed war or for a nuclear holocaust that had never came had resulted in the construction of a massive number of nuclear reactors across the world, needed to produce the enriched and depleted materials considered useful for military use as a byproduct of their regular operation, but it was the immense amount of energy that they produced for so little in the form of pollution. A properly designed and constructed nuclear reactor, with regular inspections to ensure the full function of its safety systems, was an incredibly safe form of power, giving off neither greenhouse gases or toxic air pollutants such as the mercury that came from coal or the nitrogen oxides that came from oil plants, whilst also being remarkably stable - the lessons of Three Mile Island and Chernobyl had been used to draw the plans for extremely safe power stations that could easily and safely shut themselves down with minimal effort from the technicians manning their control rooms, resulting in abundant supplies of clean and safe energy. But this came at a cost, and this cost was the princely sum required to construct and operate a nuclear facility; even the most powerful corporations were reluctant to make an investment of such a large scale, meaning that for a nation to be able to use atomic power for their energy needs usually required for them to either encourage investment in the nuclear industry through subsidies and grants until the effect of an economy of scale started and brought the price per unit down, or, as was the case of the Eurasian Union and a number of other nations, directly construct the facilities using state funds and run them as a national utility that was property of the government. For this reason, it was generally difficult for a nuclear power station to be able to properly enter a energy market that was already populated with a combination of the three main fossil fuels, but this was not so in the developing world where the market was still immature and growing, where the sunk costs in dirty forms of energy were not yet so great as to be insurmountable, and for a nation that was still developing and in need of as much energy as possible, building nuclear reactors was actually a strong alternative - to get the power output of a single small nuclear reactor, one would need several coal fired power stations, which all together would have an added cost greater than that of the single reactor, but even with that number, the reactor still had some excess power...and would be cheaper to operate, needing to be refueled only once every forty eight months rather than needing a constant and steady supply of coal, oil and gas to maintain operation. Thus, nuclear energy was considered an excellent source of power for those nations that were still in the process of "growing into their shoes", those who needed a means to produce as much energy as possible to sustain their growing industries and to meet the immense needs of a population that was progressing closer and closer to a first world quality of life, something that meant the construction sites for new nuclear reactors could be found in the Eurasian Union by the dozen, but also in the nations of South America, a place that had been one of the few "winners" of the Augmentation War due to the lack of major conflict in their region, allowing their intact industry to quickly carve out a niche in markets that would have previously been too competitive for them to make an entrance, yet alone to be successful in establishing a strong foothold.

But nuclear energy, for all its might, could not carry the entire weight of the world's energy demands upon its shoulders - it was expensive to deploy on a large scale, and any tiny push by demand over supply could not be easily rectified, and worst of all, even the best nuclear reactors would eventually need to be refueled in a process that could take days or even weeks, during which all power generation is halted. But with nuclear energy providing an ever growing segment of the world's baseload power, the power that is always needed to power the things that maintain and create
modern civilization, there was an opening for another source of energy that had always been in need of a reliable source of power for when it was unable to provide the needed output on its own, and that was none other than green energy, the renewable and infinite sources of power that were solar panels, wind turbines and tidal generators, all three of which were tried and tested technologies that had improved dramatically over their earlier forms, becoming more efficient just as they became cheaper to produce and install, and their day had finally come. Good, high quality solar panels could be produced in bulk and for a low cost, and government incentives for the spread of green energy allowed the solar industry to claw its way into the market, even in mature economy of the first world, little by little, starting with simple panels placed atop the houses of the environmentally minded before swiftly spreading outwards as production ramped upwards, culminating with a truly monumental number of solar panels appearing in all the great deserts of the world, from the Gobi to the Sahara to the Nevada, generating an incredible amount of power that was more than able to support nuclear energy in its task during reactor refueling or at times of the highest demand, and the sight of photovoltaic cells became a commonplace one in the Century Cities, where every skyscraper was crowned with them alongside their rooftop gardens. In those areas where there was too much cloud coverage and too little sunlight for solar energy to be worthwhile, wind turbines came into vogue, Sanvu having removed all doubt as to the power of the wind unleashed, and great fields of them would be built in those places where suburbs had once stood before the coalescing of settlements into the greater cities of the modern age, as well as in the places where now redundant farms had kept their fields and livestock before being outcompeted by vertical farming...and for the cities and settlements of the deepest seas, the places that needed a constant supply of electricity to even be livable at all, tidal power plants floating high above the suboceanic habitats gave them all the energy they might ever need, enough to power the massive heaters, water purifiers and greenhouses, a demonstration of life on an alien world might be like directly beneath Earth's own oceans.

Combined they were like bricks in a wall, far more formidable than they might be individually, but even this combined strength paled in comparison to the long awaited dream of physicists everywhere, the holy grail of power generation that would finally be uncovered after years of work in 2030.

Fusion.
Fusion much had much to make it the most preferred form of power generation, being so difficult to get running in the first place that there was positively no way it could malfunction or create a disaster from either machine or human error, whilst also producing almost no waste whatsoever, neither in the form of toxic chemicals from fossil fuels or as radioactive waste such as that from a nuclear reactor...and most importantly, a single fusion reactor could produce three to four times the output of a nuclear reactor, needing only a great deal of energy to initiate the reaction process before the facility was self-sustaining. With such a massive output as to utterly eclipse all forms of fossil fuel energy in all applications, viable fusion reactors would give humanity the means to finally break free of the long dependence on and retire the three fuel sources that had made it possible for civilization to transition from an agrarian people to an industrial one. With the rise of carbon regulations and the global transition to electric powered cars and industry, oil, coal and natural gas would all be relegated to alternative uses over time: oil would maintain its value not as a fuel but as a raw material for the production of plastics and other useful petroleum based products such as machine lubricants and the like, gasified coal would remain the backbone of the world’s chemical industries for its use in producing syngas, whilst natural gas would contract the most out of them all as electric heaters replaced gas burning ones, but even it would be spared from complete abandonment by the Haber-Bosch process for the creation of fertilizers, but their days as mankind’s most preferred choice of fuel were done, with only a few luxury vehicles continuing to use petrol or diesel fuel. With
environmental programs meant to not only protect the forests, rivers and oceans from harm but to actively facilitate the regeneration of these damaged ecosystems, with clean energy finally supplanting the old and with major subsidies and investment into new environmentally friendly technologies and inventions, it was said by many that humanity had finally entered a new age of industry.

The Green Revolution was here.

But the damage to the world had been done. What had been damaged would take years and decades and centuries to finally recover and heal, whilst what had been destroyed, rare ecosystems and species known and unknown, all lost by rash action and a lack of forethought in mankind’s greatest age of progress, were barely able to be replaced thanks to the collection of their genetic material. But not all of them were, with some things like the Great Barrier Reef, entirely unique wonders of the living world, were lost forever, known to future generations of humanity only in pictures and film of times gone by and in the history books they read. It was for that reason why so many of those who were as yet unborn would look back on the era between the environmental awakening of the 1960s to the final victory of the green ideal in the 2020s and 30s as one of the darkest ages in human history, a time full of careless ignorance, and referred to aptly with one name, one phrase that could barely sum up the damage done to the sacred Earth under humanity’s guardianship.

The Great Mistake.

****

End of Part 2, Section 3A!
But despite the ever present risk of nuclear annihilation should a single radar station malfunction and report a flock of geese as a hundred inbound ICBMs, there was one small upside, however slight - the larger missiles of the late twentieth and early twenty first century, needed to carry the increasingly powerful warheads and the increasingly more complex decoys meant to confuse ground based interception systems, had another potential use in store for them, one that went back to the times of the very start of the space race - what was designed to put something extremely heavy on a trajectory towards another continent could, with a few modifications, put something not quite so heavy in orbit. During the war, there had been a great number of times that the world had come all too close to oblivion, but those very same times of danger had also brought forward a number of great minds in the field of rocketry and atomic science, people whose efforts were considered critical to the war effort...and to ensure that the enemy's triumph would be of a pyrrhic nature if they decided to try and annihilate their foe with a nuclear attack. With the return of peace, the sheathing of the atomic sword and the cooling of tensions in the aftermath of the war's end, great armies of trained engineers, technicians and designers, the key to any successful missile program, suddenly found themselves with little to do, but rather than allow this great force of specially trained minds to disperse, many of them were put to work on a more peaceful task than what they were originally meant to do - the design and construction of rockets meant to reach space rather than enemy cities. During the first few months of the war, where every advantage was considered critical, space had been a battleground as much as the air and land had been, with anti-satellite missiles deployed by the dozen to cripple communications and navigational systems, something that had taken the most complex weapon systems, those that depended upon satellite signals for guidance, out of the fight, but with the return of peace, the restoration of such satellite systems was considered a high priority - there were unimaginable benefits for shipping and transportation of all kinds from having a reliable and automatic system of navigation, especially for super freighters where the difference between great profit and great loss could be just a single day, whilst the telecommunications sector was similarly eager for a return to space, as the redeployment of a network of communications satellites would allow the slow growth of the "world wide web" to possibly kick into a higher gear, as well as making it easier for people in remote areas or places of difficult terrain to receive service...and none were more eager than the meteorologists, whose means of accurately predicting the weather and the climate had been one of the first casualties of the terrible war and who needed weather satellites if they were to carry out their work once more.

And so, humanity's return to space was not brought about by any realization of kinship amongst men or a desire to explore the solar system, but by the dire realization that civilization depended upon its orbital infrastructure more than had been first anticipated, and if there was to be a proper recovery, rebuilding the network of satellites in the skies above needed to be one of the highest priorities. For that reason alone, most nations that had the ability and the facilities began dusting off their old equipment, bringing it out of storage and readying it for use once more, such as the American Space Shuttle, and the Eurasian Union was no exception.
A rocket being towed by train towards the launchpad at the Baikonur Cosmodrome, following the refurbishment of the massive launch facility. Considered to be the birthplace of the space age by many, the old facilities were renovated with state of the art equipment and would quickly become the heart of Khan's space missions, both military and scientific, the place from where the vast majority of Eurasian space missions, manned and unmanned, would be executed, far from the rest of human civilization, something that would be a blessing on several occasions, such as the launch failure of Shenyi XXII, an unmanned rocket carrying a habitations module meant for the lunar settlement, because of an error with the flight computer causing the rocket to swerve off course into the Kazakhstani steppe...resulting in one of the single largest non-nuclear explosions in human history.

By many, Baikonur Cosmodrome was considered to be the birthplace of the space age, the place where many of the tools and vehicles that had been instrumental in the earliest victories in the conquest of the heavens had been designed, built and launched. Baikonur had been the launching site of the mission that put the first satellite in space, the first man in space, the first lunar impactor probe, the first space rover and the first space station, alongside a lengthy list of other great engineering achievements. But after the collapse of the Soviet Union in 1991, the event that would create enough chaos and a large enough power vacuum to allow for the rise of a number of Augment rulers in many of the union's successor states, the already increasingly obsolete launch complex fell into disuse and near complete abandonment, so much so that reconnaissance flights under the banner of the United Nations Security Council considered Baikonur to be of real strategic importance whatsoever, aborting a planned airstrike that would have likely reduced the entire complex to rubble. In the wartime era and the years immediately following, this neglect continued for a time longer until the start of the twenty first century, where the immense reasons both economic and prestigious saw Khan develop a growing interest in returning to space, and with the various Augment states already being woven together into the Eurasian Union, it was a trivial thing to start combining the space agencies together into a single organization as well. But it was not the scientific or economic rewards
of returning satellites to low Earth orbit that resulted in the reactivation of Baikonur, but another thing entirely, something focused on the fearful conditions on Earth, and the constant threat of nuclear obliteration in the post war world. From this fear came drills and training sessions dedicated to teaching people how to take shelter in the event of a global nuclear exchange, how to survive in the post nuclear world, and this fear and the need to take it into account climbed up governments like a creeping vine, from small towns to states to nations, and even Khan Noonien Singh had to act in the face of increasing requests for a unified plan in the event of nuclear war, some kind of agency with a network of crisis shelters, early warning radars, satellites and last but not least, possible missile interception weapons in orbit or in ground facilities.

In order to create such an agency, and as part of the long overdue reorganization of the strange and arcane military structure of the Eastern Alliance - the result of several Augment controlled militaries banding together at the start of the war at a time when most of said rulers did not want to surrender control of their forces in the event of betrayal, a moot point considering the death of most of said rulers during the middle of the war - into a new and more centralized structure in the form of the Eurasian Armed Forces. Beneath this more interconnected and unified military, the agency with the task of managing the defense of the massive Union from nuclear assault was created, the Eurasian Strategic Command, but ES-COMM would be generally considered by many upper ranking officers of the new military to be the stepchild of the armed forces, redundant, whilst Khan himself once privately referred to Strategic Command's mandate as "trying to stop bullets with sponges" and generally had little expectation of their capabilities, but he nevertheless made sure that ES-COMM received all the things that it needed to operate, and facilitated the creation of the two subordinate commands that simplified the matter of running an organization with such a large task ahead of it. The first was the Eurasian Strategic Defense Preparedness Command, ESDPREP-COMM, which had the responsibility of managing civil defense preparations such as emergency stockpiles of food, water and fuel, the evaluation and construction of bomb shelters, the education of the masses and military personnel on how to survive an atomic attack, and most importantly, managing the operation of a system of early warning radars and missile interception sites (only two of which actually existed and could barely intercept a forty year old cruise missile, yet alone an intercontinental ballistic missile) everything else necessary for the function of national defense in the event of a nuclear war. The second organization was the runt of the runt, the smallest military command out of the entirety of the EAF and tiny even when compared to its parent and sister units, and was simply known as the Eurasian Space Command, ESC for short, it inherited...nothing, with what few orbital satellites that the nations of the Eastern Alliance had before the war being lost in its opening hours to anti-satellite weaponry and the organization having no relevant facilities to be assigned to it, meaning that at the time the command was established, it counted a mere sixty men under its charge, less than an infantry company, and the massive task of managing the deployment of military, scientific and economic satellites, so great a goal that many thought the young organization would end up failing so massively as to be end up dismantled and replaced with another agency, perhaps a dedicated scientific space agency or something of that sort, but Khan himself had rather high expectations of the newly founded Space Command in giving the Eurasian Union and the Eastern Alliance within it a foothold in space, and gave them a guaranteed 1.5% of the annual budget, regardless of their performance, a number that did not sound like much but was actually nearly limitless amounts of funding for a space agency. A number of generals expressed their dissatisfaction with ESC getting a separate budget from the rest of the EAF, especially one so large, claiming that space assets had played little to no role in the outcome of the Augmentation War, but Khan brushed their complaints aside with the remark that the Space Command needed so large a budget to actually stand any real chance of carrying out its incredible task, and that a mere 1.5% of the budget would make little difference to the performance of other national assets.

But what no one realized at the time, however, not even Khan, is that Space Command would eventually go by another name in a century's time.
But before this new space agency and its massive budget could begin operations and start meeting the great expectations that their leader had, they needed to find a launch site, a remote place capable of coping with the enormous demands of a well funded space agency and far away from any border. It did not take long for them to find a place that met all their needs...and once again, Baikonur Cosmodrome hummed with the sound of machinery and armies of engineers heading to work, but before the task of launching new missions and setting new milestones could begin, there was first the task of dealing with the legacy of the old. Over a thousand tons of rusting and obsolete machinery were stripped out, buildings with walls of asbestos or filled with leaking barrels of toxic chemicals were decontaminated and torn down, aging infrastructure and buildings were practically rebuilt from the ground up and computer systems that were considered state of the art in the fifties and sixties were removed from their racks and delivered directly to museums around the world on a first come first serve basis, so terribly obsolete were they. In their place came new machines, new buildings, new roads and rails and new mainframes, the entire complex transforming so utterly as to be almost unrecognizable by the time that the work was done and the first year's budget expended by the end of 2012. But with the spaceport restored to a working condition and brought out of the twentieth century, the engineers of the Eurasian Space Command could finally get a chance to start working on rockets rather than on their launch, telemetry and mission control facilities, and from there, things began happening rather quickly...till the question of how to best approach their myriad responsibilities of providing military, economic and scientific satellites came up. At first, something similar to NASA's space shuttle was considered a reasonable choice, as it had the added bonus of being a reusable design and because the ESC had a shuttle of its own in the form of the abandoned Buran, a Soviet space shuttle similar to its American counterpart in both form and function, but the sheer amount of cargo that would need to be placed in orbit would require dozens if not hundreds of launches occurring so close together that there would be little time to properly inspect and refit the shuttles between missions, not without having a full squadron of shuttles ferrying things into orbit constantly, but even then the shuttle was considered a poor choice because of the unit costs and the cost of a mission flight compared to the amount of cargo that it could actually carry in a single mission, even when removing the crew. On the other hand, the problem with the traditional form of rocket carried into orbit was similar - the relatively low maximum payload when compared to the task at hand meant that there would still be a need for a large number of launches that would place the engineers and technicians under constant stress, increasing the chances of a fatal fault being overlooked, and the cost of so many launches would be so high. There was even the brief consideration of building an enormous nuclear powered mass driver with a track several kilometers long, to simply shoot the satellites into orbit inside specially designed canisters, but the simple fact that any malfunction at any point would turn it into the world's largest artillery piece and the trouble in building up enough speed to actually break through the Earth's atmosphere killed that idea dead. In the end, the solution came from the strangest place and was crudely simple - tired of working so hard on finding a solution in the archives of the Museum of Cosmonautics and Rocket Technology in St. Petersburg where they had been hoping to find some nugget of information or a concept drawing that could push them in the right direction, a group of designers went for a break in a nearby coffee shop and ordered the same drinks...and whilst most of the group were busy talking amongst themselves about what they had seen, one looked past the counter and saw the drinks being made - one large pot of coffee was filled and moved around through all the different parts of the preparation, then emptied out into several little cups when finished and given to the designers separately.

Instantly, it was realized that the solution to the ESC's problem was simplicity in itself - a bigger rocket able to carry multiple payloads into orbit simultaneously. A single large rocket would require less time for assembly and inspection than several small rockets and would be cheaper overall, whilst being disposable meant that it needed no refurbishment between missions ensuring that there was no
risk of a degrading performance of heat shield tiles and other systems that would need to be replaced between missions, and could carry so much equipment as to make it a cheaper alternative when compared to launching so many shuttles into space. Best of all, such a large rocket would have a number of applications well beyond simply putting satellites into orbit, able to carry so much mass into orbit as to be able to do anything that was on the planned mission roster and do so with ease, even send massive manned capsules to the moon through the direct ascent approach due to the sheer amount of power at the craft's disposal, or even send large modules to Mars or even bring rovers to the outermost moons of Saturn and land them safely. It was what was classed as a "universal" rocket, a workhorse capable of being repurposed for every possible task, and the teams championing the idea of it smashed through their opposition and gathered enough support to enter the design phase and from there seal in its victory over the alternatives with the first ever order of three units, to allow for testing and refinement of the design and all its components. But there would be no major issues that could not be solved, and by 2015, the huge Sanyi series rocket entered full production, so massive they had to be built in pieces and shipped to the assembly buildings at Baikonur by rail where the final assembled vehicle would need a convoy of six locomotives all adjacent to one another to be able to be taken to the pad, where the launch tower, still horizontal on the Earth's surface, would grasp the rocket and raise it into launch position, and on a bright sunny day in the middle of the year, the preparations for the first ever launch with a true payload were well underway, the engineers and technicians checking everything they could reach, afraid of being the first team go down in history as having lost eighteen satellites in a single mission, one half of the what would be the Eurasian version of the Navstar GPS network. Thanks to so much hard testing and work, the entire mission proceeded without incident, but more importantly than the establishment of the Eurasian geopositioning system was the fact that this was not the only rocket launch going on in the world in that year, but one of many - the United States was delivering a new laboratory module to the Freedom Station, a collaborative project with the WESA, JAXA and CSA, who all had small additions to the station of their own that year, either in the form of supply trips, experiments or entirely new modules like the Canadarm system.

But such missions were only the beginning of the Shenyi's service.

The Shenyi rocket, with boosters attached. The Shenyi family of launch vehicles, named for the ancient Chinese god of archery, were the largest rockets ever built at the time of their construction, three times the width of a Saturn V, and were designed and intended for the role as a universal
"workhorse" capable of doing a wide variety of tasks, such as launching probes towards the outer planets, conducting lunar landings when combined with the house-sized Tiangong capsule or Earth orbital operations such as the construction of space stations or modular ships designed for a voyage to Mars.

Although a mere 1.5% of the budget per year might sound like an insignificant amount of funding, like something that would be impossible to sustain any real space agency with, yet alone one reaching for the Lunar and Martian surfaces, that small percentage was much bigger than it would seem at a glance. Although the average GDP per capita of the Eurasian Union was a mere 18,000USD that seemed tiny when compared to the US's immense 48,000, the Union contained so many more people that the higher number was simply irrelevant - home to over four billion souls, the total GDP of the Eurasian Union was well over 78 trillion in comparison to the United States's 15 and a half trillion, meaning that the ESC received something in the realm of a monstrous one trillion USD, larger than some nation's entire economic output, allowing it to afford to do things that would be simply unimaginable for other space agencies...and the budget grew larger with every year that passed, not because of any additional percentage of funding given, but because of the steady expansion of the Eurasian economy. With such a massive amount of financial backing and Khan's personal support, there was no prerequisite that could not be met, no number of personnel who could not be recruited, no thing on the mission board that could not be accomplished, no goal outside their reach, and it showed; the ESC swelled with massive numbers of new workers, reaching a number of fifty thousand directly employed by the command itself and nearly a million who were employed by the various corporations and groups that supported the ESC in its missions, producing components for the Shenyi rockets and their payloads, as well as fuel, space suits and food, and the goals of the organization grew with it. The first few missions were testing their new launch vehicle under real conditions, regularly sending them up into space with missions that were slightly different from one another, always going a little further out, always carrying a different amount of weight, always changing the times in which they fired the different stagings, always testing a different configuration of boosters, all intended to ensure that the craft was as reliable as possible. Some were lost for one reason or another, but most were successful and every failure made the engineers mend another potential failure point, resulting in the ESC becoming increasingly confident in the capabilities of their craft, and so began to carry out their ambitious plans more and more readily, more certain that there will be minimal issues that could risk their expensive and time consuming payloads, such as the Zheng He deep space probe, the largest probe in human history at the size of a house and carrying a rack of Golden Record like discs intended to record some small amount of the culture of the nations that had been incorporated into the centralizing Union...but all that paled before their first true major achievement.

A manned lunar landing.

When the monolithic Tiangong VII capsule landed upon the lunar surface, it was the first time a human had been present upon the lunar surface since the end of Apollo 17, but even when the Apollo missions were taking place, there had never been so many people alive on Luna's surface or for as long as the two week stay of the six person crew. Unlike the combination of a separate lander and capsule that the Apollo program had used to send two people to the lunar surface whilst a third remained behind in the capsule in orbit, the Tiangong, or Heavenly Palace, was designed as a direct ascent vehicle, with the lander and the capsule being the exact same vehicle. This cut out the need for a orbital rendezvous in orbit of either the Earth or the Moon, meaning that only a single rocket would have to be launched and that there would be no need to dock the capsule and lander together, but whilst this played to the strengths of the Shenyi rocket almost perfectly and allowed it to use all its strength, there was one major flaw that had been taken into account from the very start of the lunar program, the reason for so much rigorous testing, and it was that a orbital rendezvous mission gave
the crew a "lifeboat" in the form of the lunar lander module that was potentially able to provide life support and a small amount of thrust in the event something went wrong with the mission, such as had happened with the infamous Apollo 13, whilst a direct ascent mission lacked that advantage due to not having a secondary stage. For this reason, a pair of specially designed emergency craft were kept in a low power state in both Earth and Lunar orbit, always listening for a radio signal from Baikonur that would rouse them from their slumber and give them the computers aboard the necessary information to be able to automatically dock with the damaged craft and offload the crew, thus hopefully negating any risk that might come from the simpler direct ascent method. But other than for this small risk, the Tiangong capsule was generally considered by the engineers of the ESC as being more than capable of the mission that it was given, and due to its immense size, it was able to carry enough supplies to the lunar surface to be able to allow the crew to stay there for more than a few hours, but for an entire fortnight before needing to start the voyage home again. In that time, the crew of Tiangong VII carried out a great number of experiments that could only be accomplished on the lunar surface, from physics experiments to be attempted in low gravity to some short term biological curiosities, all of which had either been shipped aboard their own craft or in its unmanned sister ship, but more importantly than any experiment that had been taken to the Moon was the greatest question of all - what kind of physical effects would happen to the crew during their two week stay in low gravity?

The entire crew was well aware that they themselves were essentially an experiment as to whether or not the lunar gravity was sufficient enough for missions of a longer length to be safe, because although everyone knew what happened as a result of prolonged exposure to zero gravity due to the mission logs and examinations of the cosmonauts who had served on the Soviet station Mir during its long service life or on the American Skylab, no one really knew what might happen to bone density and musculature strength in the 0.16gs of lunar gravity, even in the short two weeks that they were to stay there. As part of this experiment, half of the crew were to try different methods of maintaining bone density for the length of their stay on the moon, with the other half of the crew acting as the control - the first volunteer was to consume a calcium enriched diet, the second was to take a dosage of a medication meant to stop the weakening of their bones and the third was to wear a modified version of the Soviet-era penguin exercise suit, a special garment that contained a number of elastic bands that created tension between the feet, the shoulders and the waist, creating a force that the body could work against and hopefully maintain bone strength in the process. Another factor taken into account was the effect of low gravity upon Augments and on Naturals, in case any of the modifications of the former revealed that they were more able to resist the effects of low gravity than the latter, something that kept the mission controllers busy during the various stages of the mission as they poured over the information that was sent back to them by sensors within the cosmonaut's own suits. When the mission was concluded and the team was safely back at Baikonur, albeit after a short stay in Siberian wilderness where they had needed to fend off a pack of hungry wolves by using their survival shotgun, it was immediately clear through the use of an extensive medical examination that Augments suffered from low gravity quicker than normal humans did, their increased regenerative factor causing their bodies to respond to the lack of force quicker, but also recovered from the negative effects quicker for the same reason...something which some said made the entire testing of the three methods to prevent bone deterioration moot in the first place, but regardless of the views of the minority, it seemed that a combination of the first two methods would be the best way to proceed - the calcium rich diet of the first individual had proven able to replace the lost calcium as well as being good for morale, since much of that calcium came in the form of minerally enriched tubes of ice cream, but the true defense was the second method, which was originally derived from an osteoporosis medication and entirely practical as a means to try and slow down the process of low gravity adaptation. Thus, whilst the ECS spent just under a hundred billion dollars pursuing this field of research to the conclusion, wanting a medical remedy able to prevent the loss of bone density entirely, designing new equipment for future missions and carrying out side projects such as sending a nuclear powered rover to Enceladus, so as to explore the massive ice fields and search for the
possibility of life beneath the surface, and an impactor to Mercury, to finally determine the composition of the planet's crust (a mission that would end up giving less answers than anticipated due to the impactor striking an area comprised of solid iron) the general shift from expectation of another war to a belief in what could be a lasting peace put their plans for a network of orbital missile platforms, designed to try and intercept ICBMs, on hold indefinitely despite the fact that three quarters of the network had been completed and were merely awaiting a chance to be sent into orbit, the very task of researching and building such weapons having been the consumer of much of their budget...and of course, the Eurasians were not the only ones heading to space.

NASA, having received an increase in funding due to the Eurasian landing, carried out a manned mission to the Taurus-Littrow valley to inspect what had happened to the rover and descent stage of Apollo 17 during its long stay on the lunar surface, something that had been of interest to the agency for years, and where they placed a plaque to commemorate mankind's return to the lunar surface with the words "We returned," engraved into the surface, in reference to the words of Eugene Cernan, the last Apollo astronaut to have walked on the moon. WESA would follow not long after, collaborating with their North American counterparts by sending an experimentation lander to the surface with one of their own astronauts accompanying the next NASA expedition to the surface of the Tycho crater, continuing the trend of close cooperation between NASA, WESA, CSA and JAXA that had started with Freedom Station...and in recognition of this, ESC sent a cake ten feet in diameter to Cape Kennedy as sincere congratulations for their achievements, before suggesting the possibility of a joint mission on the lunar surface or an officer exchange, all in the name of mending ties between their nations after the war and to share their resources in pursuit of the scientific advancement of all mankind. This cooperation came in the form of the ESC using their Shenyi rockets to deliver enormous addon modules to Freedom Station, so big that they were made into multiple decks so as to make best use of the available space, providing a supply module that tripled the station's capacity and thus dramatically reduced the amount of supply ships that had to be sent up each year as well as a habitation block that gave each crewmember their own private bedroom, albeit a small one. From that point on, the ESC would also provide regular supply shipments twice a year through the use of spare weight capacity on other Shenyi missions like those intended to send probes to the outer solar system or other such small scale tasks.

Then Sanvu happened...and as the cosmonauts working on the Lunar surface looked back at the Earth in horror as they heard the news coming through, seeing the massive storm stretching across the Earth like a wound in the world with their own eyes, the new task of the ESC became as clear as it could have ever been. The organization could no longer afford to spend its funds on scientific studies of the solar system, answering the questions that had long since plagued mankind since the first human looked to the stars and wondered what was, or sending probes to the various bodies of the solar system. No, it had another mission it had to complete, and it was the guarantee that human civilization could continue no matter what happened on Earth. For years, the ESC had been using more than half of its budget for scientific reasons - the aforementioned anti-gravity adaptation pill was only one of the these projects, alongside things like scramjet engines similar to those of the mysterious "Aurora" that the United States Air Force was supposed to have, shock absorbing liquids, heat shield materials, food packing methods, engine design considerations, miniaturization projects for things like nuclear reactors and, last but not least, the "strange" division that worked on projects considered too far from the norm for the rest of the ESC to be involved, such as cryogenic suspension and other exotic technologies. But behind this was the gradual ongoing studies into the possibility of permanent settlement on an off world body, and it was this group that would be brought to the forefront and made into the ESC's primary goal. If humanity lost the war against climate change, then the only chance they would have to survive and maintain a semblance of their past technology would be through off world colonization, a second home in case anything should happen to the first, and all of the ESC's spare weight was thrown behind that task. Rockets that had been considered for other missions were reassigned to their new task, the former payloads that
ranged from orbital telescopes to trans-Pluto probes going into storage alongside the weapon platforms, and given an entirely new task; that of constructing a colony on Luna. A great number of Shenyi rockets would be launched from the pads of Baikonur, one after the other, the greatest number ever committed to a single mission and carrying the core modules of the new lunar settlement, landing close enough together that the settling crew would be able to move them into their final position without much difficulty...and at last, when everything was ready, a crew was dispatched. No more than a handful of individuals, they had the immense task ahead of them in the form of assembling the modules into the world's first offworld colony, piecing them together into what would become known as Gagarin Base, named for the first of humanity's space pioneers. Though the base was called temporary in public, there were and had never been such plans as to make a facility on the lunar surface that was only intended for a limited lifespan - from the very start, it was planned to be a permanent settlement, with the only question being how long it was until it became self sufficient and able to produce everything it needed for further expansion on its own, and this was a goal that the ESC and its monstrous budget were fully committed towards their task, no longer "playing around" with side projects, as shown in the sheer number of rockets that would begin to make lunar flights, carrying more supplies, more tools, more machines and more modules. The equivalent of three hundred billion dollars would soon be invested in the lunar colony every three months, a massive investment made in a short amount of time to make the colony able to support itself without outside assistance as quickly as possible, in case something dire happened to the ESC and to the Union that it was a part of on Earth, and this effort would be redoubled following the damage brought to the ozone layer by the mistake of using sulfate aerosols. All this meant that a mere five years after Sanvu devastated Southeast Asia, the world's first offplanet outpost was self sufficient to the most basic level, able to produce its own food, air and water without the need for resupply ships, but despite increasing in population from four to twelve, it was still heavily dependent on Earth for spare parts and machinery, and so would receive a number of workshop modules in the years to follow as the population doubled and then doubled again, to the point that the colony would start to use blasting charges and mining machinery to bore into the wall of the permanently shadowed crater that was the home to the colony, planning to build deeper into the rock so as to be able to pressurize the interior and start a rapid expansion into the lunar crust, using the ores that were found there to further expand the colony. But Gagarin Base was not the only settlement to call the lunar surface home - as if watching to see whether the Eurasians had found the right method and whether or not their colony would be able to survive on the lunar surface, other nations would swiftly follow in the colonization of space, with their settlements ranging from small, single structure outposts meant for three with a fully fueled craft not far away should they need to return in a hurry to full blown settlements similar to the Gagarin Base in design and function.

But the ESC would not stop there, not when the very future of human civilization was seemingly at stake. Bringing forth their mission timetables by several years, putting them on the bleeding edge of technology capabilities, they began preparations for something that so many others had dreamed of for so many years - a manned mission to Mars. It would require entirely new scales of orbital construction on a level that few had imagined seeing in their lifetime, a large interplanetary craft assembled from multiple modules able to sustain the crew on what would be the longest journey ever undertaken in the history of spaceflight, one that could potentially take years to accomplish and which would need engineering of the highest caliber in order to avoid a dangerous malfunction that could be the death of the ship's entire crew, so far away from Earth that there would be no way for a rescue vessel to arrive before the ship was lost. No, everything had to be perfect if the mission was to be success, and that meant rigorous testing - although the craft's ground modules were finished relatively quickly for a project of such magnitude due to the sheer amount of money that the ESC was willing to invest in the process of doing so, and the craft's modules launched into orbit and assembled without incident, the ship still spent an entire year in orbit of the moon so as to be able to carry out extensive tests in an environment where the crew would be able to be rescued should something go wrong, the ship so large as to be able to be seen at night with nothing more than a
good pair of binoculars everytime it passed in front of the moon...until one night the great ship, the Eurasia, could not be seen, news all around the world saying the story of how the first human mission to Mars was finally getting underway, its massive engines putting it on a trajectory towards Mars. It would be a long voyage, one that was even longer for the crew who had to put up with being away from their families for so long, protected from the freezing vacuum of space outside by nothing more than a few layers of aluminium plating and insulating material, and it was not one that happened without moments of utter terror on both ship and surface, as evidenced by the time a micrometeorite destroyed the ship's backup communications antenna before bouncing off the hull not far from the reactor casing, leading to a nailbitingly intense EVA mission to inspect the damage that had been done. But once the crew arrived, once they raised the Eurasian flag of the "Flower of Earth" atop Olympus Mons, the celebrations could not have been more sweet and powerful, with countless Augments across the world considering it to be one of their first and greatest achievements.

A basic computer image of the first interplanetary spaceship, the Eurasia, during the early design phase. A nuclear powered spaceship propelled by massive chemical engines, the greatest of their kind ever built, the Eurasia was a modular spaceship constructed explicitly for the long voyage that was necessary for any mission to Mars, the Eurasia would allow the first human beings to set foot on Mars, but would also capture the imagination of a generation in the process in the same way that the Apollo program once had, motivating thousands of children to look skywards in wonder and curiosity. So popular was the Eurasia and its voyage towards Mars that the Eurasian Space Command's own model line, a massive array of desktop miniatures in which every single ESC craft spacefaring or otherwise could be found, constantly sold out its line of Eurasia module kits, so much so that the organization had no choice but to license off a brand of "ESC Approved Merchandise" to various corporations across the world in order to meet demand, acting as a form of unofficial public outreach program.

Swiftly following this monumental achievement was another volley of Shenyi rockets, carrying the biggest boosters ever designed by man, delivering a large number of habitation modules to the
Martian surface, similar to those that had been used to establish the lunar colonies, so many fired one after another that any settlement would be self-sufficient from the start, even dispatching a large workshop that would allow those that were there to produce the spares they needed from the material stocks that came with it, thus allowing those there to immediately set to work creating anything they might need to survive with the least amount of aid from Earth possible...and when everything was in place, those modules lost along the way replaced by additional launches, Eurasia was refitted so much as to almost be a completely different ship, much larger in design than the original version of the craft, able to carry twenty bold and skilled individuals to Mars, and so it did. Everyone aboard knew that there was little chance that they would ever be able to walk upon the Earth again because of the immense difficulties in travelling to and fro without even taking the gravitational adaptation into account, despite the effects of medication in reducing the effect, all of which meant that only those who were truly dedicated to the ideal of building a new life on a new world were willing to accept the mission...and so they went forward with the knowledge that they would never go home again, just as how those first few groups of pioneering men and women had exited Africa millennia before at the dawn of the human species. There, after disembarking the colonists, the Eurasia would settle into its resting place in Martian orbit, waiting in a low power state should the settlers below have need of the ship's systems or a need to try and return to Earth again for whatever reason, but from that point on, the only shipments that the Martian colony would receive were rare arrivals of goods from Earth, particularly the luxuries that could not be made on Mars itself - coffee, tea, sugar and sweets and chocolate and many other foods, alongside entire new machines and vehicles. From there, things began to slow down a little, as the Green Revolution showed that humanity could and would look after their home, thus allowing the ESC to slow down and more properly commence with exploring space rather than hurriedly colonizing it, the enormous issue of travel time slowing things dramatically - it was estimated that it would take a century before humanity could properly start filling out the solar system, even with the immense population growth on the homeworld itself, simply because of the great distance between one world and the next.

But just as the development of viable fusion technology revolutionized the economies of Earth, so did it revolutionize travel throughout the solar system, allowing humanity to travel at speeds never before seen...and as the first fusion powered spaceships began to travel throughout the solar system at speeds far greater than those of the fastest chemical rocket, observers unknown to all mankind lied in the background, watching with great curiosity from afar.

And they noted that humanity would be joining the interstellar community sooner than had been anticipated.

****

End of Part 2, Section 3B!
Life Inside the Eastern Alliance

The Eastern Alliance vs the Eurasian Union - A Box Inside a Box

Although the Eurasian Union had, in the eyes of most people from outside the organization's domain, replaced and absorbed the original Eastern Alliance and all its own constituent components, in reality the superstate that had first risen as an amalgamation of the various Augment controlled nations during the war was still around, acting as the backbone of the massive alliance block in the exact same way that the Russian Soviet Federative Socialist Republic had once been the core member of the USSR and the Warsaw Pact, despite many thinking it had been simply subsumed into the larger entity upon its founding. In reality, the Eastern Alliance was the very heartland of Khan Noonien Singh's state, the location where his authority and the realization of his ideals were greatest. Born out of an alliance block between the first Augment rulers, it had originally been intended as nothing more than a means for them to coordinate their war effort with one another during the first part of the Augmentation War, and had near enough torn itself to pieces during the mid-war crisis when the tide had begun to turn against them, its former members turning against one another, out of the need to obtain strategic resources for their own armies, out of the hope that they could somehow barter a deal with the advancing allies, out of the fear and paranoia of betrayal by their former brothers-in-arms. Would-be allies assassinated and sabotaged one another, even giving the war plans of their own allies to the enemy in the hopes that the UN could do what they could not, and the growing chaos made their situation all the worse as the very stability of the nations that comprised the alliance began to come into question, every so called rebel and protester shot bringing out ten more who were committed to their cause. It was this strife that would have been the killing blow for the mighty alliance block then and there, torn apart from within whilst its enemies did so from without, had Khan himself not stepped up to the task of turning the alliance upon its foes once more. Through car bomb, sniper and poison he assassinated the worst of his so called allies, the bloody butchers and paranoid madmen and ambitious tyrants, taking the opportunities that the resulting power vacuums created to assume command of more and more of the allied armies, all whilst rallying the less powerful and more content augments to his side in a way that would have seemed familiar to a king and his vassals. Less rulers and less dissenting voices bickering had made the bloc stronger and closer, a single hand guiding where there had once been many, but it would be the flames of war that would forge the loosely knit alliance into a confederation of nations able to survive the end of the war, no matter which way it went.

But even with this growing sense of camaraderie, this small embryo of a new national identity, the Eastern Alliance was fighting against half the planet and losing, one ditch and one street at a time, its limitless manpower and immense industrial base just not enough to match the unending, hammering blows that came far too quickly for them to be able to recover from their losses. The enemies arrayed against it on all sides were too many, its own forces too few, the opening of more fronts too soon - the chances of true victory were remote and defeat appeared inevitable, a mere matter of how many men would be taken to the grave with them before the collapse.

Yet, despite the odds, the Eastern Alliance won. Not on the battlefields or in the factories, but in the laboratories. Using the very same knowledge of genetic engineering, the very same procedures that had set the world on the path to war in the first place, they created a bioweapon that would win the war in a stroke, not by killing billions of people, but by targeting the very thing that both sides were
fighting for: the generations as yet unborn. It was a program so classified as to be beyond top secret, to completely lack a paper trail or anything else that could give away its intent, or even its existence at all, instead supplied through other, less secretive programs, little by little. For Khan, it was very much a last ditch roll of the dice, one final gamble to try and win the war when all other options were unavailable and when some few were throwing around ideas of trying to abandon the planet by spaceship or other, similarly mad schemes...and whether by luck or by a miracle, everything fell exactly how he needed it to fall. Once the genetic augmentations were dispersed worldwide, once peace had been secured and the guns silenced, Khan had the thing that he needed most of all - time. Time to consolidate his power base before it could become unstable, time to quash rivals who could sully his image by association, time to mend the damage of the war and to patch up his appearance in the eyes of the common man. The taste of victory, even one that had been barely bought at all and came with a hefty cost in men spent during the counteroffensive, was enough to mend many of the cracks that had started to form in the augment alliance, but not all of them, and a few of the states, those led by augmented rulers who were more opportunistic in nature but wise enough to realize the benefits of combining arms for their own sake, began drifting away from Khan, either out of his direct control as puppet states or out of his influence.

Georgia, for example, had fought alongside the Eastern Alliance during the war, its augmented ruler being a hardline Orthodox Christian with a powerful hatred for the "traditional" enemy, the Ottoman Turks - not seemingly bothered by the fact that the Ottoman Empire had been gone for nearly a century - began to drift away from the alliance of augment rulers following the end of the war, no longer seeing an alliance with Khan as necessary, and began to drift away and even become antagonistic towards the other Caucasus states such as Azerbaijan and Armenia, both of whom were still members. Though the ruler of Georgia was only one man, and though he died not long after his withdrawal from the alliance following severe injuries caused by an unexploded bomblet that had buried itself in the grounds of the presidential palace, his actions were but a symptom of what was really happening - it was conflict that had brought the alliance together, and a lack of it was threatening to take it apart. With it obvious that another war wouldn't be coming (both sides having been spent by the previous and now weary of another conflict as the rebuilding process began and the rush of victory dulled down to the realization of the price that had been paid for it) Khan realized that the main flaw was that the national identity that had started to form from the combined alliance was still far too young a force to be able to stand on its own, too weak to be able to counter existing national forces, and that if the massive block was to last as a force, to combine into a proper superstate, certain measures had to be passed...and sooner rather than later, lest too much damage be done that the massive alliance was reduced to a shadow of its former might and Khan back to the start of his ambitions.

And it was for as much that reason as it was for the matter of expanding influence that the Eurasian Union was born. The massive continental union was thus a means for the fracturing alliance to be held together long enough for the inertia of its own existence to be able to set it in stone as a singular nation rather than as a collection of nations, like using a splint to mend a broken bone, as well as a means by which Khan could influence the post war world without needing to resort to force, an incredibly toxic tool due to the conflict averse sentiment of the post war world. With the founding of the Eurasian Union accounting for the possibility of multiple "speeds" for the process of entering into compliance with the laws and policies of the titanic organization, those member states who stood at the fringe were more or less living a watered down version of life inside the Eastern Alliance, where the many disparate components of the block were starting to assemble into a single entity. Social engineering was a must to speed up the process to a practical level, and though a rare few realized what the goal of such policies were, most remained unknowing and unaware of what they were actually designed to give: a single currency made it possible for one to travel from Moscow to Beijing without ever needing to exchange their money for another kind, internal freedom of movement allowed them to do so without ever once needing to cross a border of any kind,
educational travel permits allowed students to visit any university or college within the block for tuition and a continental media organization, the Eurasian Broadcasting Network, allowed for a unified front for news and journalism to preserve their perspective...though all these things served to make reconstruction an easier and less painful process, allowing resources to be used most efficiently and better distributed between the war torn regions and the economy resuscitated, the true aim of them all was the creation and nurturing of a true Eurasian identity, a unified currency and market causing the many economies to be weaved together to a level nearly inseparable from one another, freedom of movement resulted in the migration of large expatriate communities from one nation to another in a process that blurred the lines between one nation and another and would complicate any process of leaving the union whilst creating a strong foundation for integrationist organizations to rally around, just as those who had grown up with the benefit of being able to travel to any place of higher learning in all of Asia for their education and with the state media giving a subtle slant towards the union, its presenters describing events in the context of effecting the entire nation and referring to it as a single entity rather than a collection whilst the fictional characters of its entertainment shows had their characters place their Eurasian identity first over any other.

All this meant that as the nations were spun closer and closer together, like a rope weaved from hundreds of threads, their populations were already beginning to integrate with one another, and would give no significant barrier to the process, and even nations that overthrew their augmented rulers or saw them come out of power for whatever reason chose against leaving the alliance block to the sheer number of benefits it gave them, or even accelerated the pace of their unwitting annexation. Khan had built a government that heavily favored the civil service, the bureaucratic officials and the governmental departments, where rigorous testing and "quality control" guaranteed that one could only rise so far as their talents, abilities and loyalty allowed them, and slowly, slowly, the power of the individual nation state was sapped, little by little, governmental functions that had once been the mainstay of the individual nation state were slowly transferred to the alliance...and by the time that the most content and least observant of Khan's former allies realized that they were on the path to become nothing more than a figurehead atop his meritocracy, the more cunning and paranoid having been "dealt" with long before, it was far too late for any of them to be able to stop it, a generation of augmented individuals having grown up with Khan either as their direct leader or as the head of the Eastern Alliance as a whole and become accustomed to his leadership and welcoming of the changes that he brought, meaning any attempt to disengage from the alliance would be met with stiff and even violent resistance from their own population. All that meant that by the time the 2020s came, the Eastern Alliance, the beating heart of the greater union, was well on its way to total unification, as shown in the greatest of ways by the tiniest of details - the proper means of addressing it in encyclopedias. At first glance, it would seem to be a minor thing, and yet two simple phrases showed how far the EA had come from its wartime beginning: "The nations of the Eastern Alliance are in a union of states" became the "the Eastern Alliance is a union of states," the change from plural to singular showing that there was now no longer any real distinction between the corestates.
A new Eastern Alliance tank on training maneuvers, following the reorganization of the separate armies into a single fighting force. Armed with a 120mm cannon, protected by a composite armor lattice containing nuggets of depleted uranium and designed for easy of maintenance, this model of tank would become the standard fighting vehicle of choice for the armored units of the Eastern Alliance, the Eurasian Union and many of their friendly powers.

By that point, it was true - the militaries were already so heavily integrated as to be using the exact same equipment, from vehicles and bullets to camouflage patterns and ration kits, the command structures were in the process of final combination into a single organization, and even their training was standardized across the entirety of the Alliance, taking place in environments that ranged from the snowy tundras of Siberia to the lush jungles of Malaysia, the hot deserts of Kazakhstan. So were thousands of other things that could have made one nation different from another, from the laws and signs of the road to the same approaches to the problems of infrastructural development and national healthcare, all ultimately resulting in the nations being *de jure* integrated into one another as much as they were *de facto* united, thanks to the rise of the Precinct system.

**Cold but Fair - Internal Politics and the Precinct System.**

One thing that had always been a part of the Eastern Alliance from almost its earliest incarnation was the extremely disparate nature of the organization where it came to the strengths of the different nations within, countries that ranged in size and strength from the titans of China, Russia and India to the much smaller countries of Vietnam, Georgia and North Korea. When the war was over and won and the Eurasian Union founded as a means for the alliance to be glued together more solidly on the path towards a lasting integration into a single, unified state, there was the obvious issue of just how such a state was to be governed with any real effectiveness, a question that grew more and
more looming as the other Augment rulers of Asia became less and less relevant in the greater scheme of things and more and more power ended up in Khan's own hands, and it was a question that needed answering quickly, lest the immense alliance end up tearing itself apart under the strain of its own governance. A massive singular democracy was one possibility, with an elected parliament of sorts, but that ran into the natural issue where the immense gulf between the great powers of the bloc and the small ones would result in the latter being marginalized and thus ignored, or as Khan himself believed, the tensions of a party based political system could result in the nation being pulled in a multitude of different directions or be polarized so greatly that the entire country would be torn in two by completely opposite candidates with no middle ground...and, as one of his own personal complaints about the system, it was far too easy for it to be corrupted by outside influences, either those of a corporate nature using their great wealth to "grease" the wheels of government with bribes, or by outside powers seeking to exploit the democratic nature of the system with intelligence gathering, artificial scandals and other matters.

But though a parliamentarian democracy had been rejected, Khan himself considered the possible alternatives little better upon proper examination - a direct democracy would require the construction of an immense network of communications systems to allow every citizen to be able to vote, whilst also being unable to compromise between two possible alternatives due to the impossibility of engaging every single citizen in political discourse at the same time, whilst also running into the exact same issue of different regions having different political values and thus a different tendency to vote on matters, resulting in the possibility of an issue that affects twelve small countries being instantly brought down by a single nation with a larger population than all twelve combined but with only minimal consequences on them in doing so, whilst even a dictatorship where all the power was consolidated in himself, where he would be Emperor of Asia in all but name, was unappealing and terribly flawed, simply because of the immense size of the Alliance and the Union meant that it would be nigh impossible for a single man to have any meaningful control of the entire thing and would thus need appointed officials, thus opening the door to cronyism and corruption and turning the bloc into the world's largest protection racket, or democratically elected officials that would invite all the flaws of that particular government and then some due to the difficulty of actually providing proper oversight, whilst also risking the resurgence of sub-governments inside the whole that could eventually become splinters and breakaway states.

Thus, an entirely new way of government was needed, something never done before, and it came in the form of the civil service, those countless numbers of unelected officials who managed the day to day operation of the nation and kept the ship of state sailing on course, no matter what the destination of their elected leaders or military rulers commanded them to go to, a large organization already present for the running of the Eastern Alliance and often delegated to by the more decadent and hands off warlords who would rather spend their lives in leisure than deal with stately matters. The result was an ideology of a kind that had never been tried before, something that would eventually be known by a number of names - Eurasianism for its deployment across the breadth of the Union, Khanism for the name of its creator, the Fourth Position to express its unique design from all other forms of previously tried government, bureaucratic dictatorship being one that tried to describe it best, but whatever name was used, they all described the same thing; a government where the civil service was not only an organ of the state, but where it was the state. The structure of the resulting government was simple, best described as being a series of boxes stacked upon one another, with the nation as a whole at the bottom and the smallest village at the top: any and all areas of the country were divided into local administrations, ten of which were put under their regional administration, ten of which would be placed beneath a sub-precinct, ten of which would be placed within the precinct, ten of which create the nation as a whole when combined together, resulting in a tier system of governmental agencies that would not be unfamiliar to the employees of a particularly complex bank or the officers of a large military, where the nation could be compared to the front, the precincts as army groups and the sub-precincts as individual armies, the regional administrations as corps and the
local administrations as the division. These administrations were all carefully crafted and with unfixed borders, intended to be approximately equal in population and overall economic value to every other administration of the same level, causing them to vary drastically in size and shape, but one of the primary reasons for such an action is that the inherent equality of all local administrations meant that the government could not overly favor any one area over any other when it came to the allocation of state resources, or result in one region becoming disproportionately powerful or any administration becoming overburdened by too many issues to deal with, but most importantly of all, it was to make sure that no region would ever be forgotten or neglected. These tiered administrations were intended to ensure that issues could be properly delegated to the correct scale of authority, with issues that were too minor for the attention of a regional administration, such as a poor quality road or a burst waterpipe, being handled by the local administrations who had the authority to pass an issue too great for their resources and authority, such as the need for a new motorway or bridge, to those who had the proper ability, resources and authority to both plan and carry out the necessary actions. In carrying out said actions, the administrations were fully able to deal with them in any manner deemed necessary other than by breaking the law, the haste of which had more than a few individuals saying that it was like a machine in activity: when it was on your side it could move heaven and earth, but when it was against you, it would be you who would be moved...something that had been done quite literally on one occasion in order to make room for a road bypass after being blocked by a single individual who refused to move or to sell their home, only for them to return from work one day and find their house on the other side of the street, completely intact, having been extracted out of the ground in a single piece, foundation and all, and placed on the other side of the street in a prepared hole before being reconnected to the water and sewage systems. But a bureaucracy that was as quick to act and respond as Khan's creation was needed a vast amount of manpower, people to act as governmental agents and investigators, social workers, problem solvers and statisticians, as well as leaders willing to make hard choices based not on political agendas or due to ideology, but on hard facts and do so with cold pragmatism. Naturally, the nature of the government prevented simply holding elections to see who could fill the position, indeed, selecting the most charismatic individuals of the region or whoever received the most votes or had the most men supporting them to rule was exactly the sort of thing that the bureaucratic system was designed to stop, so the approach was to simply recruit from the population as any other government agency might. The civil service would always show up at school job fairs alongside the other parts of the government, encouraging children and young adults to consider the possibility of a career as a government official just as the police force, the health services and the fire brigade did, but one could not simply walk into a government agency, hand in their resume and end up governing an entire province, far from it. Instead, joining the governmental service with the aim of becoming a leader was almost the equivalent of entering higher education - it had specific campuses dedicated to teaching the science of leadership, to teaching those who went there how to separate political ideology from pragmatism, the use of statistics is as a guiding tool, and it was all done with long classes and rigorous examinations and testing meant to separate the wheat from the chaff, those who were truly suitable for an administrative position from those who were suitable only to be their deputies and advisers. Novel solutions to problems were praised and approved, in the same way that novel tactics at a military academy were, and competition was deliberately downplayed through the use of random teams and random assignments. Once the final examinations were conducted, the new members of the bureaucratic government were released to their positions across the nation, but no matter how high they scored on the exams or how great they did overall, none would ever get a position higher than that of a local administrator immediately after exiting the academy, instead having the requirement of a certain number of years in their present position first before they were suitable for promotion to a higher authority, and even then it was not certain, entirely dependent on their performance in the exams that were there to show whether or not they were ready to advance on to greater things, every level becoming more and more difficult to pass, with the highest levels letting only one in a million applicants through as suitable for the position of running an entire
precinct...something kept in balance by the simple fact that most members of the civil service would leave their position either in a retirement celebration or in a coffin, no limit being placed on how long they were allowed to serve.

But in reflection of the great responsibility that was placed upon each and every member of the government structure, so was a great deal of trust...and anyone who broke that trust, whether through corruption or willful sabotage or any other means by which a member of the government could fail terribly in their duties, fell further than any other citizen ever could, for they abused the power that was given to them and in so doing hurt the countless numbers of people that were placed beneath their care and who trusted them in turn to keep their livelihoods safe and secure. That meant that the death penalty was unquestionably on the table for particularly gross cases of corruption and embezzlement, and they were under spectacularly close scrutiny to make sure that nothing of the sort was occurring, but other than matters of political corruption and the government's surveillance of its own politicians, there was one major rule that could never be broken; an administrator could not be given a position in his home region, simply because the risk of having a greater loyalty to it than to the state, to be unwilling to make the hard choices that were sometimes necessary for the good of the whole, to be able to abuse their power for the sake of individuals or businesses that were influential where they had grown up, all were too great a danger of throwing off the intended function of the government and resulting in inefficiencies and corruption. This had the unexpected side effect of actually drawing in more recruits, those people who wanted to get away from their home by whatever means necessary, as well as those who were curious about distant lands and eager to have a chance to visit places far from what they know...and with the ability for people to be transferred sideways to equivalent positions in other regions at their request at the same interval as for promotions, there were always new positions opening up and always a demand for new talent, making it one of the largest single employers in the entirety of the Eastern Alliance, as well as the Eurasian Union.

Personal Life inside the Eastern Alliance - New Rights, New Houses and New Animals
The Cities of Tomorrow

But there was far more to life inside the Eastern Alliance than the things brought about by the process of centralizing authority, and for the average citizen in its core territories, things were, comparatively, going rather good. The war had ended long before it was waged on Khan's doorstep, saving countless numbers of towns, villages and cities from being destroyed in the fierce fighting of urban battle, saving an unimaginable number of people from becoming homeless refugees, whilst the survival of much of the national infrastructure and transport capacity, the power plants and the factories that would have otherwise been destroyed in the fighting, meant that there was little damage done to the vital utilities of electricity and water supply.

Together, that meant that life quickly returned to the pre-war state due to so little reconstruction work needing to be carried out, but things did not stay that way for long - with the economy rebooting with great strength due to the destruction of most of its competitors and receiving cash injections in the form of war reparations, Khan was in the position to start improving his domains in the pursuit of his ultimate goal...and so he did. In the great cities of India and South Asia, a great deal of work was carried out; the construction of massive new and complex sewer systems and water treatment plants kept the streets clean and the water pure, wiping out the easily preventable illnesses of cholera and dysentery and all the other diseases that so plagued the developing world, whilst a more reliable and safer power supply guaranteed the stability of the electrical grid and protected those who might be hurt should it malfunction and cause blackouts or fire. The advent of widescale deployment of genetically modified organisms and vertical farming gave the average citizen an amount of food that, though not abundant enough to encourage waste or obesity, was plentiful enough that one would never need to go hungry, and diverse enough that malnutrition was increasingly becoming a thing of
the past, and though the average man might never own a car, an individual automobile an extremely expensive luxury in the post war world, public transport was sufficiently developed enough that there was no particular need for one, not when buses, trains and subway systems were common enough to get one within a few minutes walk of whatever their destination, in a timely fashion and for much less than the price of gas spent by driving their own their own...and as always, there was the ever rugged, ever cheap bicycle as an option, with even the most expensive bicycles needing no material still rationed or limited in supply and the average so strong a machine as to be able to take years of riding without any real wear. Even luxury items such as televisions and game consoles and computers began to become truly common, with every house typically having at least one of the them in some room or another, sometimes produced in either the EA or the EU or even imported from across the ocean from the US as relations began to warm once more, but it was not on the inside of the home that the greatest change was seen, but in the form of the house itself. Massive housing construction projects, first owned by the state and later auctioned off to private ownership for a princely sum and rent cost guarantees, constructed enormous tower blocks full of small but high quality and affordable apartments, completely supplanting slums and ghettos and shantytowns in a model of development that would be spread across the entire length and breadth of the alliance.

But with humanity’s population skyrocketing at a pace never even considered before, it became increasingly obvious that the current designs and concepts for the construction of cities was increasingly flawed. They expanded in a far too organic manner to be truly perfect, always developing a growing pain of some kind or another, ranging from the problem of the road layout having never been designed for such a great number of people, overly built up areas full of smog and other pollutants, inefficiencies and urban decay to to the utilities system being a difficult and expensive to maintain labyrinth. With many of the world’s cities ruined or destroyed, it became possible for architects and city planners to start from a mostly blank slate, with all the benefits of modern technology on their side to make achieving their dreams and visions easier, with the result being an entirely new breed of city, a living city, of clean streets and abundant greenery and shining spires, a new kind of urban environment for a new century and a new millennium. These new cities could only be built from nothing, so as to maintain their inherent design that made it possible for them to accommodate for massive amounts of growth, and as the damage upon the environment caused by regular city living became more and more apparent, it would become clear that the new generation of "Century Cities" would be able to drastically reduce the ecological footprint through sustainable planning and the most efficient usage of the resources at hand in a combination of architecture, ecology and art. Buildings were crowned with roofs of solar panels and carefully planned gardens that needed no maintenance once created, electric cars and public transportation were plentiful with charging points outside every building, restaurants and markets would stand besides vertical farms and have bountiful supplies of fresh fruit and vegetables at all times even in the busiest part of the city centre, some few apartment blocks even having their own integrated food supply that could have fresh produce delivered directly to the window by automated drone quadcopters, the cost of their purchase automatically added onto their rent. This new breed of city would gradually supplant the older model, with some large and pre-existing cities being gradually demolished, little by little, and converted to the new design in a process that could take decades to be completed, with only the important landmarks and historical structures being considered important enough to be preserved during the rebuilding process.
Three images of a temperate Century City, showing the abundance of greenery even atop of buildings, the use of more efficient water features as decoration in place of more powerful fountains, the integration of street lamps directly into the road material itself so as to guarantee their visibility even far down the road and the clean, crisp architecture that would become the standard look for human construction.

Though these super cities would first be found in Western Europe, the design principles employed in their construction would quickly spread worldwide, and be found across the world as the very image of true prosperity, a goal towards which the cities of all nations could look towards for inspiration and to aspire. But the design principles and aesthetic of the Century Cities would eventually spread beyond Earth and to the rest of the Solar System, first appearing in the underground settlements of the lunar colonies as the colonization of Earth's closest neighbour properly began, becoming a clear sign that any offworld facility was not merely a mining base or a research station, but a colony intended for permanent habitation...but there and on Earth, they would also become a symbol of the difference between the have and have nots. It had always been a part of human history for cities to rise and fall, and not even the fastest administration or the most talented builders could raise a city overnight, a simple fact that meant that only the most important of all cities could be brought up to the modern standard at a time, with the uncomfortable meaning that some cities, those that did not appear naturally as a result of good terrain and abundant natural resources but as the result of special circumstances that no longer existed or due to proximity to other industries that had long since closed their doors, began to wither away. One particular example of this process of rise and fall was Detroit, a city that had been the heart of the American motor industry and the very image of industrial power, but had since fallen into decline due to being overly dependent on a single industry even after a short lived resurgence brought about by the war effort. With the city losing almost one hundred and fifty thousand people per decade since the end of the 1950s, it generally looked as though the city would be set to fade away as a relic of a bygone age, surrounded by the decaying ruins of old factories and fields of suburban houses that had fallen into disrepair and become slums, the city attempting to contract itself through the demolition of the dead districts...and yet, despite such a horrid condition, the motor city did not only continue to limp along, but underwent a complete resurrection brought about by the decline of Las Vegas due to the effects of climate change upon the desert city and the problem of water security in the southwest states.
But what was Las Vegas's loss was Detroit's gain, and thanks to having the advantages of a massive transportation network built during the city's glory days, immense supplies of fresh water in the form of the neighbouring Great Lakes, an existing and casino friendly tourist industry and a pleasant climate well suited to the leisure industry, the motor city did not only recover, it surpassed its former heights and would rise to over two million permanent inhabitants by 2030, with a great number of hotels and mega-casinos bringing in tens of millions of visitors per year, the increased strength resulting in Detroit becoming one of the first true Century Cities in the entirety of North America...all whilst the world famous Las Vegas Strip dried out and died, the city's population migrating away to other more hospitable regions whilst some few thousand, too stubborn to leave, eked out a living by selling memorabilia and souvenirs to those who came to visit and see what was left of the City of Lights, a pale imitation of its former self that was gradually being retaken by the land, looking more and more like the ruins of some forgotten empire than a city that had been bustling barely thirty years before.

The Rights of Man, Civil and Economic

But even greater than the development of modern cities and a drastically improved quality of life over what was there before was the one thing that was least expected of all, something utterly unimaginable to those who had so quickly condemned Khan as another augmented madman aiming for global domination...the liberties he allowed his citizens to live their lives how they saw fit. Though the political system was remote and allowed little opportunity for the common man or woman to take part other than by petitioning their local administrators, the civil liberties of the individual were remarkably well developed: gay marriage was not only legalized and available in any town's governmental bureau, done with a form that took three or four minutes to fill in, but gay individuals themselves were protected under law so that any act against them due to their sexuality was classed as a hate crime, making them be treated far more seriously than it might otherwise be due to the dangerous precedent it might set in what was called, by most governmental agents, the "dominoes of hate" by which one unpunished action could embolden others into taking action and set off a chain reaction of hate crimes. Similarly, transexual individuals were also recognized by the government...as whatever gender they preferred, with transition procedures available free of charge at any Eurasian Health Service hospital capable of carrying out the surgeries - and though the number of EHS hospitals was initially rare due to the expense, making it difficult for an individual to reach such a place, the ever increasing number of medical centres as the Alliance and the Union became stronger and started to properly strike at their weight made it more and more available to the masses - with even a number of governmental genetics research facilities being given a mandate and permission to study the feasibility of artificially growing the reproductive organs and their development, so that a transgender individual might be capable of undergoing a complete transition and be as capable of having children as anyone else might. The personal freedoms of the individual extended so far that one could even buy the least dangerous recreational drugs directly over the counter of their local chemist, something that outright destroyed the black market for them and for the drug trade, even though their impact upon an augmented human being was often so minor that there was little purpose in consuming them anyway, their bodies able to purge it from the system far quicker than that of any unmodified human being and thus affected by them for only a short period of time, if at all.

On the matter of free speech, things were similarly liberal, but there was a clear point where one had gone too far, an unspoken rule that resulted in the government beginning to pay close attention when broken, and it was not the act of criticizing the government or its policies, it was the act of inciting others to do the same. One could call Khan the worst possible things that could come to mind or denounce the government as a cold heartless machine or even gather together a number of
likeminded individuals to debate with, and do all three without so much as even a worry of anything happening to them in reply, but something as simple as handing out a few leaflets urging other people to "wake up" and "see the flaws of the world and revolt" or a hundred other possible phrases was enough to draw the attentions of the Internal Security Agency, or the ISA, who always kept a watchful eye out for such things as potential recruitment tools for terrorist organizations of all shapes and sizes. The main challenge with it, however, is that the line as to what is simply condemning the leader of the nation and what is inciting unrest is one that is extremely blurry in nature - is someone saying to their friend in a coffee shop that the Precinct system is bad attempting to disseminate their ideology, or is it just innocent smalltalk? Was a poster that mentioned that there would be a protest in front of a local administration office in response to their decision to build a motorway be or not be something to be investigated, simply because of the writer's choice on whether or not to include a line asking people to be there on time? It was practically impossible to find a perfect middle ground, and so the ISA tended to be fairly lenient on the matter, so long as one did not go too far with their words; asking people to attend a protest was fine, asking people to rise up and smash the state was less so and a fast track to ending up on a government watch list. There were other sensitive matters that were able to draw potentially unwanted attentions to those with less than legal aspirations or simply on those who did the wrong thing at the wrong place or at the wrong time - too great an interest in sport shooting, for example, could be considered a sign of an individual trying to practice their marksmanship to maximize the bodycount of a mass shooting, whilst buying ammonia and bleach in large quantities could be considered as an attempt to gather the resources for a chemical attack, when in truth the former could simply be the action of an individual doing a hobby they enjoyed or practicing for a sporting event, whilst the chemicals of the latter both had completely valid uses for cleaning.

Thus, to get any real interest from the government other than a mere passing curiosity, one had to be doing something particularly interesting - continuing a suspicious act for a lengthy amount of time, or in combination with another suspicious act. An ideal example of this would be an individual who was practicing their sport shooting at a proper firing range, retreated into the countryside regularly, published or viewed large amounts of political media and was known to be connected to persons belonging to an existing organization or potentially in the process of creating one of their own...and when doing such a thing, the ISA would not only watch and observe passively, such as through records of purchases and through footage of public CCTV cameras, but by placing them under active surveillance as well.

On the economic side of matters, things were similarly liberal, but were restrained in certain areas for the good of all. Any individual was freely allowed to start up their own business, no matter what it was, so long as they had the proper licenses and papers to ensure that they fully understood the responsibilities of running whatever business they wished to start and any legal matters that might concern them, with there even being a business grant system in place to help encourage the growth and success of small businesses, such as grocery stores and workshops, all of which could get the assistance they needed to get started directly from the state. But the regulated part of the economy was also the most vital - the utilities. Considered more than critical for the the survival of the nation and its people, power stations, water purification plants, sewage treatment facilities and the communications infrastructure were all typically state owned services provided and paid for via corporate taxes, so as to guarantee their reliability and quality. But those private organizations active in any of those categories, despite often being under the closest inspection by the government that was always watching for any sign of failure in carrying out their responsibilities, were also often the recipient of large subsidies and government support - a privately owned power station could stand to make an immense sum of money in little time if it provided its priorly agreed services to the letter, but could have an army of lawyers coming against them if they ever so much as forgot to sweep a single chimney on schedule. But other than the most regulated sector of the economy, the government was generally willing to leave the large corporations well enough alone, so long as all relevant laws were
properly followed, knowing better than to prod the golden goose with a stick whilst it was in the
midst of laying its eggs...but the initial diplomatic isolation of the Eastern Alliance at the start of the
new century usually meant that it was practically acting in an almost protectionist manner due to
having few international friends, yet alone ones willing to make a free trade agreement with it, but
such initial reluctance to resume relations with the bloc dissipated as it became clear that the Eastern
Alliance, now the core element of the Eurasian Union, was going to stay and not disappear simply
because some wished it so, and that trading with what was perhaps one of the most intact economies
of the post war world was likely to be the only means of a fast recovery, even with the aid that Khan
was willing to offer to rebuild his fallen enemies and prevent another war.

The Genetics Industry

But one sector of the economy that was entirely state controlled within both the EA and the EU was
the biological and genetics industry, simply because of the outright catastrophic damages that could
result from the improper planning, preparation and the procedure of carrying out the delicate work, as
well as because of the intense regulation of the laboratory machinery and equipment necessary to be
able to do any real genetics work. Even the tight control of the leash for the utilities industries paled
in comparison to the total ban on private genetics research, a ban that carried the harshest of all
possible penalties to be caught in violation of, starting at a life sentence for those responsible and
getting both worse and on a larger scale from there. But whilst carrying out private research was
completely off the table and a position that the government would never shift from, as even a single
mistake could be more dangerous than even the worst nuclear accident due to the possibility of
inflicting horrific damage upon the world's biosphere, some specially selected corporations, so few in
number as to be less than the fingers of one and and only those that passed an extremely difficult
selection program to prove their ability to be trusted with the technology, were allowed to carry out
the mass production of certain desirable commodities such as the seeds and saplings for various kinds
of artificial plants and flowers, designer animals and various other biological goods that had an
incorporated failsafe mechanism that prevented them from being able to reproduce naturally, so as to
completely remove the risk of the biosphere being overran by genetically modified super organisms,
doing so through the use of retroviral agents, using cuttings of tree tissue to produce clones and, most
commonly, the usage of what would be best known as a hormonal lock; a system whereby the body
of the artificial animal or plant is designed in such a way that they lacked a key hormone necessary
for them to be able to reproduce naturally, but which could introduced into their bodies through
injections, dietary supplements or in water, creating an easy means for regulating their population -
transgenic animals would need only a few minutes at their local veterinarian to be made able to
reproduce in a natural manner, if only for a short period of time before the effects worse off. This
meant that whilst the population of said artificial lifeforms was entirely controlled and regulated, it
was very much possible for one to get hold of a variety of artificial organisms...and there were more
than a few gardens across the EA and the EU, public and private, that were full of them, the price for
each specific strain high enough for them to become a prestige item for the public and their mere
existence a boasting point for the state's scientific prowess.

But some of these artificial plants had a use beyond simple aesthetics or bragging rights -
apple bushes were one example, being much smaller than their taller brethren due to having a much
shorter trunk and thinner branches, making them no taller than six feet in height and entirely viable
for use in indoor garden structures such as vertical farms, atrium parks and even the growing bays of
spaceships and offworld colonies. Others were particularly tolerant to the grafting process used to
sew together two different kinds of tree, dramatically reducing the failure rate for the creation of
"bouquet" and "fruit salad" trees, trees that were the combination of a number of other plants put
together into a single whole, where apricots and apples and oranges could all be found growing alongside one another. There was no real modification there - the process of grafting plants together had been pioneered thousands of years ago and was even present in Biblical texts - other than for the original tree meant to bind the others together and serve as a strong rootstock to supply them with nutrients and water. The most valuable of all hybridized plants were the very rare few that were unpredictable flukes of nature - ones that did not only grow together from the same shared roots, but merge together into a true singular organism. They were not traditional hybrids because their genetics had not been mixed, but were instead chimerae where the cells of the different trees lived side by side in perfect harmony with one another, allowing flowers from the two different types to within inches of one another, or even fuse into one, more beautiful than either. Because this unique process was random could not be replicated, not even with all the power of man's mastery over the building blocks of life, a single specimen confirmed to be a chimera was worth more than gold and far beyond the value of even the most precious gemstone, with one particularly valuable chimera, that of a Spanish apple and orange tree that had undergone chimerization into a single entity and produced fruit with a uniquely crisp taste, being considered too valuable to be sold as a single entity...and thus used as a source for cuttings for the cloning process, a mere five leaves being worth over 200,000USD.

But on average, there were few plants other than the chimeric ones that were more valuable than an artificial animal, the immense complexities in creating a living breathing creature from nothing making them into an even greater symbol of wealth to the extreme cost in their creation in both time and money, meaning that they were rarely ever found outside of the transgenic exhibits of the few zoos that had them and amongst the menageries of the rich and powerful who desired to show off their wealth in the newest and most fashionable means possible, a trend that spread far beyond the borders of the EA and to every other corner of the world. But the main thing that drove the price of them so high in comparison to the relatively cheap plants was that it was much harder to create more of a transgenic species, even with regular hormonal injections to allow them to breed naturally or with the usage of retroviral agents to cause similar, natural animals to produce the transgenic breed instead, both of which were extremely inefficient when compared to the factory level production of transgenic plants - a three story building following the same basic principles as a vertical farm could extract cuttings from any plant, natural or otherwise, and use a special mixture of rooting powders and plant hormones to turn one flower into a hundred and a hundred into ten thousand, and so whilst a bag of high quality bulbs for the more common varieties might cost anywhere from 100 to 200USD, the lowest prices for the least rare transgenic animal was well over ten times that. But though the entirely custom breeds of animal were often prohibitively expensive, there was an alternative available: genetically reconstructed breeds of existing animals.
A man made breed of snake, the grey viper was one of the first artificial creatures declared suitable for private ownership. Unable to reproduce in the wild due to a missing hormonal "key", the only way grey vipers could be created is either through directly from a suitably equipped production centre or through filling in the missing gap using medicine to replace the missing hormone. Due to their rarity and their distinctive visual appearance, their scales having a different shape from those of regular snakes and a coloration rarely found in nature, the average price in 2020 for a fertilized and developing egg was approximately 25,000USD and 40,000USD for a fully grown adult of either gender.

A century of selective breeding for animals such as dogs and cats in the name of breeding "improvement" had resulted in the deliberate selection of unhealthy traits for the sake of cosmetic appearance, even at the cost of inflicting serious damage on the overall health of the breed, both in the physiological nature of the animal and in the genetic diversity available to try and mend the damage done. Casual inbreeding with the goal of maintaining the physical appearance of a breed had exacerbated the problem by causing a surge of heritable illnesses to be passed from one generation to the next and drastically reduced the number of animals that were not related to one another, as had the sterilization of mongrels that, in many cases, were much healthier than purebred animals. The result of it all was a number of breeds that had not only been damaged by the lack of regard for the animal's own well being, but utterly ruined, both cosmetically and physically: the German Shepherd dog of 1900 was famously capable of clearing an eight foot wall and weighed only twenty five kilograms, but by the start of the new millennium the immense focus on "improving" the breed had resulted in doubling the animal's weight, a sloping back and completely destroyed athletic abilities, whilst other breeds, such as the equally famous English Bulldog, were so far gone physically as to be unable to even breed or birth without outside assistance. Many other breeds, such as the Bull Terrier, the Boxer and the Pug all suffered from one deformity or another, whether it be an abnormally shaped skull resulting in a squished face that hampered breathing and resulted in the poor oxygenation of blood, as well as a difficulty in maintaining temperature, damage to the brain that resulted in compulsive tail chasing and other irregular behaviors or just so much raw genetic damage that cancer occurred far more often than it ever should. For many such purebred animals, their own
existence could be a torture hidden beneath excited playing and frantic running, but as the genetic sciences grew and flowered into a mature field, reconstructive engineering became not only a possibility, but an easily conducted reality.

Applying the same principles and techniques to the problem that were used in improving humanity's own physiology, along with as many photographs, drawings and descriptions of the correct and healthy nature of the many hundreds of historical dog breeds, the large scale project was started under the banner of being a truly major work, a great challenge to be overcome, and one that would expand the horizons of man's knowledge of the building blocks of life. However, there was one major problem that prevented the widespread dissemination of the repairs through the use of a modified retrovirus in the way that the augmentations had been spread to humanity by the Ascension Flu, and that was the simple nature that the various breeds of dog were far, far more diverse than humanity, coming in a much greater range of size and build and color and musculature, which meant that the changes that would mend one specific breed would mangle another even more so than they already were, which gave a rather difficult problem to solve - mending one breed was easy, but mending every breed at the same time would be impossible. The question then, was whether or not it would be worth trying to salvage the existing breeds of dog at all and whether or not it would be better to simply write them all off and instead create a more perfect kind of dog, but before it could even be considered as a serious possibility, the true solution was found in the wake of a diplomatic deal between the Eastern Alliance and the Commonwealth of Australia. The massive island was famous for its unique plant and animal life, but careless actions taken in the previous centuries and during the process of colonization had resulted in the introduction of a massive number of invasive species that were readily chipping away at the country's fragile ecosystems and resulting in serious damage to its own native animals...and none were more damaging than the common European Rabbit. They killed young trees and saplings by stripping away their bark, they devoured flowers and ground level plants in droves, they bred out of control and even caused soil erosion by stripping away the topsoil of whatever protection it had in the form of plant matter, leaving it vulnerable to wind erosion and the like in a process which caused damage that would take centuries to repair.

Other invasive species were similarly troublesome - the cat, a common pet amongst Australian families and found in one fourth of all households, was itself an intruder in the Australian lands, and the direct cause for a number of extinctions of a number of native species, including flightless birds and small mammals, and was itself a species that had reproduced out of any possibility of natural control, with some two and a half million cats estimated to be domestic pets and another twenty feral and in the wild.

The Australian government already knew the solution that would work best in curtailing the problem, but they lacked a proper genetics research industry of their own, and so turned to the EA for assistance...and together, they created the perfect solution to invasive species, something that the EA and the EU as a whole could also benefit from. Using a retroviral plague similar in nature to the Ascension Flu and disseminated as an aerosol throughout all of the states and territories of the Australian nation in the exact same way that the human augmentations had been spread twenty years before, but rather than bringing enhancements to cats and rabbits unborn and unconceived, it brought something else entirely.

The exact same hormonal "key" system that was devised to control the numbers of artificial animal life.

Having absolutely no other effect on the animals born with the modification other than stopping the production of a hormone necessary for their reproductive systems to work, an effect that could be undone for a few months at a time simply by a fifteen minute appointment at the local veterinarian who could inject a small capsule that would release the necessary hormone over a long period of time in a way similar to a woman's contraceptive implant. But the nature of needing such an implant or
hormonal injection in the first place brought an immediate halt to the increase in the population of feral rabbits and cats before the start of an outright collapse in their numbers that resulted in the increase in number of native plants and animals as they began to return to biospheres that were once abandoned by them. Similar modifications would be deployed on other invasive animal species, such as foxes and toads and goats and boars and donkeys and brumbys, all being sterilized and allowed to have their numbers decline peacefully in a process that would restore the Australian biosphere to its pristine nature, and New Zealand and other island nations, particularly those dependent on ecotourism for their economy, would join the process before long, with many other nations following not long after, ridding their lands of foreign pests and species damaging their lands and the things that lived there. Even the United States would take up the idea before long, using it against invasive species such as the extremely rapid growing Kudzu plant and the Emerald ash borer insect that was inflicting massive damage to the North American lumber industry, as well as the African honeybee and various invasive aquatic species, the result being a surge of native American species that happily filled in the regions that they had once been pushed out of so long before.

With a relatively clear path for the repair of the dog seemingly clear, a similar plague was deployed in limited areas of the Eastern Alliance as test zones, giving every single dog inside the area a hormonal lock, but with the addition of several dozen different types of retroviral agent, one for each breed, and then adding additional retroviral strains to be injected whenever an owner brought their dog in for their implant. The result was the collapse of feral dog populations...and the appearance of corrected versions of all the breeds treated after a few years. The process would then be rolled out across the entirety of the EA by 2024 and in the EU a year later, used as the ultimate means of controlling the populations of stray animals on a large scale and without causing any unnecessary suffering, meaning that the populations of wild dogs and cats that had lived in human cities for so long, rummaging through rubbish bins and harassing or even attacking pets and their owners, were not to be found in the glittering Century Cities. Instead, there were the healthy and happy reconstructed versions, perfectly healthy animals completely free of deformity or physical abnormalities or anything that could serious affect their well being, able to carry out all the physical feats that the history books said they could, with improved immune systems to ensure that they would never have to deal with the illnesses that plagued their forebears. For some, however, the process of restoring the historic breeds did not go quite far enough, that dogs were no longer able to properly keep up with their augmented owners, and so and just like humanity, Canis Superior was created, a genetically enhanced subspecies placed in the same sub-kingdom of Animalia as all the other creatures that humanity had artificially created, having the same sort of improvements that mankind itself had...meaning that even with all the massive upgrades that had been given, humanity had not forgotten its closest friend.
Two English Bulldogs, one hundred years apart: the image on the left shows the breed as it was in 1900, the one on the right as it is in 2000. Hideously proportioned, the modern Bulldog suffers from practically every single heritable disease able to be found in the entirety of dogkind, and live eternally pained lives that see them die at a much earlier age than their predecessors from barely a century before. Following the restoration to their original size and health, they would be given legal protection to stop them from ever getting to such a torturous level of disability again.

The Army of the Eastern Alliance: From Cobbled Together to Tuned Machine

Although the end of the Augmentation War meant that there was no longer a need for massive armies of drafted soldiers and for an equally scaled chain of production and supply, the very nature of the Eastern Alliance in the days after the war as a loosely connected pseudo-confederacy meant that demobilizing for a return to peace was no simple thing - with the war over and won and the enemies of the various Augment rulers defeated for the time being, there was only one real question left unanswered; what to do with the other Augment warlords? The Eastern Alliance had been forged out of the necessity of creating a combined front able to withstand the assaults of the United Nations Coalition that was arrayed against them, but with the armies of the Coalition crushed and the United Nations Secretariat Building reduced to rubble as part of the post war peace treaty, there was little left in the world capable of challenging the victorious armies of Khan Noonien Singh and the other Augment rulers...other than the Augment rulers themselves. Even with occupational armies spread out across the territories of the defeated in accordance with the terms of the treaty - though occupation was a misnomer of sorts, one half intentional so as to make the Eastern Alliance seem stronger than it actually was, since the so called "occupation" in some nations was less than a hundred men, meant to do nothing more than to carry out inspections and watch certain proceedings to make sure that the terms of the peace treaty were actually being maintained - the various Augment ruled nations still had plenty of men left to send against one another if conflict was to start again...but in what was surely an act of fortune, many of the more ambitious Augments, those who would have been willing to kill their fellows in order to gain more power, had been killed during the counter offensive that had followed the release of the Ascension Flu, leaving most of those still alive as those who simply wished to survive following the pass of the United Nations resolution that banned
human genetic engineering research, or those who had more interest in base hedonism than in any real ruling that could take up their precious time. Thus, the unstable peace between the various powers became more certain, more concrete, as their combined forces, a heavily entangled army with a messy and ill-defined chain of command and with the ranks full of men longing for a chance to lay down their arms, began to properly demobilize, the combined army quickly began to contract as most of its manpower returned home to their families, hoping to never need to raise a weapon in anger again.

Once the Eurasian Union was founded and it became clear that there was little chance of any renewed conflict in the near term future, the army shrunk a little further, down to a total of one and a half million men, a force primarily comprised of those battle hardened veterans who had decided to continue their enlistment after the end of the conflict or reenlisted, either out of a craving for the regularity of military life or military pay, or tempted into it by the lavish reenlistment packages that were created for one reason and one reason alone - to prevent the loss of their hard earned experience with modern combat. Before the war, the last major conventional conflict that the great powers had been in had been the Second World War, which had pioneered and established the concepts of mechanized warfare, but nearly sixty years of peace had left the armies of the world without any real first hand experience of the battleground, and a wide variety of technologies that had been science fiction during the thirties and forties were a reality on the battlegrounds of the nineties, making the knowledge and experiences of the men who had fought in it all the more precious for refining military doctrine and in finding what worked and what didn't on all levels of the battlefield, from top to bottom. More importantly was the adage of how a sword left too long would begin to rust, the old truth that whilst a rifle could be made in a few hours and a bullet in a few minutes, the creation and maintenance of a military tradition, one that produced courageous infantrymen able to take the initiative and a highly motivated officer corps able to confidently respond and adapt to any situation, no matter how unfamiliar it might be, took decades to establish and required constant upkeep, lest the army lose its edge and begin to become rigid and incapable...but whilst that was clear, there were a number of other questions that needed answering, all starting to arise one by one as the Eastern Alliance solidified from a number of nations into a single state. Should conscription be abandoned entirely to focus more on a fully professional army? Should there be a national guard for each territory or precinct? Should units be comprised entirely of people from one region, or mixed? If the latter, what language do they speak? What about the design of our vehicles, should they be for quality or quantity? Should we do refits to try keep older vehicles combat capable decades after, or replace them utterly with a new design the moment they become too obsolete? How much free-reign to stray from operational planning should be given to low level commands? What about political loyalty, should ideological purity be accounted for in the men?

They were all hard questions with no easy answers, but they would slowly be answered, one by one, as the nation pieced itself together little by little.

Conscription would be abandoned entirely in favor of an army made entirely from volunteers attracted by good pay, good benefits, out of a desire to fight for their families and out of love for the nation and all the things that it represented, great and small. There was no need for a national guard or militia for each territory or precinct, because they could count on the protection of the nation as a whole and because the military was by its very nature a large entity dispersed over a large number of bases across the breadth of the Alliance and the Union, but a reserve force for all three branches of the armed forces was entirely necessary to allow both the Eastern Alliance and the Eurasian Union to quickly snap to a wartime footing if needed. Naturally, it was best to make sure that soldiers came from the same area, so they could communicate with one another better without needing to be concerned about the man besides them not speaking the same language or understanding certain metaphors or phrases that might be used under stress. The language the soldiers and the like should speak is none other than English, for the simple matter that it is easy to learn due to the lack of
gendered words and other intricacies, it was the international lingua franca and the language of aviation and the internet and thus more likely to be found amongst the average recruit whilst also being more useful for overseas operations such as foreign aid and, importantly, it was the native language of none of the provinces and thus no one could make any accusation of favoritism. A well designed vehicle needn't be a compromise between quality and quantity, since the sign of a fine machine was in the amount of time that a trained mechanic or engineer needed to maintain it and keep it functioning, something that was typically a sign of how easy it was to produce in the first place, so a machine that was rugged and able to take serious abuse and a lack of care for a lengthy period of time was usually the best, both on and off the battlefield. Similarly, there was no reason why an old and trusted design couldn't be kept in use even after its glory days were over, but it would always be best to make sure that they were not the centerpiece, but a supporting element - a tank twenty years out of date could not be expected to match a state of the art tank, but against an armoured personnel carrier or an infantry fighting vehicle or support elements, it could still inflict serious damage and show that it still had a use whilst the newer vehicles took on the heaviest responsibilities. A lack of flexibility in the command could render the army brittle and unable to adapt to changing circumstances, or lead to opportunities for battle or even war winning maneuvers and breakthroughs to be neglected or lost before they could be acted upon, so there was no good reason why ranking officers couldn't be allowed to deviate from planning, so long as their superiors were kept apprised of the situation and that they maintained pursuit of their primary objectives...and the very nature of needing to screen soldiers for political loyalty means that something has gone awfully, awfully wrong in the recruitment office or in the training grounds, and shouldn't ever be considered even a possibility.

Yet all these questions and all these answers as to what the Eurasian military was supposed to be meant very little when in comparison to the greatest change in the history of warfare: the Augmented soldier.

As Khan Noonien Singh himself had once said, improving a machine could double productivity, but improving man himself was enough to gain a thousand fold, and nowhere else was this clearer than in all the branches of the armed forces of every nation on Earth. Though there had been a number of times during the war where the various Augment warlords had personally taken up arms and fought, there had never been enough information for a proper evaluation of their fighting potential, and those who had fought were not properly trained soldiers themselves, only generals and leaders who had been forced to pick up a weapon and defend themselves during the ambushes and surprise attacks that marked the middle stage of the Augmentation War, meaning that the real capabilities of an Augment in true battlefield conditions were a mystery. But although the world was going through the anti-militarism phase that always followed a grand conflict, some small number of Augments still enlisted in the armed forces for all the same reasons that a Natural might, only more so, giving the militaries of the world the chance to finally see what impact genetic engineering had upon the combat capabilities of the enlisted soldier through the trials and challenges of basic training...and the results were as quick to discover as they were surprising; the average Augment soldier was far superior to his unmodified counterpart in all aspects of military performance, so much so that even elite special forces teams would have trouble dealing with a number of average Augment soldiers. During basic training, the average Augment could pass through weapons familiarization and qualification with exceptional ease, for the exact same reason why an Augment child did so well in science, their superior memory making it easy for them to be able to remember the precise function of each component and the order and place in which they were to be disassembled, cleaned and reassembled, whilst better vision and finer muscle control combined together on the firing range resulted in much better accuracy when firing both from a stationary position and whilst on the move, to the point that nine tenths of Augment shooters could get a score of around 37 hits out of a maximum of forty during evaluation, high enough so as to receive an expert marksman badge and the one tenth that didn't would still get the sharpshooter badge, averaging in at around 34, some five points above a
passing grade. During the physical exercises, their advantages were demonstrated even more so - every Augment was stronger than an unmodified human, but more importantly for the army they took longer to tire out of physical activity than a normal human, allowing them to put their superior physical abilities down for a longer period of time, which let them make short work of even the most difficult obstacle courses. More notably, it was clear that Augments benefited from military training more than unmodified humans, simply because they learnt quicker and thus transitioned from raw recruit to inexperienced soldier quicker than regular humans, learning all the techniques and things that were expected of them in nearly half the time, which when combined with their superior abilities that allowed them to utterly master the exercises and challenges intended for unmodified human beings raised a question far more important than any of the others that had been asked during the founding of the Eurasian Armed Forces: how could these advantages be capitalized on best?

Although the physical and mental capabilities of an Augment were notably superior to those of an unmodified human being, the structure of most armies on Earth still organized most of their forces in the formations that had been most effective during the war. Augmented soldiers comprised into light infantry units such as those from the East European Precinct of the Eurasian Union, showed above,
could carry far more equipment than their moniker might suggest, and were defined as light not because of their lack of weaponry or armor, but because they did not use vehicles to move or to carry their supplies, making them particularly suited for fighting in rough terrain such as mountains or thick forests.

The first thing that came to mind, both from observations and the direct words and requests from the Augmented part of the army, was to do with their equipment; Augments were much stronger than unmodified humans and so could carry a great deal more equipment, especially in combination with a well designed harness that could spread the weight out over their bodies, but this also meant that it was practical for them to be able to walk around with heavier weapons than what would be suitable for a Natural human being - one American Augment, for example, demonstrated that they could walk around with a M2 Browning, a .50 caliber heavy machine gun intended for use as a crew served weapon, and could even fire it from the hip with controllable recoil simply by attaching a horizontal forward grip to the side of the weapon to allow them to use the other arm...but the lack of accuracy due to the poor stance needed to fire effectively and the inability to shoot from the shoulder and use sights meant that whilst it would be an utterly terrifying display of strength, it was not actually practical, especially once the weight of ammunition was added in. But on the other end of the spectrum from such an extreme was the fact that more than a few Augments had complained about their weapons being uncomfortable to use, not that they were too heavy, but that they were too light, making them difficult to hold steady when aiming at a target and making the Augment themself not confident in the ability of the weapon to hold up to wear and tear. This was a serious reversal from the norm that had been set by the unmodified soldier, who typically found that most firearms were too heavy, needing extra force to be placed on target and making them awkward to hold and use for long periods of time, especially during marches when they might have much more equipment on them already, something that had resulted in the development of lightweight composites, polymers and special alloys, all of which would have to be abandoned to make a weapon that was comfortable for the genetically modified shooter. The first attempt was simply to try and make a heavier alloy for use in firearms, but the result of doing so produced a series of some one hundred weapons that were remarkably brittle, so much so that the shooter could snap off parts of the gun if they were too aggressive with it, resulting in them being removed from service quickly and ending up as extremely rare collector's items, but the lasting solution came in response to another outcome of the Augments' superior strength - the fact that they could wear more body armor, much more. Using a concept derived from the medieval brigandine and from scalemail, the average Augment soldier in body armor would wear a complex vest designed with three effective layers - the outermost layer contained large steel trauma plates nested between two sheets of aramid fabric, creating an armor layer outright able to reliably stop handgun fire and fragment most rifle rounds, whilst the second layer was a large number of interwoven boron carbide plates, each no more than five millimeters square, that would catch the resulting fragments, or in the case of a round that had penetrated the first layer intact, block the shot - something aided by the fact that any bullet penetrating the first layer would have lost most of its energy and began to tumble from the impact, drastically reducing its penetration power. The third and final layer was no more than a another mesh of two layers of aramid fabric between which was a sheet of shock absorbent polymer, providing a final layer of protection that could stop any shrapnel or bullet fragments that pierced the first two layers, whilst also dramatically reducing the amount of blunt force that was transferred to the wielder upon being hit.

The result was a tough armor vest completely immune to handgun fire and with superior multi-hit resistance against the higher calibres found in rifles, allowing the Augment soldier to take multiple direct hits before their armor would begin to lose effectiveness, the next step in the long war between offense and defense and one that would put the ball firmly in the defender's court...
...until the response was to similarly use the superior strength of an Augment to beat two birds with one stone by creating a larger rifle that shot a larger bullet loaded with more grains of powder. It would take several years before a good cartridge and a weapon capable of firing it without crumbling under the force could be developed, leaving Augment soldiers to practice with guns weighed down by lead weights in the meantime, but by 2028, the first real firearms designed for the Augment soldier began to enter service in the form of the 9.5mm bullet. It was a massive thing when compared to the "traditional" choice of bullet in the 7.62mm, but it struck with twice the force as a result of its increased mass and speed, allowing it to counteract the heavier body armor of an Augment soldier at more-or-less the same effectiveness that its smaller cousin could against that of a unmodified human, whilst by design it required a larger and sturdier weapon in order to be fired without the risk of the gun exploding or breaking after a few shots, thus solving the ergonomic issues that so plagued Augments who had to use weapons meant for the hands of a Natural human being.

Originally designed for use in hunting large and dangerous game animals such as bears, panthers and other large animals, in the hands of a trained Augment soldier, the massive 9.5mm bullet would prove effective against infantrymen, genetically engineered battle creatures and light vehicles up to and including helicopters. Too large and powerful a round for an unmodified human to be able to use effectively, it would be known amongst anti-Augment terrorist groups as a "widowmaker" bullet due to being able to pierce any body armor that they could wear and inflict grievous damage in its passing, as well as for being able to easily penetrate the metal of most improvised fighting vehicles, civilian cars and trucks and even some lightly armored personnel carriers.
With the question of equipment solved, the next part was in improving the training of the Augmented soldier in order to get the most gains...and naturally, the great peaks of emotional instability that was known to affect Augments for whatever reason made it clear that some extra effort had to be put into drilling in discipline, the focus of which became more about stopping the troops from going berserk in the midst of battle than keeping them from cracking under the pressure out of fear or panic, meaning that much of the time that would have otherwise been used to further improve their abilities was instead used on what was called "emotional stability training", a series of stress exercises meant to make an Augment breakdown so that they could be built back up again and know how to control themselves when under pressure - one common technique used when things were particularly bad was doing long sums, hard mathematical questions that could help an Augment calm down during times of need by distracting the mind. But there was still plenty of time left to match the traditional length of basic training that an unmodified soldier would go through, and that meant there was time left over which could be used to improve their fighting abilities...which gave rise to two schools of thought; one group which suggested using the greater physical strength of the regular infantrymen to allow them to carry more equipment and to spend the extra time training to use all of it, thus making the ultimate jack-of-all-trades, a rifleman who could carry out the work of a designated marksman, a grenadier and an anti-armor or anti-air specialist, whilst the second group thought that it would be best to further specialize them in their existing roles to make superior infantrymen who were extremely good at any one task, whether it was in the regular fighting of a rifleman or in laying down suppression fire or in combat engineering, the idea was that a full squad of soldiers who each specialized in one field of expertise to the extreme would be superior to one where the men were capable of all tasks but only to a moderate degree, whilst the latter group counter argued that losing a single man to injury for the specialized group would be a serious impact on their combat effectiveness, perhaps even catastrophic, whilst the multirole squad would never have a true gap in its capabilities even after sustaining losses, thus increasing the survivability of a unit in long term combat. This argument between doctrines was one that would not properly be resolved - some nations would go for the more capable specialist method and others would go for the more flexible multirole one, whilst others like the Eurasian Union and the Eastern Alliance within it would go for a more middle path, with every large formation being primarily comprised of troops who were talented at most forms of fighting, whilst having a number of specialists in the reserve who could be brought forward as needed according to the situation on the battlefield and be deployed at the time where they might be able to make the greatest possible impact.

Another military matter was the creation and use of genetically engineered warbeasts, creatures designed to take part in warfare with a single, very specific function brought about by the lessons of the last war. Trapdoor spiders as big as cars able to drag fully grown and augmented men beneath the ground and dispatch them quickly and silently, enormous wolves able to pursue their prey day and night over hundreds of miles without losing track of them or being unable to make the kill once they got close, bears with claws able to pierce body armor and seemingly infinite endurance, they were all created with one specific purpose in mind - hunting down special forces soldiers. There was little use for a warbeast on the modern battlefield, as what was there that a giant spider could do that a laser guided bomb or a platoon of infantrymen could not for a tenth of the price, but in the uniquely difficult task of hunting saboteurs, snipers and other such commandos, where a human response was vulnerable to infiltration, counterintelligence operations and the tapping of communications, they excelled. A bunker spider, named for the large size of the underground burrows they lived in, could make a large nest in the hardest of soils and perfectly conceal themselves within, using an intricate network made from tiny streams of web across the ground to detect even the lightest footstep before striking with a terrifying speed and a bite strong enough to puncture steel, but also "intelligent" enough to be able to tell friend from foe and combatant from civilian by sight and smell, making them well suited to protecting vital positions behind the lines, such as communications relay posts, vital railway junctions, supply depots and other locations that could be of interest to an enemy
operative behind the lines. Sabrewolves, their name coming from the sabretooth cat who it had more than a little similarity to, worked well in packs of four and had excellent hunting and stalking instincts, allowing them to truly make the most of their inborn camouflage patterns that came with the different breeds - white ones with thicker layers of fat for the arctic and tundra regions, shorter ones with coats of muddy and earthy brown for the forests and woodland areas, ones with thin bodies and sandy brown coats for the dry lands and narrower, smaller ones covered in patches of grey and black for urban environments - all having exceptional senses and trained for the sole task of hunting down snipers, able to smell the sweat upon their skin and the thin and invisible smoke of their gunshots from miles away and move at great speed across rough and broken land in deathly silence, never needing to sleep for even a second during their pursuit.

They were kept in the same places where they were made and trained, top secret military installations that specialized in the development of new weapons of war, only ever being released for field training and the rare times that they were actually deployed against various forms of insurgents - who although not being the original target, the global push towards a lasting peace having removed the threat of attack by another state actor, were still perfectly suitable for being preyed upon by GM lifeforms - making their sighting an extraordinarily rare thing, so much so that even the various terrorist organizations that had been attacked by them were disbelieving of the reports of their own terrified men, who told them stories of giant spiders able to rip men out of their Humvees and who liked to prey upon the isolated and the alone, stories of how a night watchman might stand in the woods at night and be gone but for a few drops of blood upon his weapon by the morning, never having made a sound in their disappearance. These rumors of walking monsters ranged from the surprisingly accurate descriptions of what was actually in service, to the outright bizarre, and would spawn many new cryptids...which played into the hands of those who had artificial war creatures in their armed forces, as the popular myth of such thing made those who reported seeing such things less credible, keeping them secret for much longer than would have otherwise been possible.

So, with the combination of heavier armor, heavier weaponry and superior physical abilities and training, a fight between a group of Augmented soldiers and their unmodified counterparts should have been decided from the very start, a clear victory for the Augments without so much as a single scratch upon any of them...and yet, this was often not so. The very act of having something that seemed like the perfect combination of soldierly traits and having them roll through basic training without much in the name of a challenge made Augmented troops dangerously overconfident to the point of outright arrogance in their abilities, with dire consequences whenever the supposedly superior troops engaged their predecessors in either live combat or training exercises - so certain were the Augments in victory that they rarely ever used any complex strategies or maneuvers, with one infamous event where one squad comprised of eight aging veterans from the Augmentation War carried out a false withdraw, a feint, causing an entire platoon of Augmented soldiers, believing that victory was near, to press the attack and advance without so much as laying down suppressing fire. Firing from concealed positions, the unmodified troops would have lain waste to the genetically engineered force that seemingly had every advantage, had they been firing live ammunition and not training rounds. Just having the new generation lose to the old was often enough to make them more humble and more cautious, less certain in the strength of their abilities alone to bring them success, but to have proper troops who would not need such a tempering meant increasing the difficulty of their training...and in providing them with opponents properly able to match their abilities.

With the increased challenge in basic training rendering it almost impossible for an unmodified human to be able to complete the course and usually resulting in lasting medical issues for those who failed, and with the production of equipment and vehicles changing towards those best suited for Augment fighters, something that had been an unmentioned fact finally became apparent for all to see; by 2020, unmodified humans were no longer considered fit for military service.
The Leader of it All: Khan Noonien Singh

Altogether, life in the Eastern Alliance meant that the average citizen, despite lacking any real political power, typically had a pleasant and comfortable existence ahead of them, never once needing to worry about not being able to afford healthcare or about the possibility that they themselves or their children or someone they cared about not being accepted for their way of life or who they loved, even if they might never be able to run for political office as they might be able to in democracies of the world, but most called the quiet, orderly peace and freedom of Khan's rule as something more than worth the trade. Indeed, an orderly but peaceful society was effectively what the Augment ruler had been aiming for from the start, having developed an obsession with orderliness and justice during his childhood in isolation, separated from the rest of the general population. But like almost all the original Augments, Khan desired one thing more than anything else: approval. A thing given rarely by the scientists and academicians who created him and his fellow Augments, it was something they all craved in their own way - some cherished the approval of a superior congratulating them for a job well done and naturally fell into a subordinate role to others, some craved the warm approval of a lover happy to see them and a tender embrace and thus followed the ones that they loved or gathered numbers of people who they thought could do the same, but some very rare few desired the approval of the many, a want to be approved of by great numbers of people...and Khan was one of them.
An example of a Pro-Khan and Pro-Augment propaganda poster from 1994, released during the earliest weeks of the war. In a dark and chaotic time of bushfire wars, famine and disaster in the developing world and the aching wounds that plagued much of Asia following the collapse of the USSR, countless millions of people flocked to his cause and his dream of an orderly world, so much so that it seemed as though taking the entire world then and there would be more than a possibility, but a certainty that could only be delayed, not stopped, as the appearance of Central America, a region that was in a superpower's own home region, in the poster above testified towards. However, the Federal Republic of Central America, the old union of 1823 reborn, was the first to fall during the war, overwhelmed from north and south by anti-augmentation forces...and the first sign that things were not as certain as they first seemed.

But rather than do what some of the others did, rather than create an insane cult of personality or force the crowds to cheer his name at gunpoint or indoctrinate them through constant propaganda, his
obsession with justice collided with his desire to be wanted by the great masses and resulted in him crafting a state that was as orderly as it was fair, as lawful as it was caring, like a father watching over his children or a shepherd over his flock. He had no real desire to have a massive sprawling palace or a statue in every village or a fleet of gold plated cars or anything of the sort, such things having little appeal to him, but there was nothing he desired more than for the people he ruled to cheer his name entirely of their own accord, to love him as a ruler and to be genuinely grateful for his efforts...and they gave him exactly that, none crying his name louder than those he had raised up from the gutters of poverty and destitution and exploitation and given the possibility of a comfortable and meaningful life, one free of easily preventable diseases, hunger and wage slavery. This want for appreciation went so far that Khan himself would sometimes have an open-door policy for those who wished to speak with him personally, whether out of a want for advice or out of a need to make their problems known to him personally, though the number of visitors to see him were never all that many...if only because the fact that his home was built amidst the massive snow covered mountains of the Himalayas, terrain that was difficult to ascend at the best of times even for an Augment, yet alone for a basic and unmodified human. But just as the most powerful bonfire can burn furiously for the first few minutes before settling down into a long lasting and steady burning flame, time at the helm of the ship of state and the abundance of what he so desired in the form in the cheering admirations of his people had softened the Augment ruler and made him more confident in the strength of his position, which in turn served to make him calmer and more certain about the stability and security of his nation, enough that he could begin to ignore certain provocative comments and actions that he would have once responded to gladly in order to prove the strength of his rule and character, all but wiping out the perception that he was a strongman perpetually looking for a fight to soothe tensions at home and instead replacing it with that of a beloved ruler who was often busy with the many tasks of screening the administrators who would be ruling the precincts and the sub-precincts, managing the delicate matter of foreign affairs and ensuring that the intended, day-to-day operations of the precinct system proceeded smoothly and according to design, in line with the long series of texts that he had written outlining the form and function of the system and how it was designed deliberately to to keep the influence of wealth and the idealism of political ideology from getting in the way of pure pragmatism. In this way, he became something of the sort of an elder statesman, dealing with his own duties whilst also acting as a guiding hand to keep the political machine running true and sometimes delegating tasks to other officials in order to make them think outside of their normal responsibilities, especially to those who have been in one position long enough to become too focused on their own actions and ignorant of how they can affect the responsibilities of others.

But of all the great numbers of people who supported Khan, it was always the Augments whose praise pleased Khan most, and it was always the Augments who did so with the greatest pride and gratitude of all. They were people like him, people who were the result of genetic engineering, a people for whom the word Augment was a badge of honor rather than a slur or category to be put into, and many of them looked to him as the man who not only led the defense of the field of genetics research, when so many others were afraid of what it might bring and were willings to tear it down, but also as the man who made it so that everyone, no matter how rich or poor they were, what religion they kept, what ethnicity they were or what nation they came from, would be born with all the enhancements of human augmentation and none of the diseases and weaknesses that might have otherwise plagued them. They were a grateful people, unquestionably loyal to the man who paved the way for their arrival, and they formed the bedrock of the new government, taking to his ideas and plans with the greatest enthusiasm. To them, he was the founding father of a new world order, a man with a dream of a bright and orderly tomorrow and the desire to fight to make it into a reality, a George Washington like figure, whose legacy would be unassailable by any...and for Khan, that was all that he had ever wanted from the beginning.
Joaquin glanced out the window towards the glittering highrises of the great city, the massive spires of glass and concrete that shone in the darkness of the evening sky with the light of office workers and street lamps and signposts, the navigation lights of the airplanes soaring overhead blinking in and out like false comets. Cars passed by on the street as he sat within the black sedan, waiting patiently as he sat behind one way windows in complete silence. Shanghai was a massive and sprawling city, one of the greatest in the entirety of the Union and the true financial heartland of the east, a place that was an equal to New York or London in the number of people who made a living in the service industry and as a home to major corporate interests...but it was also a clean and modern city, a model to which all the other cities of the Union could aspire to emulate. Every tall building he could see was crowned with either parks, solar panels or wind turbines, the streets were lined with trees and filled with trams rolling along their tracks and not far down the road was a large vertical farm, the shiniest building of them all with a massive supermarket on its ground floor, and he knew that beneath his feet there was either an underground subway track or a pipe leading towards the city's immense storm drains, all powered either by renewables or by nuclear reactors dozens of miles inland and safe from the reach of cyclones and the like. The entire city, like many within the Union and the Alliance, had been gradually improved over the last fifteen years to weigh environmental considerations more heavily, to put more emphasis on public transport, to be ready for the worst that nature could throw at it and the growing pains of a quickly swelling population. It was a Century City, with all the sleek architecture and open parks and potential for much greater growth that entailed, and he knew that there were even talks about building tunnels that would link it to a part of the city built offshore or underground, a way to increase population density without using up the little extra soil available, but he didn't care much about that right now.

He had something else in mind. Someone else in mind. Someone incredibly dangerous, someone who Khan had seen fit to send him to deal with personally, someone who could threaten to destroy the peace that so many had died to create. His image was burnt into his memory from a two hour long planning and briefing with the man that was his closest friend, and Khan had made the importance of his task clear - should the target escape them now, after months of tracking and planning, it could spell disaster that would result in the deaths of tens of thousands, perhaps even millions, all killed by the same man that had already carried out nightmarish acts of terrorism that had resulted in the deaths of thousands and the same man that now sought to get the last piece to what could only be a nuclear device of some kind, a dirty bomb perhaps, or he could have even been delivering the weapon itself to the target site ready for detonation. He didn't know for sure, no one did, but he would be damned if he would fail his friend and his nation now after so many years of service and in so great a manner as to cause the deaths of so many.

He sighed, then looked out to the streets again, through a window covered in streaks of rainwater from a storm that had passed over a few hours before. Further down the sidewalk he saw a familiar shape heading back towards the car, that of the assisting agent he had been given for carrying out the critically important mission - Miguel. He was some twenty seven years old, an augment born three years after the end of the war and half Joaquin's own age, cheeks grizzled with a thin beard and a head of thick brown that matched his dark eyes and made Joaquin think he looked like a Spanish conquistador straight out of the history books, lacking only the sword and armor to complete the look, but he was competent, strong and unquestionably loyal, and that was enough for him to be able to accept his help...and Joaquin was almost too famous to act out in the open, so having someone less so helped make things easier. Miguel shrugged his large shoulders as he reached for the handle, shaking off the rainwater as he opened the door and climbed into the driver's seat before closing the door with force.
"I was beginning to wonder if you had left me here alone," Joaquin said before asking, lowering his voice. "Is he here, then?"

"He is," Miguel answered quickly, turning the keys and starting their journey with a push of his foot on the accelerator, the massive engine beneath the hood, a much more powerful thing than the car's size might suggest, roused from its slumber with a deep roaring growl, the vehicles of the Eurasian Union's Internal Security Agency running on fossil fuels rather than electric power due to the sheer acceleration and speed that a good twelve cylinder could provide on demand. "No sign of his friends, but he might have the payload with him. Either some components for the bomb, the detonator or broadcasting equipment or..."

"The physics package," Joaquin sighed, brushing the bridge of his nose. The pressure was on - if the bomb was in Shanghai, it could kill hundreds of thousands, or it could be placed aboard a ship heading to the United States...and the consequences of that particular possibility needed no thinking from any man, least of all him. "Do we know where? How long has he been here? Do you know where he is headed?"

"It would seem we got lucky this time, because I have answers to all three," Miguel said with a glance and a smile as the two emerged from the side street into the open traffic of a main road, the swift reactions of his Augmented body showing as he deftly took them out onto the busy avenue, tiny flicks of his hand making the black car dance between the traffic as his other reached into his pocket and passed Joaquin a cellphone of an older make from the late noughties, its screen scratched and dirty but still entirely operational. "Deaddrop phone. It contains a time and a place for a meeting."

"Well done," Joaquin smiled as he put finger to screen and flipped through the messages, reading them in a heartbeat and memorizing the words before going to the next. "It seems our terrorist friend is not half as clever as he thinks he is. How did you get this? Did the informant find it?"

"Sort of," Miguel answered. "They found out that one of the guards watching the cameras at an art gallery had seen someone throw a phone into the bin just outside the doors and recovered it for us."

"To make it all this way just to make such a simple mistake and lose everything," Joaquin said with amusement, feeling as though he would laugh if it were not for the risk of being vaporized by a nuclear reaction if they failed. "If these messages are correct, then our terrorist will be meeting his contact in part of the city that has been condemned since Sanvu...a better place than most to hide within the heart of a city."

"Because of structural damage?"

"That and flooding," Joaquin replied. "Not worth the expense of rebuilding the area or replacing all the electricals when it was going to be torn down to make way for a new build after a few years anyway. Watch your footing when we arrive; these old buildings are always shoddy after even a year without maintenance. After four, I wouldn't be surprised if we went through the floorboards the moment we stepped inside or the building collapsed atop of us."

"It can't be that bad if they're holding a meeting there," Miguel reasoned as they emerged from the busy avenue onto another street, heading away from the shining white Century part of the city and into the older, original version where so much damage had been wreaked barely a few years before. "How weak can it be?"

"Extremely," Joaquin replied honestly, looking out the window as he did - everywhere he looked
there were old and aging buildings of brick and concrete, all bearing the scars of the massive cyclone that had destroyed so much and killed so many - some windows were boarded up, stumps and irregularly shaped ground taking the place of the trees that had been ripped out from the soil by the immense wind speeds or cut down to prevent their fall after being uprooted or smashed to splinters by flying debris. His eyes found a small apartment building with the terrible fluorescent red cross painted on its walls, a marker left over from the search and rescue operations, text placed into each of the four quadrants. In the bottom there were two numbers and three letters in a row.

23DOA.

Joaquin knew what it meant and turned his eyes back to the road ahead. It meant that twenty three people had been found dead inside the structure by the time that the search and rescue team had arrived - Sanvu had been a merciless monster of a storm, the first ever hypercane, with wind speeds recorded at a peak of two hundred and fifty miles per hour and such sheer strength as to be able to rip houses from their concrete foundations and send them flying through the air into other buildings, or throw cars flying through the sky at speeds faster than they could drive on the ground. Even the mightiest of skyscrapers and their great steel skeletons had struggled to withstand the intense storm, often being stripped naked of all their windows and left with flooded basements and ruined interiors, but the terrible cyclone had served as the rude awakening to the impact of global warming upon the climate, an awakening that the world had sorely needed to be able to avert a truly global catastrophe before it could occur and inflict even greater damage than it already had...but what had been done could never truly be undone - the orangutans and black footed ferrets and polar bears and black rhinoceroses and the humpback whale, all of them were gone now. All that remained of them now was a last few genetic samples, taken so that man might one day bring them back into the world just as man's actions had taken them out of it, but until then they were just another sad reminder of humanity's mistakes and the errors of past centuries, but some were gone in a way that they could never be restored, not with all the genetics labs of the entire world, and the Great Barrier Reef was an example of it - what was once a majestic, colorful underwater biosphere had become a desolate graveyard of pale white coral, dissolving away.

"It's going to take us a while to get to the location on this kind of road," Miguel started as he kept his eyes on the rough and unmaintained roads ahead. "How did you end up working for Khan, anyway?"

"I was about to ask you the same thing," Joaquin replied, turning the table. "How does a man from the Union de l'Europe occidentale end up here in Eurasia? As a member of the Internal Security Agency, for that matter?"

"An answer for an answer, then," Miguel laughed, before starting to explain, fingers tapping off the steering wheel as he did, as if matching the beat of a song that only he could hear. "I wasn't born in the UEO, I was born here, in the Philippines to be precise. My parents moved there just after the end of the war, thanks to my father's choice of career making him desperately wanted pretty much everywhere, so he chose to go to a place that spoke the same language, kept the same religion and was bombed the least. There had been a resurgence in Spanish there before the war - lots of old official documents like land titles, property deeds and letters were written in it years ago - so he knew there'd be enough people there to speak the same language, they're all Catholic and the Philippines weren't all that bad off after the war either. There are worse places to make a home."

"What is it your father did to make moving across the world so...easy?" Joaquin asked with genuine interest. "I can't think of many careers that would make it that simple to move to the other side of the world."
"Reconstructive surgery," Miguel replied. "Before the war, it was for people who had trauma injuries. Car crashes, domestic abuse, professional athletes, that kind of thing. Afterwards...well, there wasn't a lack of people in need for his particular set of skills. Why? What did yours do?"

"Which one?"

Miguel looked at him in confusion, then. "...what do you mean, which one?"

"Most of the original Augments like myself are genetic amalgams. I have three fathers and four mothers, one extra because of childbirth. The picked the woman with the widest hips for that," Joaquin explained with a smile. "As for the three: one was a technical engineer, the second a special forces sniper, the third a sculptor. I get my looks from him. My mothers were a geneticist, a teacher, a professional athlete and the mother of my birth was a shopkeeper in a town near the research centre who they talked into it with a hefty payment."

"...they don't need to do that anymore," Miguel mumbled before raising his voice to the norm again. "Any idea why they did it like that and not like how they do it now?"

"Why are prototypes made by hand and the production model made on an assembly line?" Joaquin replied before instantly explaining. "They didn't know how to make the process work for everyone yet, or even if they could just make modifications straight out without needing to tweak what was already there. They began to figure that out later. Continue."

"There isn't much else to say. Once the Philippines joined the Eurasian Union, that was that," Miguel finished at last, getting back to his explanation. "Eurasian citizenship was given retroactively, so that meant I could join the ISA."

"Didn't feel like following in your father's footsteps?"

"I've seen the work he does, and I can do anything that the ISA asks of me, but I could never do what he does," Miguel answered with a solemn, grim voice, growing more and more uncomfortable the longer he spoke. "There was just...dozens of disfigured men coming in all the time, people who were burnt so badly when their planes went down that their skin had started melting like wax, or had been hit by shrapnel from artillery fire that had blown bits of their faces awa-"

"You do not have to speak of it if you don't want to," Joaquin said quickly, before the other augment could get too upset. "Focus on the task at hand."

"Right, right," Miguel sighed for a second before becoming focused again, looking ahead at a large, rundown warehouse before bringing the car to a halt, almost no sign of his prior discomfort left on his face. "I think this is the place."

"It is the place," Joaquin said...before he reached into his coat pocket and pulled out a hefty handgun, a powerful semi automatic made in Israel, the land of his creation and birth. It was a large and heavy thing, the barrel alone seven inches in length and the entire weapon's weight just over two kilograms, designed to use a slightly more powerful cartridge than the norm. It was part of a new generation of firearm, part of a new generation in the long history of weaponry as a whole even, and it was all because it was designed not to be used by a normal human being, but by an augmented one - any normal man would find the weapon uncomfortably heavy and awkward to use as a result, with too much kick per shot, whilst an Augment would find it entirely comfortable and a much better choice than older weapons designed and made before the war for the hands of a Natural, which Joaquin had thought and said always seemed too light in the hand, too easy to move off target because of the
tiniest of movements, even seeming to feel as though they might start to crumble to pieces if one squeezed the grip too hard. They felt plasticky, like a child's squirtgun, but his weapon was one of the first attempts to produce something suitable for the augmented shooter, and though it was still very much a rough and unfinished thing, the first test of an idea that would need years of work to make any real progress upon, it already felt far more comfortable to use than any other weapon he had tried and tested and considered.

"There will not be many people here, but the ones who are can be put into three different classes: those who are here because they have nowhere else to go, those who are here because they wish to hide from the law and those who are here because they wish to hide from everyone," Joaquin started as he opened the car door and stepped out into the outside of the derelict industrial street, where old electric signs stood black and dead, where the brick had been discolored by years of pollution, where the roofs were leaking and holed and where even the air seemed to have a hint of mildew to it. "The former will keep their heads down and stay out of our way, the second will run at the sight of us and the third will fire the moment they see us coming. Shoot to incapacitate. Hips, shoulders, knees, in that order. Even if we don't find him here, one of his men must know where he is."

Miguel nodded quickly as he climbed out the car and closed the door as quietly as he could, locking it behind him with a press of his thumb to the lock's scanner - car keys having long since gone out of vogue for electric scanners - and raised his own weapon, a handgun much like Joaquin's own. "Are you sure we can take them alone? If they can get their hands on the things they need to build a nuclear bomb, then it wouldn't be that hard for them to get some heavier equipment and body armor left over from the war."

"The man's been surrounding himself with no one but Naturals," Joaquin answered as he, at last, flicked the safety off before starting towards the door, a large and rotten old thing whose lock had been smashed off years ago. "He won't have any Augments like us around him. We could probably deal with any of his guards before they get a shot off. Remember. Hips, shoulders, knees."

Joaquin pushed the door open and entered the warehouse's old lobby, Miguel following his footsteps as lightly as he could. It was a large and dark and stinking place, lit only by a few small lamps and dim bare bulbs dangling from the ceiling suspended by their own wire, added long after Sanvu and long after what was left of the electricals were ripped out for their copper, whilst the air was stale and thick with dust and mould spores, his shoes squishing into the damp, disintegrating and rotting carpet with every footstep he took. It was quiet, the only sounds that even his superior hearing could hear being that of the wind blowing through the empty frames of where the windows had once been, but not for a moment did he let his guard down, lest the terrorist and his allies prove themselves more cunning than he thought they were. Instead, he crept onwards, staying aware of his surroundings at all times and his eyes low to the floor, in case there were any boobytraps that might go unnoticed. A few benches were scattered here and there, covered in blankets and pillows and stripped out pieces of spongy foam from wherever it could be got, the tables that had once held brochures and business information covered in empty cans and plastic utensils, scattered across the surface and on the floor. Some were still steaming hot. Only the truly homeless, the broken and the mentally ill would make their home in such a place like this, and it was clear; they had either left in a hurry for whatever reason, or been forced out onto the street at gunpoint, and that was confirmation enough. He was here. At last, the thousands and tens of thousands that had been murdered by the most wanted man in all of Eurasia, a noted prosophobe and butcher of the augmented, would be brought to justice after so many years of hunting and tracking. It made his fingers twitch and tingle with anticipation; this was something he had been wanting and waiting to do for far too long a time, and he would never, never allow him a chance to get away free, not now, not after so much blood had been shed for nothing more than blatant luddism, a fear of change and an amorphous concept of purity.
He looked up into what had once been the main hallway, a place where the few offices that had kept track of the inventory and incoming shipments had been connected to the lobby, and where at the very end was the door that led into the main storage area itself, sealed with a large and robust electric keypad, too new to have not been placed there before the cyclone or after the search and rescue parties passed through the area, but his eyes were focused entirely on the millimeter wide gap between, through which shone bright light and came the murmur of voices. Almost by instinct Joaquin turned towards his left, towards a staircase that must have surely led to a railing over the warehouse floor, or to an upper level office that would give an excellent vantage point...and rather than a state of the art lock that would take too long to breach, there was a much older one, rusted through with cracks and weak. He crouched down and trod across the floor with light steps, handing his gun to Miguel, then grabbed the lock with his right hand and the rustiest most part of the chain with his left, squeezing tight.

Then he turned his hands in opposite directions...and there was a soft clank as the old chain snapped in two, the last little piece of unrusted steel inside too weak and too thin to withstand the force and the rusted metal crumbling to dust beneath his fingers. He gently lifted it up from the door handle and down onto the ground without a single sound, and with a firm push the door came open, old hinges groaning as they opened for the first time in years and left the path upstairs clear.

"You would think they would have thought about locking this door, too," Miguel mused with his voice no louder than a quiet whisper, passing Joaquin his gun back.

"Overconfidence is a wonderful thing," Joaquin replied, rising to almost his full height as he tentatively put his foot upon the first step, testing to see if it would hold his weight. "Come. We will have the highground."

Miguel nodded again as the two crept up the steps of the old metal staircase, which had thankfully been protected from the worst of the elements by the windowless walls all around, but the metal slats still groaned and whined with every footstep, weakened by what little moisture had managed to slip through the walls and through the door, but when they reached the top, when Joaquin's hand pushed on the door again only to find it more stubborn, he thought for a moment that it had been locked from the other side or barred up till the stiff hinges began to move again. Opening the door just a single inch, he could hear the voices more clearly, see the lights set up on the other side, dangling from the upper walkway but not on it, giving him the advantage of the contrast between light and dark to all the better hide his position as he crept out onto the grating and behind a metal cover first placed to keep the walkway clear from anything that might fall from the crates stacked besides them, the towering stack of boxes full of goods that had been stored years ago and abandoned for whatever reason after Sanvu, still placed upon their shipping pallet and providing almost perfect cover. Below he saw three large vehicles, one a bright white transport van and two family sized people carriers, one red and one silver, hardly the sort of transport that one would think of a terrorist cell as using to get around, but that was the exact reason why they would be used - they were the perfect choice for blending in amongst a city and going undetected by either of the authorities or any civilians who might inform them, looking more like a group of tourists passing around or a number of amateur sportsmen travelling together than like a group of thugs and killers ready to blow up one of the most densely populated cities in the entire world.

"Are you sure this will work, colonel?" came a husky voice from below, followed by the pained sniff of what could only be a recently broken nose. "My men took quite a beating getting hold of this thing."

Joaquin peeked over the edge, daring to expose as much as he could...and narrowed his eyes the moment he saw him, dressed in mixed layers of dark urban greys that could easily double as
camouflage in an urban environment, a Natural surrounded by other disillusioned Naturals, veterans who had survived the end of the war with a desire to keep fighting when their nations were no longer willing, religious fundamentalists and ecoterrorists who despised all genetics research and saw even the most basic biological engineering as polluting the natural world, even a few old nationalists had been swept up by his poisonous words, claiming that Khan was destroying their cultural heritage just as he had their genetic one, some of them had even been on the other side of the war, but now they all fought beneath his command, carrying out acts of terrorism the likes of which had never been seen before - the bombing of the Kra Canal construction site, where the resulting collapse buried over three thousand laborers and engineers beneath concrete and soil and water, the crippling of the primary generators of the Three Gorges Dam that resulted in a loss of electricity to over three million homes, the attempted poisoning of the Volkovskaja water treatment plant at St Petersburg that would have led to the death or illness of a countless number of innocent people, there was even the attempted attack on the Smolensk Nuclear Power Plant, Chernobyl's sister station, with the plan of recreating the disaster on a much larger scale. There had been countless thefts and assaults and breakins and murders all carried out because of that one man, and Joaquin, Khan's most trusted subordinate, had been given the task of dismantling the terrorist organization piece by piece...and it all lead to here and now, where at last he could see him with his own two eyes.

He was Phillip Green, called Colonel Green by his subordinates. He was an American, one who didn't seem to realize that the war was over and that his own countrymen were ready to wash their hands of him once and for all, calling him a rogue and a renegade and being more than willing to disavow any knowledge of his actions and provide what intelligence they could in the name of reconciliation than to even think of risking another war by doing anything else. He was not a true Natural, from what little information they had on him said, but one of the rarest breeds of men: a Pseudo, one who had been in the earliest stages of conception at the time the Ascension Flu was released, resulting in strange and seemingly random semi-activations of the modified genes that resulted in them having some of their strengths but not all of them, something that often resulted in either horrific deformity or terrible mental illness. There were only a thousand such people worldwide, as the Ascension Flu would either result in a complete modification of them if they were at an earlier stage and make them be born fully Augment, or they would be too far along in development to be so affected and would be born a Natural carrying Augment genetic material for whenever they had children of their own, and almost all of them were in mental institutions.

But Joaquin couldn't care less about that. He could barely resist the temptation to shoot him dead then and there and be done with the matter once and for all, but he knew that anything that the so called "Colonel" said could be useful in finishing off his vile organization once and for all and was ready to wait...for a time.

"It will work, I assure you," came the cold answer, the voice a sound that Joaquin knew all too well. "The real question is if it will stay in a good enough mood till we need it. The parade is tomorrow. I don't want to have our toy wasted in the middle of the night."

"The Augmentation Day parade," Joaquin swore quietly in realization, glancing towards his fearful comrade. "They mean to bomb the celebrations. Millions of people will be on those streets."

"I've never touched anything like this before," came another voice, Joaquin's eyes snapping towards what could only be a soldier dressed in civilian clothing, every movement carrying the telltale mark of a military's discipline, a bulletproof vest worn over a jacket the same shade of grey as the streaks going through his brown hair, working out the back of the van on something that Joaquin couldn't exactly see. "It'll be operational for the grand finale, that's for sure, but I can't give exact timing on when. This thing sat in the middle of an Indonesian rainforest for thirty years, and the electricals are not happy about being woken up from their nap either."
"How close can you get an estimate?"

"If I had to guess," the military engineer sighed as he turned to face the others, sitting on the edge of the van, rifle dangling from his shoulders on its sling. "I'd say it could go off an hour in either direction. Either an hour early or an hour late."

"Adjust the timer," Phillip Green said as he walked over. "Roll it back a few hours, so it will at least be the middle of the parade when it goes off. That way, we can guarantee that the streets won't be empty when it happens," he turned to face the broken nosed man next, who emerged from the shadows, revealing another heavily armed and armored soldier, bald headed and with dark blue eyes and a heavily scarred face. "Do you have the time tables? Which unit will be coming through first?"

"...I think there are twenty of them over all," Miguel whispered.

"Then you will need to deal with ten whilst I deal with the other ten," Joaquin answered. "They won't keep the bomb here. No one is stupid enough to keep something that important in once place for too long."

"According to these papers, the first unit will be mech infantry," the bulky and broken nosed man said as he thumbed his way through a thick tablet computer. "The APCs won't be able to resist the blast, but the tanks could do it depending on how big a bang we get, and they won't be affected by the radiation since the crew will be able to button up before the fallout drops. After that we have three foot infantry divisions, an artillery regiment and -"

"Forget the rest," Philip said with a smile. "Configure the timer for the middle of the infantry parade. They're a soft target."

"It'll take half an hour to reprogram the timer," the engineer explained. "It's not like this thing has a dial I can turn."

"Make it quick," came Phillip's annoyed response. "We need to redeploy, before those homeless tell the authorities that we are here."

"Miguel, once the shooting starts, I want you to get to that bomb, understand?" Joaquin said, his voice quiet iron and his eyes an unwavering, piercing gaze. "It doesn't matter how you do it, it doesn't matter if you have to leave me behind, do not let that bomb get away. I'll deal with the rest."

"But I don't know the first thing about disarming nuclear weap-"

"Figure something out and trust your instincts," Joaquin said quickly. "The last thing we want is Phillip martyring himself with an atomic blast in the middle of one of the world's biggest cities or getting away with it and nuking the United States and starting a nuclear war. Forget what I said about shooting to incapacitate, if anyone other than Phillip Green gets in your way you know what to do."

Miguel nodded grimly. Another voice below spoke, uneasy where the others were dedicated. "What are the chances of that thing going off too early, like...right now?"

"If this goes off now, you won't have anything to worry about," the engineer answered with a snap of his fingers. "You'd be gone instantly. We're so far in the vaporization range that you wouldn't even realize the bomb went off."
"Well that sure is reassuring," came a reply dripping in sarcasm.

"On three," Joaquin whispered, raising his shooting hand and doing the countdown with the other, making not a single sound as his eyes locked on the butcher below...then he raised his gun.

...and at the exact moment he lowered his last finger, the shooting began and the entire room exploded into chaos, the air filling with the sound of gunfire, the stink of blood and the screams and shouts of dying men. Philip was fast to react to the sight of them, leaping into cover behind one of the transports and only being grazed across the thigh and arm by the shots meant for his hip and shoulder, but the others were not so nearly as lucky, the entirely unmodified men caught completely off guard by the ambush from the upper level, but there was a method to Joaquin's shooting, always prioritizing those who were the closest to the van and to the bomb, those who could potentially detonate it somehow, starting with the engineer that was sat besides the weapon itself, a single bullet striking him in the throat before he could even raise his weapon to defend himself, doing so much damage as it entered and exited that he was gone before he even had a chance to slump over...and many of his comrades met a similar fate, either shot down before they could even react to the surprise attack or whilst running for cover, some even downed whilst trying to return fire. By the time Joaquin counted that all twelve of the rounds in his gun had been fired and started to reload with a reach into his pocket for another magazine, some fifteen men were either dead or dying or incapacitated on the ground below...but those who weren't were returning fire, with heavier weapons than what the two Augments had to use and fast bursts of precise fire kept from them only by the darkness of the upper floor clouding their aim and keeping them off target, but they were getting closer with every burst, and even the rounds that missed or struck the crates that were their cover were close enough and powerful enough to keep them in cover, holding them in place whilst their comrades repositioned themselves.

"If you have an ideas, Joaquin, now is the time!" Miguel shouted as he ducked down into the thickest cover, bullets striking the exact place where his head had been moments before.

"They're going to flank us," Joaquin said with a voice so loud as to almost be a shout, barely heard over the gunfire, as he looked around as quick as he tried to come up with a plan. He pointed down the row of grates upon the upper floor, to a place on the far side of the room, past the militiamen and their vans, besides the loading bay where the pallet would be placed for loading and offloading, the walkway held up by a thin and rusting piece of metal. "They'll be coming up this staircase any moment now. Get over there and go with the flow."

Miguel glanced at him with a mix of unease and surprise, then nodded in deference and ran, moving from cover to cover and right when he was free to run to that weakened part of the railing that the older Augment had pointed to, Joaquin fired. At the one thing holding it up.

Instantly the girder growled and groaned as it gave way, and Miguel looked at him with eyes full of sad betrayal and disappointment, like those of a child who had been told that Santa Claus wasn't real, before losing his footing and slipping and sliding down the bending metal straight to the ground floor on the other side of Green's terrorists, suddenly putting the militiamen under pressure from behind. Joaquin grinned as the fire turned from his side towards the other, the younger agent firing from cover and drawing their attentions...and then he heard a scratchy sniff from behind, and turned to see the bald haired and broken nosed man, rifle in hand, smiling.

"Joaquin Weiss," the man said with a toothy grin. "Khan's pet dog."

"You would find that's his pet wolf, actually," Joaquin answered, raising his weapon to the side in a
nonthreatening manner. "He likes wolves. Steppe wolves the most. Big genetically engineered
ones."

"You killed most of my men during the war," the bald headed man said as he stepped forward, never
once taking his weapon off the Augmented man in front of him. "I always wanted to make you pay."

"Sorry, but which battle was this?" Joaquin asked. "There were so many and they happened so long
ago, I can't quite remember them all. Was it the one where the UN threw its men into a meatgrinder
with bad intel, or the one where the UN threw its men into a meatgrinder with good intel?"

"Very funny," came a furious growl, an angry sniffle and another step forward. "Fucking auggies.
You're all scum. Arrogant fucking scum."

"I think you'll find that's you, actually," Joaquin smiled as the bitter veteran came closer. "I'm not the
walking in arms reach of someone with inhuman strength and much, much faster reactions."

Then he simply slapped the rifle out of the man's hands before he could even react to what had just
been said before lunging towards him like a pouncing tiger, sending the two flying down the steps
from top to bottom where, as planned, Joaquin landed atop as the other struck hard concrete with a
sickening crunch and spasing muscles that quickly turned still. Joaquin sighed in mild annoyance,
adjusting his suit, and then rushed through the lobby, through the now open door, diving behind the
same stack of boxes that had protected him on the ground floor and providing covering fire as
Miguel rushed to the back of the white van, pulling out the engineer's body before climbing in and
staring at what could only be the uppermost third of a small nuclear missile, the warhead case no
longer than the length of Joaquin's forearm. The metal plating had been cut through and discarded,
revealing the bare innards of the bomb, a huge heap of circuitry that made up the guidance computer,
the flight controller, the security system, the detonation control mechanism, the failsafe and the
powerpack, most of which had lost whatever meaning they had now that the bomb had lost its
missile, but more important than anything else was the sphere made from dozens of hexagonal panels
at the front of the missile, no larger than a beach ball - the physics package, the reactive mass of a
nuclear weapon.

Miguel looked at it all in confusion before shrugging his shoulders and looking to Joaquin for
guidance. "I don't even know what half of this stuff is!"

"The big ball is the nuclear part," Joaquin shouted back, firing three shots across the room before
ducking back into cover as bullets struck the pallet next to him. "Disconnect it!"

"How do I do that?"

"I don't know!" Joaquin answered honestly between gunshots. "I know normal bombs, but not
nuclear ones!"

"This wouldn't be a problem if you hadn't shot the engineer!" Miguel snapped angrily. "This is all
your fault!"

"This is an awful time for you to start complaining about my shooting technique!"

"And you made me fall! I could have bee-"

Then there was a ding of a shot striking the side of the van and ricocheting into the concrete walls,
and Miguel suddenly lost whatever desire he had to argue and hurriedly got to work on the bomb,
following the wires that led to the main control board and whispering to himself as he did. The surviving rebels regrouped and began pushing forward, trying to take back the van, firing too often for Joaquin to be able to return fire with any real accuracy, so he took random shots in their general direction, to keep them cautious, to keep them from simply charging forward, but one boldly tried to push forward all the same and caught a bullet to the chest, a hit caught by a steel ballistic plate in his armor vest that forced him back into cover. But as he dropped back down, Phillip Green emerged from his hiding place once more, taking fast shots with his one good arm, a streak of cloth wrapped around the other tight, and under the sheer mass of fire, even Joaquin couldn't expose himself.

"Miguel! That bomb best be disarmed by now!"

"Working on it!"

"Work faster!" Joaquin shouted as he moved backwards and slammed his shoulder into the towering stack of boxes with all the force he could muster, moving it only a mere inch before throwing himself into it again, biting down hard as pain began to spread outwards from the place where his body struck wood and grew worse every time he did, till at last the pallet began to move on its own, the balance tipping to the side...and Joaquin heard the sound of screams cut short as two of the attackers were crushed beneath the falling boxes and buried. The third, the youngest of them all, raised his weapon to fire at the now exposed and defenseless Joaquin, only for the augment to fire first, to fire and advance towards his target as he did, bursts of red spreading across his cloths like blossoming flowers before, finally, Joaquin's hot and smoking gun fell silent, the room finally clear.

"Forget me, Joaquin?" came a cold and mocking laugh. "How could you ever forget me?"

Then everything Joaquin could see and feel and know exploded into a blinding white hot agony as something struck him in the leg, his gun slipping from his fingers and clattering against the ground as the battle hardened Augment crashed to the ground with a wordless cry, looking to his leg to see a stream of crimson soaking through his black trousers. He gasped for a breath as the pain turned terribly cold, stabs of pain spreading from the wound as he tried to move, only for a hard boot to press down on the hole and make him scream out.

"Such a wonderful sound to hear from you, Joaquin," Philip smiled as he raised his boot. "It seems like Augments suffer as much as everyone else does. Good."

"You say that like you aren't one of us," Joaquin panted, reaching for his gun only for the terrorist leader to kick it away, laughing quietly.

"I might have a few strands of Augment DNA in my genetic makeup," the colonel replied. "But I am nothing like your kind."

"You...you're right on that account," Joaquin replied. "You're a butcher, a madman and most of all a delusional fool, and we...we aren't."

"Do you genuinely believe you are in the right?" Phillip scoffed. "That what your side did was just? Khan changed everyone, whether they wanted to be or not."

"And look what it's brought to the world," Joaquin replied, pain numbing. "Take a look out on the streets of a Century City. Take a look at the children. They're not born blind or deaf, they're not born with bones like chalk or skin so dry it burns the moment they step outside in the sun. They're born healthy, without illness, without any disease. Some of them...some of them wouldn't even be here at all. And you would honestly, honestly want to live in a world that's otherwise?"
"All that only exists because of a violation of the individual right to choose, and don't try to tell me otherwise," Green replied. "Khan's virus didn't discriminate based on whether or not people wanted to be genetically modified or not, it infected everyone, even people who were willing to die to stop the spread of it."

"Is that what this is all about, Green? Freedom?" Joaquin asked. "If it was, you would be out there tomorrow cheering Khan's name, not trying to blow up the damned city. He's made people more free than they have been in years - free to love and marry whoever they want, free to choose their gender, free to -"

"And at what cost? How many people chose to end their lives just because they were modified and didn't want to pass it on to the next generation? How many soldiers turned their weapons on themselves when years, years of struggle and death became meaningless in an instant?"

"See, now I understand where you are coming from," Joaquin said with a wave of a finger. "Let me say something to you that Khan once said to me. You can shoot me when you're done if you don't like it."

"I will shoot you either way, so don't worry about it."

"Then let me say this first at least," Joaquin said before starting. "During the war, when Khan was losing, he once turned to me for advice as he usually does, and there was this one thing he said that I can remember perfectly. He said that the path of civilization and progress is like standing upon a stairwell, where the steps below descend into darkness and the ones above rise into the clouds and the light, and man is standing in that darkness and can go either way. He said that people, that civilization as a whole, would rather continue walking into the darkness that it is familiar to them rather than turn towards the light and risk seeing something they don't know. People don't like the unknown, the new or the strange, Philip. Xenophobia, bigotry, the fear of different cultures and religions, it all comes from that one thing."

"That's why they fought against Khan in the first place - they didn't know if what he represented was going to lead to ruin or not, and chose that the stakes were too high to risk otherwise," Joaquin said at last. "Sometimes babies need a knife to be born, sometimes people need to be dragged on the right path; there's nothing wrong with that."

For a moment, there was silence.

Then there was a laugh.

"A fine choice of last words."

Then Philip raised the gun...and then Joaquin's eyes saw a grey blur, his ears heard a crack and the infamous Colonel Green collapsed to the ground, dead, his right temple crushed inwards, a thin trickle of blood running down the bridge of his nose to lifeless eyes.

"Took you long enough," he sighed as Miguel climbed out the back of the van, smiling.

"I was hoping you might have been able to talk him out of it," the young man said, glancing at the fallen colonel and giving him a tap of his boot, just to be certain.

"Is the bomb defused?"
"Look at what killed him," Miguel said innocently with a cheerful smile.

Joaquin looked around, searching, and then he saw it rolling into the corner of the room.

A hexagonal sphere, its panels covered in blood.

He looked at Miguel in disbelief...and then, at last, he laughed. He laughed as the local authorities arrived, he laughed as the medics tended to his leg and he laughed as they loaded him into the back of an ambulance and drove.

****

The 2024 Flag Referendum.

Though it would seem to be a minor issue when compared to the threats of climate change, famine and social unrest, the referendum on what the flag of the increasingly centralized and homogenous Eurasian Union would be was considered to be a surprisingly important issue at the time, shining light upon the crack between the pre-and-post augmentation generations. Until the referendum of 2024, the Eurasian Union had no flag whatsoever, and simply flew those of all its constituent components alongside one another, and even the troops of its armies instead wore the patch of their home country rather than that of the organization as a whole - for the pre-war generations, who had strong memories of the old nations that the EA and the EU had both served to replace, that was enough, but the post-war generation had grown up in a world where the lines between countries had started to blur together in a process started by Khan's integrationist policies and accelerated by the development of the Internet and other swift means of communication made it easier and easier for people across the breadth of the massive organization to come into contact with those from other parts of it...experiences that typically brought them further on the path of integration and more ready to accept the idea that there were not a dozen nations flying their flags alongside one another, but one nation flying the flags of its constituent parts rather than that of the whole, and it was this feeling that caused the process leading to the referendum to start in the first place. At first, some four or five possible flags were brought to Khan's Himalayan home for his own personal review, to see if the master of over a third of mankind found any of them to be interesting, but for once, this was something that he was willing to allow the general population to choose from, in a show that their opinions were valued and still considered important. There were various ideas shown to him, in case there was anything that he might give his own support to, a wide variety of symbols placed upon the cloth - one was a ring of a few dozen stars, another was a large number of triangles inside of a single large triangle, one even had a double helix upon its surface, but there was one that he would give his own personal support to, the one symbol that Khan found truly fitting.

It would eventually be known as the "Flower of Earth".
The eight cell stage of a human embryo, the image taken during the earliest days of the Augmentation research, alongside the symbol that it served to inspire. A stage of embryonic development, the eight cell stage occurs not only in the growth of every single human being, but for all multicellular life on Earth.

The "Flower of Earth" was more than simply inspired by the eight cell stage of the process of embryonic development, but was directly based off of images taken of it during the dawn of Augmentation research, but there was far more symbolism in its design than was apparent at first glance. Though it of course represented a phase that every human being, living and dead, had once been at, the interlocking nature of the rings inside the whole representing the interconnected nature of all the different parts of the union in the form of the nations that were bound to one another, the population that had grown together and migrated freely to one land or another, the union of ideas and approaches to tasks and challenges and the unified nature of the government, whilst the outer ring itself showed how they had all been combined into a whole greater than the sum of its parts. Even more was the fact that it was not only the augmented and basic forms of humanity that went through the eight cell stage during their development, but also every single complex multicellular organism on the planet, whether plant or animal, a fitting symbol for such a diverse nation as the Eurasian Union, and one that would become the centerpiece of all the flags to make it to the final stage of the reviewing process and be chosen from during the referendum. Various features incorporated from the other flags would also make a comeback, ultimately resulting in eight different flags, some of them similar to the others and some outright bizarre in comparison.
A sheet of all eight flags given to school children during the referendum, used as part of a special series of lessons meant to teach them what the different symbols stand for and why flags look the way they are and how they came to be. The ninth position, in the corner, was always deliberately left blank so that they could draw a design of their own.

The color blue that featured prominently on all of the different flags symbolized the Earth’s great oceans and its brilliant blue sky, a unique pair of features found nowhere else in the solar system,
whilst the red that appeared on some of the flags was the same shade as blood, an eternal reminder of the blood shed and the sacrifices made in bringing about the conclusion of the Augmentation War, the event that directly resulted in the propagation of genetic enhancements to every human on Earth and the founding of the Union, most distinctive on the sixth flag. Even the white space was a symbol of Earth's white snowcaps and thick cloud cover. Some variants featured a wavy pattern on one side or another, deliberately made to look like the movement of the Earth's oceans and like a double helix viewed from the side, another symbol of life. One particular variant, the seventh flag of them all, had a streak of green to represent the forests and lands of the Earth, whilst the eighth flag outright showed the solar system in the form of a number of stars in the top section of the flag, Earth the greatest of them all with the "Flower of Earth" on the opposite side, white on red.

In the end however, only one would win, and the choice made that day would remain the flag of state for centuries to come...

****

End of Part 2!
Map of the world, 2030

As you've probably guessed from the mangled formatting, this story wasn't originally written for AO3, but for AlternateHistory.com, who all love a good map...a map that I've put here, but also a map that I am having a great deal of trouble actually formatting. I'll get back to fixing this one soon by transcribing the text of the map onto the page itself, but for now this should do to show the political scene of the world in 2030, or at the end of Part 2!
1. Germany, having taken serious damage during the war and thus needing to rebuild for a second time in a century has all but given up on militarism entirely, and maintains only a tiny force, preferring to act as a gateway between east and west than to commit to either side. It is something that is making them very, very rich, and a new saying reflecting this newfound attitude has appeared - "Europa nährt sich, aber Deutschland wechselt Kleidung," or Europe pees itself, but Germany is the one to change clothes.

2. Although a natural looking ally for the T.A.O, Finland has surprised many by instead of whom would happily welcome them to their side. This is quite clearly because they found themselves at the epicentre of some of the heaviest fighting...and home to a tax of the world simply went away.

3. As the only group of nations to have been on the Augment side of the last war, the Republic of Central America, do not have fond memories of the United States Marine only time will tell whether they once again combine into another United States of C or start joining up with the T.A.O.

4. Bolivia was originally a candidate for membership into the Transatlantic Organization, a lot of development aid in order to make it worth their while, but past tensions with Bolivia truly wants - a sea port - is something that no one will give them.

5. With pro-Eurasia Venezuela to their west and pro-Atlantic Suriname to their east, to stay avoidably neutral, no matter how tempting the trade deals might be.

6. One of the earliest non-Eastern Alliance nations to join the Eurasian Union, Greece, member state looks like - the economy is healthy, if perhaps built off of the tourist urban planners are highly desired in the Union for their skill at planning the more part of the East European Precinct, it is expected that the Greek region will be split between the two regions, once the Balkan states have been fully integrated into the Eurasian.

7. Australia is another strong candidate for T.A.O membership, and one that the org despite all the benefits of joining the organization even at the most basic level of labor, Australia's number one export is high quality uranium ore and other radio makes them into a major strategic player, and even that level of integration would ICBMs should the newfound peace and brotherhood of mankind break down into a global.

8. Originally formed in the aftermath of the Second World War as a trading block, the Western European Union to set aside their differences and find common ground - as the anvil upon which nations are forged, and the NEU was no exception. Heavily into many of the later ideas behind the structure of the T.A.O can trace their origins.

9. Deep beneath the surface of the ocean, the new cities of the Sargasso Sea go about retreat for the rich and famous, only to expand into full blown colonies, the aquatic law in that it isn't entirely clear what their standing is - most of the corporations assume that it is clear that the US government has its eyes on the but the most
meaning that it is clear that the US government has de-facto control, but the ques-
tion of who is represented at election time remains unclear. Because of this confusion,
private security, physicians and technicians have replaced the public services, the
nations.
"Are you alright, mom? We've haven't even been out half an hour yet and we're still ten minutes away from the store and you really wanted to get...oh, you're tired? That's alright. You carried me, so I'll carry you." - a thirty year old Augment woman to her sixty year old mother. Thanks to their genetic modifications, Augments were more resistant to the effects of age and thus able to maintain a youthful appearance into their eighties before they would begin to visibly age, giving them a greatly increased lifespan over that of an unmodified individual...but an Augment born to unmodified parents would be forced to witness their parents growing old and becoming elderly whilst they themselves remained young, creating a unique form of stress rarely found in the people of past generations - apeirophobia, the fear of eternity, or the fear of outliving one's family and friends.

"After twenty-two years of constant bloodshed, even the greatest war must come to an end, and so too must Warhammer Online. But neither game nor battle should end without a suitable climax, and we on the team have come up with a fitting send off for the most beloved MMORPG ever made: for one last time, the titanic battle of Middenheim rages on as the forces of Order and Chaos clash to determine the fate of the world...but this time, there are no respawns for players or NPCs. Those who die in battle cannot be resurrected, making every character count, and the battle will only end with the death of either Archaon the Everchosen or Emperor Karl Franz, but everyone who completes the event will receive a code for a commemorative medal in Warhammer Online II." - a developer post from the final week of the highly successful Warhammer Online game, prior to the final shutdown of its servers - achieving a record breaking thirty million concurrent players across all servers for the much anticipated final battle of the campaign, the success of the massively multiplayer online roleplaying game would serve as a demonstration of the increasingly interconnected nature of the modern age and how people from opposite sides of the world could interact with one another quickly, cheaply and with little lag or other impediments to their activity.

"More progress has been made since the start of the nineteenth century than in all the centuries before it combined, for at the start of the eighteen hundreds, cities and nations were isolated from one another by a combination of both slow slow transportation and slow communication, limiting the spread of ideas of culture and innovation to the speed of the fastest sailship or horse. Yet within two hundred years, a mere blip in the long history that had first began when Humanity emerged from the plains and savannahs of Africa, everything changed - the developments of the industrial revolution shook the very foundations of our civilization, confining certainties of the past such as slavery and serfdom to the dustbin of history, along with the idea of kings and queens and other such medieval concepts.

Technology made it possible for messages, no matter the size or content, to be transmitted from one place to another in a matter of moments, and the range and capability of this transmission has only ever grown forwards, first with the telegram and then the telephone and the radio and the television and the internet, just as journeys that would have once taken months or years or even a lifetime can now be done in a few hours, perhaps even minutes. The world has never been more connected, nor has its peoples lived so well, for even in the most remote village of the Eurasian Union or the Transatlantic Organization or the African Union one can find amenities such as refrigerators or
computers, all of which would have been considered impossible in an earlier age or even to be witchcraft...yet they are very real, existing in the utmost abundance that an industrialized society can be provide.

Even Humanity itself has been impacted by the development of the sciences in the ways that the people of the past might have only dreamt of, forever stricken of the sicknesses that had killed untold millions through the use of ever improved sanitation, medicine and, ultimately, the mastering of the building blocks of life itself, a science that has made it possible for every generation to come to be rid of inherited diseases that had condemned so many to a sickly and pained life, finally ridding every man and woman to come of the plagues of the past.

The world has never been so informed and comfortable and nor has its people ever so able to live up to their potential. Now is the time for true progress to begin." - the final paragraphs of Millennia in Review, a best selling book popular for its interpretation of the trends that formed in one century and how they interacted with and shaped the next. First published in 2033, the text would become mandatory reading for the administrators of the Eurasian Union due to its in depth analysis of how otherwise insignificant actions and choices could result in much greater events and even catastrophes if they were not properly dealt with in a timely manner, thus making it an ideal tool to teach trainees that no problem is too insignificant for decisive action.

"For once you have tasted flight you will walk the earth with your eyes turned skywards, for there you have been and there you will long to return." - a quote by Leonardo da Vinci, found scrawled on the outside casing of the TASS Christer Fuglesang's primary fusion chamber during a routine EVA inspection prior to its first interplanetary mission in 2033. The first fusion ship constructed by the Transatlantic Organization, its name came from a list of the first people in space by nationality from within the member states of the TAO as selected by lot, but would serve for only a mere eight years before advances in technology and improvements in ship design rendered it obsolete.

"Kalsarikännit - a Finnish word that means that you're going to get drunk alone in your underwear today instead of going out today." - an excerpt from Much Needed Loanwords, a parody guidebook suggesting a number of words to be added to the common English language, published in 2032.

"Our country has a problem with people who don't "fit" in and make no effort to do so, either. They eat strange food, they wear strange clothes, they speak broken German with a funny accent and even keep a different religion than the rest of Germany, and all they ever do is soak up taxes that could be spent elsewhere.

This is why I am starting a petition to kick out Bavaria." - part of a German comedian's standup routine in 2035. One of a few states in the world outside of any major power blocks due to the long standing fear of being caught in the midst of any renewed fighting even after the clear normalization of relations between east and west, the devoutly neutral nation would serve as a meeting ground between representatives of the Transatlantic Organization and the Eurasian Union during any major diplomatic event and as a free market between the two where any expertise that might be needed by a traveller passing from one block to the other, such as lawyers familiar with Eurasian law, could be found in abundance.

"JOBS IN PERIL: the sudden genetic modifications of humanity have meant that many traditional forms of employment, particularly certain skills that were immune to automatization, are either going to become obsolete entirely or become a greatly reduced field. A few examples:

DENTISTRY and ORTHODONTICS: Although dentistry is a time honored practice dating back to the 17th century, the previously indisposable services of a dentist have been greatly reduced in need
by the new, augmented generation - Augments maintain their ameloblasts, the cells needed to produce enamel, and thus have teeth that can self repair any minor damage, thus preventing said damage from accumulating over the years into cavities, fractures and decay, whilst the jaw itself contains the tissues necessary to "rebuild" lost teeth given sufficient time, allowing teeth lost to injury or illness to be replaced by the body itself, greatly reducing the work that a dentist might need to carry out. In addition, the teeth themselves have a greatly reduced chance of deviating from their natural course, ensuring that augmented individuals will not require braces or retaining devices. Despite this, the decreasing regenerative capabilities of genetically modified individuals with age means that it is highly likely that there will still be a need for dentistry in the later years of their life, meaning that there is the likely chance that the decline dental practices have experienced since 2000 will reverse sometime around 2080 as an equilibrium is reached, with those remaining in the meantime likely dedicated to emergency services, ie, teeth pulling following irreparable damage, reconstruction following accidents, etc.

OPTOMETRY and OPTICIANS: The history of opticians and spectacles easily goes back to before the twentieth century, but like dentistry the profession is under siege by the rise of a generation that has no need for it - augments, bar none, have perfect vision from birth. In addition, they also benefit from tetrachromacy, or the addition of a fourth cone able to function as a backup, rendering it impossible for any augment to ever become colorblind and even allowing an individual who has been properly trained to differentiate such colors (typically through intensive and long term use of a dark chamber containing five lights that change regularly, four of which are the same color whilst the fifth is slightly different, "teaching" the brain to recognize that they are different) to a level far beyond that of an unmodified individual. These enhancements effectively make the great majority of an optician's work unnecessary, but as with dentistry, there is still a need for a small number of opticians and other eye specialists to remain in case of emergencies, since the eyes are one of the least regenerative parts of both an unmodified human and an augment and are more likely to need replacement by a vat-grown counterpart in the event of damage than any other part of the body...and, of course, ocular degeneration is likely to still be a problem in aging augments.

VIRTUAL REALITY PROGRAMMERS and HARDWARE MANUFACTURERS: A different situation from the previous two, but it is quickly becoming apparent that all forms of existing virtual reality goggles, visors and other such technology are effectively unusable by most augments. This is because of various improvements to the parts of the brain dedicated to the task of processing sensory input, particularly in regards to self-balance and coordination between the liquid of the inner ear and the visual appearance of movement: although this makes augments surefooted and easily able to maintain their balance in most situations, as well as wiping out practically all forms of motion sickness, it also has the unintended downside of causing them to respond more quickly and violently to what has been theorized to be sensory conflict - in short, the eyes see the virtual reality imagery and say they are moving, whilst the liquid of the inner ear disagrees and says that they are not - which results in serious disorientation and nausea. This "VR sickness" is similar to the problem various militaries have encountered whilst trying to use their pre-war flight simulator equipment, but whereas they can simply modify their machines to provide a sensation of movement, typically through the use of complex force feedback platforms built beneath the simulator itself that can provide the illusion of forward movement, banking turns and other maneuvers, but this isn't a viable method for the average consumer. Thus, it is likely that VR technologies will die out in the coming years due to the effect as the market shifts more and more in favor of augmented individuals and away from those lacking genetic modifications." - part of a presentation from an investors meeting in New York City, 2035, discussing various fields that were likely to experience a decline in the coming years due to the impact of widespread genetic engineering.

2035-2040
"When I was a child, I somehow managed to find myself elected as class president of a bunch of
gradeschoolers, kids so young to barely know what politics were and to whom the government
began and ended with the man giving the speeches on TV. But that little bit of time in charge gave
me a fascination for politics, and a question; if my job was to help choose which museum to go to on
a field trip or act as a spokesman for the interests of my classmates, what job does the President of
the United States do? Well, if there is one thing my mind didn't consider then, it's debating over
whether or not the Armstrong Colony should get a funding grant for a new circumlunar railway." -
an excerpt from a New Year's dinnertime speech by President John Grissom, the first ever Augment
president of the United States, elected in 2036. Popular for his warm, friendly nature and the ability
by which he could feel the mood of a crowd and know what they were concerned about, he was
similarly well known for his fondness for the space program, and would spend two terms raising the
number of American-originated offworld colonies and facilities from four to thirty-two, providing the
United States and the Transatlantic Organization by extension with an unending stream of raw
materials and scientific data.

"Hellooooo stream fans! Amy here, back from my holiday in the Middle Eastern Precinct! If there's
anyone curious about how things went, and from the chat I see there are some, it was great! If you
ever want to go on holiday to somewhere you've never gone before, the Eurasians let in TAO
tourists all the time, since its not like we're in a Second Cold War or anything, and Athens
is beautiful this time of year, and the people and the food and the music is all just...incredible!
Anyway, that's enough about that, I'm planning to do a little segment about it later, but for now, let's
get back to the norm with the latest hits by...Road Knight! Because who would have thought
knightly-romance-rap would sound so good?" - an excerpt from Amy's Radio Stream, a peer-to-peer
internet broadcasting station all about music and the latest news, after the return of its namesake DJ
following a two week vacation in the Eurasian Union. Although many of those old enough to
remember the Soviet Union could imagine Eurasia and the TAO as locked in another, covert struggle
of influence and forever on the brink of war, the two superstates were inseparably connected by
economic ties and held similar political views in regards to society, the economy and international
affairs, differing primarily in how those views were implemented. With the inauguration of John
Grissom, a personal friend of Khan Noonien Singh, and the rise of an Augment generation into the
governments of the constituent states of the Transatlantic Organization and on the Atlantic Council
itself, the two powers became so close as to be de facto allies and would engage in many cooperative
projects...even if they still engaged in friendly competition outside of the political arena in the form of
games of technical one upmanship and sports.

"The development of both easy to produce and cheap carbon nanotubes has a thousand more
applications to the world than most people realize. Cheap nanotubes can be used in consumer
electronics to allow for batteries that have ten times the storage capacity of regular batteries, they
can be sprayed onto plastic film to create sensors so precise as to be able to detect whether the food
within has spoiled or not, they can even be used to make the foam filling of pillows and mattresses
inflammable, and, of course, they will make the use of rockets to get into orbit obsolete thanks to
making a space elevator possible." - an excerpt of an interview with a materials scientist in 2037,
discussing the impact of the production of carbon nanotubes on a commercially viable scale;
although nanotubes would never become so cheap as to be usable in everyday, household
applications, they would be abundant enough for government and corporation alike to make use of
them in a thousand different fields from medicine to computing.

"Welcome to the Museum of Mankind. Ahead of you is the primary atrium detailing our shared
history, from our first appearance in the plains of Africa to the development of agriculture in
Mesopotamia, all the way to the present day. To your left you will find the Hall of Victories,
dedicated to our greatest achievements, and to your right you will find the Hall of Defeats, where our
greatest failures can be found and learnt from." - the first section of the brochure to the Museum of Mankind, funded by the great three powers of Earth and located on the very edge of the Cradle of Humankind in South Africa, a place where fossil evidence of a hominid presence stretches back for three million years. Home to such exhibits as the Apollo XI capsule and Eagle descent stage, a Gutenberg Bible and one of the original machines used to carry out genetic engineering in the development of the first Augments, as well as a section in the Hall of Victories forever concealed behind a series of curtains and doors and to where access can only be obtained if one signs an agreement vowing to not speak of what is within, the entire structure is buried ten meters beneath the surface and is equipped with both a blast door and specially reinforced concrete containing a dual carbon nanotube-fiber mesh alongside rebar, allowing it to survive a nuclear war undisturbed, and is built atop a designed vault that serves not only as a vast genebank, but as a cultural and technological archive, intended as a means to preserve both history and knowledge in the event of a major disaster.

"When people a few centuries from now look back at our achievements, they will say that this was the greatest wonder of our age." - Khan Noonien Singh, on the completion of the Indian Ocean Elevation Platform, the world's first operational space elevator, 2037. With a climber capable of travelling at two hundred miles per hour, it would take almost five days for cargo to reach geosynchronous orbit, but the incredible economics of doing so would allow space elevators to completely replace rockets as the preferred means of ferrying cargo to and from orbit, their upper platforms becoming the first starports and hubs of commerce and interplanetary traffic.

"Some people, mostly those of the older generations from before the rise of the TAO and the EU, tend to wonder why those two superstates are able to do things that their members couldn't. Well, here's an answer for you. What's better at lifting? Two or two hundred? Everyone would say a hundred even if they don't know what those hundreds are. But those hundred are mice, and those two are construction cranes. The whole is more than the sum of its parts. That's why all of Asia would have barely been able to put together a Mars mission when divided, whilst the Eurasian Union put a man on Pluto barely a month ago." - an excerpt from a history professor's lecture on the rise of the superstates, describing how their unification greatly increased the capabilities of governmental projects due to the combination of engineering talent and different perspectives to the same problem, as well as due to the reduction of inefficiencies. A proponent of the theory of a "transnational chain reaction" that began with the founding of the Eurasian Union, the professor would later argue that the mere presence of a single superstate in the world encouraged the development of other superstates, the immense gulf in capabilities between the then young Union and its former enemies in Western Europe and North America acting as a catalyst to accelerate the formation of the Transatlantic Organization.

"Don't you have satnavs in Atlantia? You do? You lost it...in the snow? Well. Welcome to the East European Precinct of the Eurasian Union. Your side of the border is that way, on the other side of the mountain. I would give you a lift, but...well, seeing Eurasian armored vehicles coming over the border might give people the wrong idea. Off you go then!" - a Eurasian officer teasing his Transatlantic counterpart, after the latter and his unit accidentally lost their navigational equipment whilst on a training exercise in the southern area Austrian Alps in 2039. Disoriented by the snow, lacking replacement equipment and explicitly ordered to maintain radio silence as part of a simulated exercise in conducting an offensive in the wake an electromagnetic pulse, the platoon sized unit would accidentally march south instead of north and thus crossed what had once been the Slovenian border prior to its integration as part of the Eurasian Union. Although the event could have resulted in a minor diplomatic incident, the misplaced men would be escorted back to their side of the border without issue...though with more than a little embarrassment for the TAO, whose troops would become the object of a few Eurasian jokes.
"On behalf of the people of the United States of America and the Transatlantic Organization of which it is a founding member, I would like to extend my congratulations to the African peoples on their commitment to a union of their own, and would like to reaffirm our promise to a peaceful and beneficial partnership. With the creation of the African Confederation, it seems the Big Two is about to become the Big Three." - An excerpt from a speech by President John Grissom on the founding of the African Confederation, the third superstate to form following the passing of the Articles of Unification of the African Union and their establishment of a unified constitution. With its predecessor having risen during the days of the early two thousands in the wake of war and having brought with it a wave of unprecedented peace and prosperity to the continent, the transformation of the African Union into the African Confederation had been an event that had long been anticipated by the peoples of the world, and though it was the youngest of the three powers and still developing to their standard, the combined efforts of all the African nations would allow them to construct space colonies and fusion ships of their own, all whilst dramatically improving their infrastructure on Earth via the construction of intercontinental motorways and the latest in railway technology.

"You can't shoot bullets in space, not because they need oxygen (most bullets have oxidizers in them already) but because of the temperature. Most propellants are very sensitive to extremes of hot and cold and won't perform properly outside of their intended temperatures, and the act of firing them will heat up the gun, and lacking convection and conduction, it will take hours to cool down again...not to mention that uncoated metals will cold weld themselves together.

Enter the G38 Gyromagnum. Part of a family of weapons first developed at the dawn of the space age, every one of the G38's rounds are tiny rockets filled with their own propellant that ignites after leaving the barrel to accelerate them to their destination, removing all but the recoil of the primer, whilst our patented heatsink-radiator design vents the heat that comes with the precharge, allowing shot after shot after shot without heat-based failure.

No heat.

No recoil.

No fuss.

Buy yours today. Because what you love is worth protecting." - an advertisement in the back of a magazine for the G38 Gyromagnum, 2042. Specifically designed for use in space by private military contractors, security guards and freighter crewmen, the G38 was one of the first weapons to be purpose made for the vacuum of space. Its revolutionary self propelled bullets and thermal management system, perfect for the vacuum of space, would cause its design to spawn a generation of firearms based on the same principle, including a light machinegun, ultimately resulting in gyrojet based weaponry becoming the preferred choice system wide for fighting outside of a planet's atmosphere, with the marines of the TAO and the Eurasian Union being reequipped upon entering and exiting a planet's atmosphere.

"Every now and then, someone finds out about what I do for a living and they come up to me and ask why cars aren't getting that much faster anymore, even the ones that aren't self driving. And the answer is...well, it's not for a lack of trying. Do you know what happens when you get a twenty million ASC hypercar with a miniature fusion reactor in the back and take it on a motorway at, say, three hundred and seventy miles per hour? It takes off. With enough engine power you can make anything fly, and that means that the main engineering challenge now when it comes to designing an electric car isn't about finding how to make it move, it's about trying to keep it on the road." - an excerpt from a joint conference by the twelve greatest automotive manufacturers on Earth, held in Prague during the spring of 2043, which would result in an almost unanimous decision
to scale back engine performance for safety reasons following the infamous crash that caused the death of Serhiy Zelenko, a high ranking administrator of the Eurasian Union.

"Huh. Using infectious microbes to fight infectious microbes. Now that's throwing evolution a curveball." - a doctor upon seeing the successful test results for a family of genetically engineered hunter-killer microbes designed to counter antibiotic resistant bacteria. Both overused and misused by past generations, antibiotics rapidly began to lose their effectiveness during the first half of the twentieth century due to the rise of antibiotic resistance, but the risk of post-surgical infection was greatly reduced by the development of specially designed bacteria and viruses that could "detect" the presence of antibiotic resistant proteins in target bacteria and destroy them and the bacteria itself. Led by an international consortium of doctors, nurses and healthcare providers, a solar system wide effort against antibiotic resistant bacteria would be made that would result in antibiotic resistance being declared wiped out within twenty years but for a handful of samples kept in an isolated lunar colony for scientific purposes, the greatest combined medical effort since the eradication of smallpox in 1980.

"So aliens with weird technobabble shields that stop gunfire invade the Earth, then they somehow smash the armies of the TAO and the Eurasian Union even though they don't use tanks or anything like that...and leave everyone resorting to guerilla warfare because their scanners aren't good enough to pick out guys in bright colored T-shirts hiding in hedges? Really? I mean, really? Has noone ever heard of a flamethrower before? Or tanks? Or thermal imaging?" - an excerpt from a critic's scathing video review of a science fiction movie from 2044. Despite having a massive budget for both computer generated imagery and publicity, guaranteeing it a strong first week, the film would ultimately set a disastrous record as a failure by not making back even a tenth of the film's production cost.

2045-2050

"I don't know. This doesn't seem all that medieval to me. Sure, you're in armor on a horse. But you're a genetically engineered man pretending to be a knight sitting on the back of a genetically engineered horse pretending to be a destrier, with a wooden lance that's foam at the end. That guy over there even has a baked potato! Potatoes aren't medieval! They're from the Elizabethan era!" - a skeptical guest at the Maryland Renaissance Festival, 2045. Part of a state tradition that can date its origins back to the 1950s resurgence of interest in the medieval and renaissance eras in the United States following the end of the Second World War that had seen many American troops visit the castles, cathedrals and old cities of Europe, renaissance faires would find themselves joined by "twentieth fairs" that tried to recreate the feeling and atmosphere of the twentieth century, often taking the form of a long zigzagging street that began with the cobbled streets of the 1900s and 1910s to the destitute homes of the 1920s and 1930s and the ruins of the 1940s before giving way to the swinging joy of the 1950s and the most popular of all eras, the 1960s, beloved for its enormous transformations in science, society and culture.

"Check this out. A real 2034 Eurasian Army cold weather MRE. The Eurasians tend to sell their surplus rations off cheap whenever they get within a year of their expiration dates, that way they can clear the shelves for the next batches without needing to waste anything, so it's pretty easy to find one of these, but since they're usually bought by outdoorsy people, preppers and all sorts of people who might actually use them, its actually hard to find any that are more than three or four years old.

Anyway, this ration pack, called the R-31CW, with 31 being the year that it was first put into production, was one of the first twenty four hour rations especially designed for Augment soldiers,
since before then most countries just taped together two older ones whilst working on a specific formula, and is a little bit bigger than the regular R-31s due to being designed for troops serving in a cold or mountainous environment, since the cold means that they're going to burn more calories in a day than they would if they were somewhere like the Ukraine.

Now, let's cut this open...and there they are! Three main meal packs, one for breakfast, lunch and dinner, with two snack-packs to fit in pockets, all white for camouflage reasons, with a combined total of six and a half thousand calories. Here's the accessory kit, where they keep the water purification tablets and the little foldable stove you get to cook your food on using these smokeless fuel tablets, which is a bit different from normal R-31s since they all use flameless ration heaters that need liquid water to work and can't use snow and...a fortified oatmeal block? In the utensil - oh. That's, uh, designed to do one "thing" if you know what I mean.

Anyway, according to the menu, this is a ration intended for troops from the East European Precinct, so it's been customized for the local flavours - things like rations for the Middle Eastern Precinct are all halal and swap out the usual liqueur shot that comes in the breakfast packs as a little "kick" to start the day with some cardamom Arabic coffee to be brewed in the field instead, for example. Looking at this menu, we've got quite a few items: bigos as the main, oatmeal for breakfast and a hell of a lot of crackers and bread throughout the day since its a slow burning food..."

"It looks like the primary cabin has lost power and the door is sealed tight. Jenkins, bring up that APU and plug it in. If the cabin's out of power then the life support won't be running and we won't have much time to waste. On my mark.

Three.

Two.

One.

Alright, we're in and...I...are you seeing this, command? Jesus Christ...Dr. Oshiro's...he's fused to the bulkhead from the waist down, and his skin seems to have melted right into the metal..." - an excerpt from the helmet recording of the commanding officer of the team sent aboard the experimental ship known best as the Houdini. An attempt by the Transatlantic Organization to develop faster-than-light travel, the Houdini was a testbed design equipped with what its designer, Dr. Susumu Oshiro, called a quantum translocation device, theorized to allow the ship to be able to teleport itself across great distances instantaneously. The focus of much publicity following the successful demonstration of the device in several small scale tests, more than a few assumed that the first ever live test of the Houdini's "jump" capability was but a formality that would usher in a golden age of interstellar travel...only for the test to fail in the most catastrophic way possible, with the Houdini's frame warped and distorted by the process of self-demolecularization and its designer killed in the most torturous way yet imagined, a death that would forever taint the idea of "transporters" and the like in the eyes of humanity as a suicide booth unsuitable for human use.

"15:51:40: Unknown vessel detected upon intercept course.

15:52:57: Unknown vessel refuses to answer identification request. EUWS Arkhangelsk goes to condition yellow.

16:01:41: Unknown vessel refuses to change course upon request. EUWS Arkhangelsk begins thirty minute countdown.
16:30:00: Thirty minute timer expires. EUWS Arkhangelsk goes to condition red.

16:32:41: All decks declare combat readiness.

16:33:29: Missile tubes one through four launched.

19:38:53: Target vessel deploys point defense and passive antimissile countermeasures.

19:39:22: Target vessel is hit.

19:47:14: Target vessel loses main power.

19:48:30: Target vessel begins evacuation and broadcasts distress signal.

19:55:19: EUWS Arkhangelsk changes course heading, sends action report.” – an after-action report generated and logged by the computers of the the EUWS Arkhangelsk in 2047, in the orbit of Saturn following a brief engagement with what would later be determined to be corporate privateer, a privately employed mercenary who had, according to their testimony, mistaken the Eurasian warship for a privately owned freighter due to faulty equipment, thus confessing to an intention to commit an act of piracy...something that would become more common amongst the colonies of the outer planets due to a lack of easy enforceability due to the limited number of patrol ships from Earth.

"Hello, cousin," - a laboratory recording of the quiet words of the first xenobiologist to ever examine a petri dish containing live, Venusian microbes, the first form of life ever discovered on another world in samples collected in 2048.

"Please don't forget me,
who gave myself so free,
for a hope and a gleam,
of a place of dream:
a red world made green." - a piece of Martian poetry, written in flowing cursive on the back of a cargo manifest of a resource pod sent to Earth, 2049.

2050-2055

"If you look close enough, you'll find that Venus isn't dead. She's just a little under the weather." - an excerpt from a press release and interview with Delthy Vaughn, the first ever Head of Venusian Terraforming Operations, an international organization of scientists and engineers united under the banner of transforming Venus into a living world, following the official commencement of geoengineering work on Venus with the first shipment of iron from Mercury in 2051, which in combination with a tapping of the hydrogen reserves present in the planet's crust, would start the process of reducing the thickness of the planet's atmosphere by converting the atmospheric carbon dioxide to graphite, a process that would take a century to complete.

"I don't think you get just how far out of the US's league the Eurasian Union actually is. You said to ISOT all of Eurasia from 2047 to 1994 for a rematch against the United Nations coalition to see if they can win the war outright, with nukes off the table, and as I've said before, the answer is very, very much yes. Let me do some back of the envelope math to demonstrate, since converting money from now to then is a bit tricky: Eurasia has eight billion people within its borders, with an average GDP per capita of what would then be some $48,000.
Being cruel, we’ll shave off twenty percent of the Eurasian population as people who aren’t contributing to the economy, so children, teenagers, pensioners, the disabled and so on, though bear in mind this percentage is probably much higher than the actual number which is...1.6 billion non-contributors. That’s over five times the entire US population, but we’ll continue to let this sink in. Calculating a rough GDP from that point on by subtracting the noncontributors from the remaining population and then timesing the resulting number by the average GDP, the entire Eurasian economy can be, very very roughly, valued at...oh, 3.072e+14, which is scientific notation for over three hundred trillion and some pocket change that amounts for two hundred billion. Four percent of this goes to defense expenditure, less than the US percentage of the time, for a total defense budget of twelve trillion, from which comes the army, the navy and the air force.

The US's entire GDP in '96 was eight trillion.

In other words, Eurasia's army has half the US economic output in an entire year to play with. But ignoring that for a moment, there was less than one percent of the Eurasian population in military service - not exact numbers, mind, since you need to file a request for any census information less than five years old so that corps don’t get their mitts on one of the main things that tell the administrators what to do next - at that time, just as there is now, and that means there are roughly fifty million full time professionals between all branches of the armed forces, armed with modern weapons, armor and vehicles...and orbital support.

Even without the technological differences, which are bigger than the differences between 1994 US and 1945 Nazi Germany, Eurasia would go through the entire UN coalition like a chainsaw cutting through wet tissue paper simply because its economy now is bigger than the entire global economy of the time almost ten times over, giving it an ungodly amount of war making potential. And of course it does - it's a frigging continent from sixty years in the future...with space colonies! Unless you're going full Yankwank, Eurasia will be raising the rose over the UN building in...one to two years, tops. And just to settle the technology debate, the gap between 2047 Eurasia to 1994 USA is as big as the gap between 1994 USA to 1941 Nazi Germany. What they'd do to Germany, Eurasia would do to the US." - a post submitted in 2054 on alternateuniverses.com, a forum dedicated to alternate history scenarios both in real history and in fiction.

"Ah! The Maghrebi War! Yes, I was there as a young warrant officer as part of the Eastern Alliance's expeditionary force, in the Libyan region. The Libyans were nominal allies of the Alliance, and though the UNSC didn't know it then they were one of our main suppliers of oil for the whole theatre, but Africa was mostly a sideshow from the main war in Europe and elsewhere. We had only twenty five thousand men in the theatre, trained in armored warfare so as to act as a breakthrough force for the less experienced and equipped forces of our allies, who acted as the follow up for any openings we managed to make and exploit. It was a war in the desert, between us as and a mixed force of UNSC troops, and even in the ventilation of our tanks it was hot, as the T-72B and T-80 hadn't been designed for operating in so hot an environment, but neither had the UNSC vehicles. Their Patton tanks had been brought back into service due to a lack of more modern armor and to free up modern vehicles for more important fronts, and they were useless things, utterly useless, but their Abrams tanks were quite dangerous indeed, very dangerous especially if they got the drop on you with those quiet turbine engines of theirs, but they had this design problem with the turret at the front, an opening where the turret didn't entirely cover the ring, right above the driver's hatch and below the gun mantlet, right here on the model. A shot there could disable the ring and immobilize the turret, and was often enough to send them running, and that's how you would get the kill: either by the tankers exposing their weaker rear or side plating and letting you get the kill shot that way, or by being able to overtake the tank and hit the sides as it tries to pull back in reverse gear.

"Threading the needle" we called it. Very well trained crews, though. They learnt to patch that issue
in the field by welding metal plates to the bottom of the gun mantlet to make it seem like their gun was lowered more than it usually was so it looked like the ring couldn't actually be reached, and that worked better than you might think over such a distance that tanks might engage at, and eventually they got new turrets with better mantlets and changed the hull shape just a little to steepen things out so it would be impossible to hit it. What do I think was the most dangerous vehicle in the war? Well, I would have to say that the Leopard 2A4 was likely the most dangerous single vehicle for most of the war - excellent fire control, great frontal protection and a good gun - but what you would really hate to meet is those times when the French and the British would work together and go in groups. The French had their Leclercs, which were brand new tanks at the time and had only just started coming off the assembly line when the war started, absolutely state of the art, but they weren't as heavily armored as other tanks of the time but made up for it by being quick over rough terrain. Very nimble, well equipped for firing on the move.

The British, on the other hand, had Challengers, and those were more like mobile bunkers than tanks. Slow, but very heavily armored, and they had just massive ERA bricks on the front that could stop anything you threw at them. When the two were together, the Challengers would roll forward in a frontal assault, soaking up everything you shot at them - it was like throwing peanuts at them. But whilst we were focused on the front, the French would loop around and attack from the sides, and if you tried to turn your turret to drive them off, the British would put a shell in the side of it and take the tank out of action. That's what the UNSC's biggest strength was: we mostly used the same vehicles and guns everywhere, but they had so many different kinds of vehicle that they had something up their sleeve for every situation. By the end of the war, though, the Italians had this new tank called the Ariete...that was the most dangerous single vehicle of the war, by far. The armor of a Challenger, the speed of a Leclerc, the reliability of a Leopard and the gunnery of an Abrams, all in one. They had this brilliant system that allowed the commander to designate a target for his gunner, at any point around the vehicle, without so much as moving an inch, which was science fiction stuff at the time, and they had ERA blocks on the front sides, so it was like shooting into a black hole - nothing would get through unless you hit the same place twice, and if an Ariete was coming around a corner in an urban area you didn't stand a chance. The only problem was that they had some problems coming up with a good enough engine for the monster, so they simply welded two V6's together, which meant the engine was harder to service and needed maintenance more often. They only came in '95, so at the very end of the war, but central command was so afraid of them that they hurried us these cardstock models to be made in the field during downtime, just to be sure that we would know what we were fighting. They told us to call for an airstrike if we saw one, since even our best tanks, our T-90s, couldn't stand up to them for long in a straight fight. Still, you'd rather be hit by one of them than a Challenger, since those still used rifled guns and had HESH rounds that no one else used anymore.

What does a HESH round do? Well, normal armour piercing rounds use fast moving penetrators that look like big sewing needles and focused all the energy of the hit on a single spot. They're more accurately known as APFSDS rounds, and unlike ones from World War Two they wouldn't even ricochet; they shatter if they can't penetrate, or get lodged in, but never ricochet. HESH rounds use a big block of explosives that detonates when it hits the armor - it doesn't go through, but it causes the armor to explode on the inside, and that means you get massive shards of metal to go flying around the inside of the tank, and the force of the explosion can turn the crew to mush, and I mean just utterly blow them to bits. You'd have to use a sponge and a bucket to get them out, and you have to get them out else the bone fragments will get caught in the autoloader carousel and - ah, sorry. Next question.

Did anything stick out to me in the war? Actually, yes. We were chasing down this one mechanized battalion in their Bradleys - awful vehicle, by the way, since the damned thing gives off toxic fumes as it burns and will gas the men inside before they get a chance to get out, it only existed at all
because of politicking in the appropriation committees, which was why the US sacked half its generals after the war - and rather than lead us right to their forces, they tried leading us all over the place. That took us into the Nafusa Mountains, to this little town, Alsheyab. The people there didn't care about the war, they just wanted to be left alone, but the journey had been long and the mountains were steeper than the UNSC men had thought and their vehicles were worn down from the chase, so they couldn't get out before we arrived. We had them ranged in before they even realized we were right on top of them, but they raised a white flag and sent a message on an open frequency saying they wanted to talk, so as my formation's second in command I went in and met their leader in the open, between us and them. Captain William J. Archer was his name, and out of his entire battalion he was the highest ranking officer left. At first I thought he wanted to arrange for their surrender, but we talked for awhile and though his men were worn out they still had some fight left in them, but that wasn't why he wanted he talk.

He said there was a school between us and them.

I thought he might have been lying, since that wouldn't have been the first time someone tried to use the threat of civilians in the way as hostages, so he took me there to confirm it...and there they were: the classes were packed with terrified children, all hiding under their desks waiting for the shooting to start, crying, and none of them were older than ten. We hadn't even known it was a school since that part of our maps was outdated and said it was a warehouse. Our line of fire would have leveled that building in seconds. When I went back to our line, I told my commanding officer the truth. They got their truce. After that, we went our separate ways. No war is worth that." - a seventy one year old Augment veteran of the Augmentation War, retelling his experiences of the war to a classroom of school children as part of a veteran's day event in 2051. Although it was rare any of the original Augments to take part in the fighting, knowing that their lives and their cause were inseparable from one another, some of the younger Augments who came from later groups, such as those created throughout the 1980s, would take part in the war and fight alongside unmodified individuals, many of whom were made all the more confident by their presence. But as the years since the war progressed and as more and more of the soldiers who fought in the conflict passed away, it would become increasingly the views and opinions of such Augments that would become the foundation for public opinions about all aspects of the war due to this living link to the past.

"Alright recruits! This weapon here, the Type-5 bayonet, or T5B, is going to be your new best friend, now look closely! It was designed in 2019, meaning this is the oldest piece of equipment you will ever hold, and you want to know why? Because it is perfect. The blade is exactly one foot in length and is made from a special alloy with 0.5% Niobium forged in zero gee, which is the only difference between this knife and the first one. What that means is that it will never need to be sharpened in the field and it will only corrode if you absolutely positively messed up somewhere. This knife will do anything you ask it to. It can cut rope and wood, it can open cans and pry open metallic containers, it can be stored in your boot, on your waist, on your chest harness and up your sleeve, but if you're going to fight with it, it is best at slashing motions, not stabbing. The reason for this is that your opponent's center of mass, where all the vital organs are, is protected by body armor designed to resist penetrating strikes like bullets and knife thrusts.

The Type-5 bypasses that protection because it isn't meant to hit the torso, it is meant to hit the unarmored parts of the body and the joints in particular: the neck, the knees, the elbows, even the heels if you can get at them. Why? Because you are aiming for arteries and tendons. Remember that. It doesn't matter whether you are fighting an unmodified opponent or an Augment, a cut to the femoral artery in the middle of the thigh will end a fight in seconds, and severing any major tendons will cause instantaneous incapacitation.
Now, to secure the bayonet in place, insert the opening in the handle into the lug on the right side of the rifle barrel, then twist till you hear three clicks..." - an excerpt from a TAO drill sergeant's instructions to new recruits on the basics and principles of bayonet fighting. Although bayonet charges had long since lost their place on the battlefield with the advent of automatic weaponry, the brutal close quarters fighting that characterized the worst urban battles of the Augmentation War proved that the humble knife still had its place in modern warfare. With the increased strength of augmented individuals allowing them to take more equipment with them into the battlefield, it became commonplace for every major army in the world to equip its troops with some form of melee weapon in case they were caught in such a situation where they might be useful. In many cases, however, these weapons were replaced by alternatives depending on the role of the trooper in mind; combat engineers were almost universally equipped with hatchets rather than bayonets, for the simple reason that they were more useful as a tool in most situations, including in and out of combat.

"I told them this was a bad idea right from the start. I fucking told them, but did they listen? No. It doesn't work. It never worked, not for a minute. The technology just doesn't exist, and won't for centuries, if it ever does. Twenty billion dollars of investment and nearly a century of work, and what do we have to show for it? A schizophrenic computer," - an anonymous engineer in 2052 during an investigation into the failure of scientists throughout the world to develop true artificial intelligence; considered to be the "holy grail" of computing science by many thousands of engineers, technicians and programmers over the decades since the development of the isograted circuit, the failure for any real progress to materialize despite massive investments ultimately resulted in a growing belief that true artificial intelligence was a technological impossibility, directly resulting in the Great Computer Crash of 2053 due to a loss of investor confidence in the continuing progress of the technological field.

"We have examined your papers very closely, doctor, and it is the opinion of this panel that your paper and concepts do indeed have some merit. Your concept of a "warp bubble" as you described it is an intriguing one, and one that certainly seems to have some basis in theory...however, following the death of the esteemed Dr. Oshiro and the failure of his quantum translocation device, it is the official position of the Atlantic Scientific Foundation that faster-than-light travel, like artificial intelligence, is an impossibility proven by a dozen failed attempts to breach the lightspeed barrier. Too much funding has been spent in pursuit of it, as well as too many lives wasted in the hopes of doing the impossible, and though it is regrettable that we will not be funding your "warp drive", Dr. Cochrane, we certainly recognize your ability, and would be happy to offer you a posting at any of our theoretical research centers...perhaps the Copernicus Crater Collider would be a good use of your expertise?" - an excerpt of a recorded meeting between Dr. Zefram Cochrane and six representatives of the Transatlantic Organization's official scientific council, explaining why his application for government funding was turned down. Dr. Zefram Cochrane, a young theoretical physicist, would have his plans for a warp drive rejected from not only the ASF, but by the Deimos Science Laboratory and no less than eight corporations, all of which claimed faster-than-light travel to be an impossibility, before ultimately immigrating to the Eurasian Union and finding the investment he needed at the hands of the Eurasian Space Command.

"Have you lost your mind?" - a news reporter at the presentation of the self declared reincarnation of King Arthur Pendragon, during the announcement of his plan to lead a thousand of his most loyal supporters to the promised land of Avalon. Famously charismatic, clever and having seemingly appeared out of nowhere to TAO internal security, Arthur would attract the attentions of a number of Britain's wealthy and the imagination of the hopeful masses with his words, plans and promises, their donations being used to fund the construction of the Excalibur, one of the first of Earth's sleeper ships and the one that would carry him and his supporters to another star system.
**The Mercurian Colony Referendum Voting Paper:** Please tick a box from the options below before folding the paper and placing it inside the ballot box. For more information on what the options mean, please refer to the poster placed on the wall of the voting booth.

Q: What should be the future of the Mercurian Colonies in regards to sovereignty, nationality and legal jurisdiction?

1. Annex the settlements into the Transatlantic Organization, where it will be incorporated with all the rights and privileges of a member state of the Organization, with further negotiation to be conducted on the matter over the next year.

2. Annex the settlements into the Eurasian Union as a constituent territory, where it will be added to an appropriate Precinct with the associated rights and privileges, effective immediately from the conclusion of this referendum.

3. Annex the settlements into the African Confederation, where it will be taken into the organization as an associated member, with the introduction of a five step plan towards further integration.

4. Remain a Territory of the Earth, with future matters of law, sovereignty and nationality to be determined and addressed on a case-by-case basis.

5. Establish an independent Mercurian nation, whose form and function will be determined by public discussion and debate over the next six months." - a voting paper from the Mercurian Colony Referendum of 2054, intended to settle the unknown legal state of the Caduceus Penal Colony on Mercury's south pole.

"You come from a planet with more than one moon? Well, so do I, it's just that (277810) 2006 FV35 doesn't have as nice a ring to it as Phobos or Deimos, so people tend to forget about it and the other four." - a section of a conversation overheard on the docking section of the Baikonur Space Platform, the upper station of one of the only space elevators with a ground station away from the equator, though the upper platform itself remains on the equatorial line.

"...now, this is an interesting specimen. Start recording - Mars secessionist salvage record, item 23: the LR1X, or Laser Rifle 1, Experimental, recovered in the field following the relief of the siege of Olympus Mons. Weight is six kilograms, length, ninety centimeters. A man portable projected energy weapon, roughly equivalent to a traditional assault rifle in size and capability, with the rear of the weapon where the primary electrical components are housed machined from military grade aluminium whilst the forward side of the weapon, exposed to the great heat of its operation, appears to have been milled from several pieces of silicon nitride ceramic..." - an excerpt from an Eurasian engineers examination of various Martian weapons from the Secessionist Crisis of 2055. Considered to be the most advanced demonstration of Martian engineering, the LR1X was produced in sufficiently high numbers, estimated to be around thirty thousand weapons in total, for it to have been one of the most produced weapons on the Martian side of the war, owing to its technical simplicity and the ready availability of the various materials used in its construction on Mars itself, however, this was considered by many veterans of the war on both sides to have come at a cost in its capabilities - although the weapon was pinpoint accurate and the beam struck the target nearly the moment the trigger was pulled, the weapon was increasingly less effective over long ranges due to issues with beam scatter, reducing the possible damage, whilst its nature as an energy weapon rendered it exceedingly difficult to use in a suppressing role, a flaw that often allowed Earthborn troops to outmaneuver their Martian counterparts with devastating effect.

"That's not just good. That's fucking magic." - an anonymous vacuum trooper after seeing his
battalion’s attached tetrachromatic sniper eliminate a secessionist observer eight hundred meters away less than a minute after disembarking the landing craft. Although exceedingly difficult to train due to the nature of their abilities, every Augment carrying the fourth cone but with the great majority having learnt how to “tune out” the extra colors in infancy, true tetrachromatic snipers, often called tetras, were troops who had the ability reawakened and were thus able to distinguish shades of color far better than a regular individual, making it incredibly easy for them to be able to distinguish a soldier in a camouflaged position from his surrounding environment.

2055-2060

"When I first joined the ESC, things were really roughshod, even with the command's massive budget. Baikonur was still being overhauled back then, so you could walk out of a building like the new training center where they had the latest simulators - based off the ones that they used to train pilots for the war - and walk to the tracking station on the other side of the complex where they still had the same machines they used to track Gagarin's Vostok. When we went to the Moon, the capsule was the largest thing ever sent to the moon at that time, huge, and I remember being so amazed by the size of it all that I never thought it was cramped or anything...but looking back, it couldn't have been much bigger than two big bedrooms stacked on top of each other. Later ships like the Eurasia got even bigger, but if you were to walk in one and then inside one of the Warsaw-class ships, you get the feeling that it was like one of the submarines from World War One, very cramped and...complex." - an excerpt of an interview with Yeong-Ja Ji-Min Kim, the first woman to walk on the Lunar surface during the 2018 Shenyi IX mission, discussing how much space flight has changed over the last forty years.

"One day, the red spark shall light this universe anew," - final transmission of the Karl Marx, a sleeper ship carrying a thousand communist settlers beyond the solar system, before the last of its crew went into cryosleep for the duration of the voyage. Equipped with the characteristic gene vault, cryogenically preserved embryos and the massive cargo module that symbolized its class, the Karl Marx would the last of the first generation of sleeper ships completed before the development of faster-than-light travel.

"So, if a spacecraft can achieve artificial gravity through perpetual thrust and a skyscraper style layout where the basement is the source of thrust and its roof the craft's heading, then why are ships currently constructed in a manner that is parallel to the craft's direction? Anyone? The answer is compartmentalization. By constructing the ship in a horizontal manner rather than in a vertical one, it renders the craft less susceptible to penetrating strikes; a direct hit by a railgun or kinetic penetrator missile to the front of the skyscraper style vessel will pierce not just the first deck, but potentially even dozens, creating a hullbreach that will lead to rapid decompression in all affected sections and the loss of both crew, equipment and mission capability. Horizontal construction means that the penetrating hit will only breach a single deck and travel down its length, breaching multiple compartments that can be sealed off one by one along with damaged sections of crew traverse ways. The deck remains combat effective.

The horizontal system also makes it possible for damage control teams to bypass decompressed areas to more vital systems; in the case of a vertically stacked ship, a hit parallel to the side of the ship will only decompress a single section, but in doing so would cut off all access to anywhere further up the skyscraper, whilst the horizontal system would provide multiple ways towards the damaged section by benefit of the same hexagonal framework that provides military ships their strength and single block construction.

Note, however, that horizontal construction should only be used on milspec craft, since the benefits
of compartmentalization are only really suitable for a craft expecting to get into a fight; a civilian freighter shouldn't be getting anywhere near one, and would better benefit from a stacked construction away from the direction of thrust, since perpetual acceleration would provide an illusion of artificial gravity and thus increase crew comfort. Milspec craft are often holding position for one reason or another and thus don't benefit from that bonus, hence the rings which provide some measure of it even whilst the ship is not making any active movement, and also why they're so ubiquitous in warship design yet nonexistent in civilian designs. Some people think it's a phase we're going to grow out of as we get more accustomed to building warships in space, that we'd need some kind of artificial gravity plating to make it work, but phase or not, those are the current regulations for milspec ship construction." - an excerpt of a lecture by an engineering professor from the East Asian Precinct, focused on the principles of spaceship design.

"It might surprise you, but we already have an answer to the magnetic field problem for Venus, and we've known about it since...2017 or so. Venus, you see, has an induced magnetic field, which helps take the edge off of the radiation problem whilst the thick atmosphere itself acts in some ways like natural shielding from some more, albeit not a significant quantity, but as the atmosphere thins with the terraforming process, we're taking away that protection. Here, let me show you.

This circle is Venus, and this tail around the planet is the induced magnetic field, created by interactions between the planet's ionosphere - the upper atmosphere - and the solar winds. This is a lot weaker than the true magnetic field on Earth created by the movement of the planet's core, but it's still something. Now, what needs to be done is the construction of a specially designed magnetic dipole, a sort of gigantic magnet, in the twenty to thirty thousand Gauss range, maybe more, and place it in the planet's L1 position so that it is is permanently between Venus and the Sun. This station would be able to generate a large enough magnetic field as to encase Venus within its magnetotail - think of the wake behind a large ship - and thus provide complete protection against the sun's radiation.

The only problem is that, even with fusion power, such a large device would require a massive amount of energy, perhaps even of an order of magnitude more than what we have now. Some kind of antimatter power plant, maybe. That's not impossible, we just don't have the technology for it yet. I mean, go back to 1900 and they'd say half the stuff we use today was impossible. But we're close. Maybe the one who will develop the power source we need to finish terraforming Venus has already been born." - a televised interview with one of the terraforming engineers working on Venus, explaining how a magnetic field could be established around Venus, even if the technology to do was not yet mature.

"Why they call it the Augmentation War and not the Third World War I'll never know," - a history teacher, examining a number of newly received textbooks in 2057. Although both terms were considered to be valid, an academic dispute over which of the two was more correct, known amongst historians as "The War Over the Name of the War" would continue past the twenty first century as textbook publishers failed to find a consensus: those in favor of calling it the Augmentation War argued that the conclusion of the conflict with the mass genetic engineering of mankind was an outcome that was more important to be recognized than the size of the conflict, whilst the other side claimed that the use of nuclear weapons on the battlefield and regional nuclear exchanges marked that, even if it hadn't been the long feared nuclear holocaust that the Third World War was expected to be, the amount of dead by war's end meant that it should only ever be considered as another world war.

"I bet you a hundred askies that this weapon is banned a year after its first used in battle." - an engineer witnessing the demonstration of the first military grade maser - using a projected beam of microwave radiation, the maser demonstrated its terrible power against a test dummy comprised of
ballistics gelatin and vat grown organs that were determined to have faults that rendered them unsuitable for implant by flash boiling it from the inside out, causing the eyes to explode fifteen seconds before the organs began to burst and the blood began to boil.

“There are many incredible achievements that have been accomplished since the turn of the twenty first century, but a few of them stand out as particularly amazing feats of engineering and technical accomplishment, able to capture the imagination of the world and all its people. These are the Seven Wonders of the Modern World, the greatest achievements of our time, and they are:

1. The Indian Ocean Elevation Platform: Completed in 2037 not long after the development of a commercially viable means for the production of carbon nanotubes, the Indian Ocean Elevation Platform, or the IOEP, is the world's first ever space elevator. One of the most important ports in the entire solar system, the upper platform of the elevator, now known as Singh Station, has become the Eurasian Union's premier orbital habitat and shipbuilding complex, but on and beneath the ocean has grown a city dedicated to all of the amenities and luxuries that a traveller from another world might desire and where one only has to look through a window to see the wonders of the natural world from within one of the greatest technological achievements of all time. Setting out aboard one of our state of the art Triton class luxury liners, the first ever class of fusion powered liner, you can tour the world's oceans for fifty days and fifty nights before arriving at the IOEP's surface platform for another two weeks in the ever sunny weather of the Indian Ocean or get up close with the wildlife by visiting the glass tunnels that connect each of the underwater sections of the city, and all for just 3499.99 a person.

2. The Transatlantic Vacuum Tunnel: Completed in 2048, the Transatlantic Vacuum Tunnel, or TVT, is the ultimate demonstration of the Transatlantic Organization's dedication towards the ideas of the free movement of peoples and trade, connecting two continents in a way that had never before been imagined. Five thousand kilometers in length and built beneath the ocean floor in order to avoid the risk of disturbing wildlife, the TVT contains a partial vacuum that allows a specially designed train to reach hypersonic speeds, travelling from New York to London in forty five minutes, surpassing aircraft as the fastest form of travel across the Atlantic. Departing from a select hotel in either London or New York, with prices no higher than 499.99 a night, you can start your day in one continent and end it in another, guided around the sights of two cities by one of our specially trained tour drivers - see the legendary Empire State Building and the unique 70s architecture of the twin towers of the World Trade Center before retiring for the evening in the Savoy Hotel in London.

3. The Cairo Arcology: The single largest structure on Earth, the Cairo Arcology, built in the shape of a pyramid like the tombs of the Pharaohs of old and powered by a self contained fusion reactor at its heart, is the first and greatest of the Earth's arcologies and the permanent home of a quarter of a million people who live, work and play in the utmost comfort without ever needing to leave the confines of the titanic structure, whilst the pyramid's summit contains carbon sequestration equipment able to help cleanse the planet's atmosphere. Equipped with a two thousand room six star superlux hotel, the Cairo Arcology contains its very own genegarden, as well as having access to an Olympic grade swimming pool and sports stadium located all within the Arcology complex itself, all freely accessible for a booking of only 699.99 a night.

4. The Copernicus Crater Collider: The largest particle accelerator complex ever constructed, the Copernicus Crater Collider makes a complete path through the perimeter of the entire crater for a vast 93 kilometers of tunnel. Powered by a massive fusion power complex comprised of six reactors and part of an entirely self sustaining settlement, the CC had previously been closed to the public from the completion of its construction in 2051 due to the sensitive nature of the work conducted there, until being declared open to public tours earlier this year as part of a public outreach program by the Atlantic Scientific Foundation, to coincide with the completion of the Marie Curie
Memorial Center, a museum dedicated to the history of the atomic sciences and readily accessible from the Armstrong Colony by train. For 1299.99, you can have weeklong tour around all sections of the complex led by one of its own theoretical physicians before accompanying them to a viewing center to witness the firing sequence of the greatest cathedral of the sciences ever created.

5. The Gardens of Rio: A marvel of the genetic sciences, the Gardens of Rio de Janeiro are the closest the world has come to creating the biblical Eden, and are the largest genegardens on Earth at over ten thousand acres in area. A place a where all the natural beauty of the Amazon Rainforest has been put on display alongside countless forms of flora created across the world, the Gardens of Rio are a testament to Mankind's mastery of the science of life and a living monument of a history that began with the first flowers to have been selectively bred for their beauty aeons before the present day. Home of the delicate helix flower that blooms its golden spirals only when touched by human hands and a hundred woven trees made by grafting together twenty different forms of fruiting tree modified so as to be forever fruiting in the lush environment of the South American climate, all is freely accessible to any and all residents of the city, and all easily reached on foot from our hotels whose booking starts at 499.99 a night.

6. The Museum of Mankind: The largest museum ever constructed, no list of wonders of the solar system can hope to be complete without the Museum of Mankind: situated in what is believed by paleoanthropologists across the world as one of the most important locations in the developmental history of Humanity, the Museum of Mankind complex covers human history in detail from the emergence of homo sapiens all the way to the present day, with a particular focus on covering our greatest triumphs and greatest failures. Open twenty four hours a day and home to such objects as the Apollo 11 descent stage, a jet injection gun used in the eradication of smallpox as well as three meters of the Berlin Wall and twelve shards of Trinitite from the detonation of the first ever atomic bomb, the Museum of Mankind is the most visited tourist attraction in the entirety of the African Confederacy, with over twenty million people entering passing through its doors every year. Not far from the administrative capital city of the African Confederacy in Johannesburg, the Museum of Mankind is readily accessible by by train and is surrounded by related venues and a number of high quality hotels, starting at 599.99 a night.

7. The Capitoline City: The greatest of the Venusian colonies, the Capitoline City is named for the hill in the ancient city of Rome upon which the Temple of Venus and Roma was constructed. Exploiting the principle that breathable air is lighter than the Venusian atmosphere, the Capitoline City floats high above the surface with a permanent population of twenty five thousand, all of which are witness to the beautiful views that their home amongst the clouds can give them. The most expensive vacation of any of the marvels on this list, starting at 2499.99 a night, to visit the Capitoline City is to have a one in a lifetime experience of living inside a city that flies above the clouds. - a page from a tour guide found throughout the Transatlantic Organization in 2059, advertising the most expensive vacations available. Although the advent of interplanetary travel would make it possible for many to travel from one world to the next in a timely manner, the logistical difficulties of providing food, water and air for the crew and passengers would limit such forms of tourism to the rich, but the Moon (being close to the Earth and thus readily accessible) would be easily visitable in the lifetime of any on Earth, and a frequent tourist destination for those interested in experiencing life beyond Earth's surface; such trips, however, were limited by the tight schedule of the "space buses" that travelled between the two and would thus need to be booked many years ahead of schedule.

"People like to think that there'll be just one colony that does everything at once, growing food and mining ore and making metal and everything else. That's not true. Colonies are specialized. Think of it like a house. You don't have one room that does everything, you've got rooms that are meant for different things. The asteroid belt colonies are Earth's fridge, freezer, cupboards and closets, since
they're where we get our raw material these days. The Moon is our garage since that's where we keep our spare gas, Venus is the spare bedroom and Mars the shed."

"Sleek. Elegant. Sexy. These are all words used to describe the latest in personal spaceflight technology: the Hae Mo-su Space Yacht. Fusion powered. Engineered with the best in luxury in mind. Infinitely customizable. Able to carry twenty from Earth to Mars and back...on a single tank. Be swift. Be free. Be Hae Mo-su." - part of a televised advertisement from 2059, broadcasted on Venus and aimed at the super rich who had the money to buy and operate their own, personal leisure craft.

"Easy with that! Those crystals are one of a kind. Break 'em and we won't have a mission...I sure hope Cochrane likes the expense we went through getting these damned things for him..." - an anonymous ESCOM officer of the ESS Ibn Rustah, a Eurasian science ship assigned to a classified mission to the Kuiper Belt where it extracted several crystalline fragments that had been determined to belong to an island of stability that had been previously unknown to human science. Following a close analysis, it would eventually be named "dilithium" due to its physical and chemical similarities to the more abundant element.
**Prologue**

When the first true generation of augmented men and women came of age, born into a world still recovering from a devastation that left living, breathing reminders of the battles that had been fought and the blood that had been shed in the form of countless scarred veterans, when they finally began to assume the reins of power that their aging and unmodified predecessors left open for them, the world was already changing. The sins of the past that had resulted in the Great Mistake of climate change and global warming were finally being rectified by a serious commitment by the greatest of Mankind's nations to the challenge of sustainable living, of developing a way of life that would allow humanity to live in harmony with their irreplaceable homeworld and to ensure that such disasters as Sanvu would never happen again, bringing together great powers that had been bitter enemies but a few decades before in reconciliation and friendship. In their most formative years, they had seen that the entire world could be harmed by hasty judgements and rushed decisions, but that it could be mended and made right again if people were willing to set aside their differences and work together for the greater good, if they themselves were willing to strive and sacrifice to make it a better place, and in this cauldron of experiences came the expectation by many that they, as the first wave of an entirely modified humanity, would do great things.

In any case, there were few reasons why they couldn't do such things in the first place, for the great challenges of the past had finally been overcome, with an ever increasing number of fusion reactors providing the world and all its peoples with cheap, clean energy in an unimagined abundance, the risk of famine had been staved off indefinitely with fundamental changes to the way in which agriculture ran, whilst the risk of nuclear war had never felt more remote than it did in the days following the mutual understanding between the great blocks of the Eurasian Union and the Transatlantic Organization.

The result could mean only one thing.

A golden age.

Amongst almost the entirety of the new generation growing into power, there was a strong and unbreakable certainty in human ingenuity and its ability to conquer any obstacle, and how could there not be, when the sciences had allowed Man to rebuild himself? Some would interpret this immense confidence as arrogance, the result of enhanced abilities elevating people above their natural place in the world, but others would more aptly compare it to the mindset that dominated much of the Industrial Age: that there was no barrier so great as to be insurmountable by an ambitious and hardworking man or woman, that humanity was not the clay forever at the whim of the natural world to be shaped and moulded, but the sculptor, able to change the world and the universe around them to be more fitting with the way that they wished it to be. After the chaos of the first half of the twentieth century and the grim realization of the damage that had been done to the world in the name of progress and industry, the human mind was once again turned outwards in a renewed thirst for knowledge and an understanding of the things around them in a revival of curiosity and learning, a hunger for insights both natural and unnatural, both physical and spiritual, both inwards and outwards, a hunger for answers that seemed to draw ever closer with every moment and every thought.

This unquenchable need to understand the things around them would one day make historians look
back upon the first half of the twenty first century not as an era of strife, but as a time when the tree of civilization blossomed once more after a long and cold winter, where a renewed desire to explore would not only lead to great wonders of engineering and the sciences in ways that few had dared to dream, but also of beautiful works of art and culture that would capture the imagination of millions and record the feelings, hopes and fears of an age for centuries to come.

For all this, the era would be known as the Second Renaissance.

**Sunrise**

The dawn of viable fusion power consigned the use of fossil fuels and other more primitive forms of atomic energy to the ages, finally weaning humanity from the tempting milk that was oil and its many forms. In a matter of years gasoline and diesel burning cars began to fade from the roads, replaced by ones powered by energy that was both cheap and clean and readily accessible at the charging stations that had steadily replaced their gasoline counterparts, one by one. Fusion power had truly turned the tide in the war against climate change, its impact accelerated by legislation intended to aid economics in the stamping out of the dirty forms of energy that had been a necessary evil for centuries, but the boon of fusion power did not stop there, for it had been theorized for the better part of a century that fusion energy could be used to propel spacecraft in a similar manner to traditional rocketry, only on a much greater scale and in a more efficient means. With fusion energy proven viable and maturing with the growth in practical experience in the construction of fusion reactors, it was only a matter of time for the various space agencies and commands of Earth to investigate the feasibility of such concepts - many billions of dollars and thousands of manhours would be invested in testing dozens of different designs and potential ways they might be used to both power and propel spacecraft...and these tests revealed what many had hoped and dreamt of for years.

Fusion rocketry was viable in practice as well as in theory.

An early fusion ship during a test flight from Earth to Luna and back again, in the November of 2032. Still a concept that humanity had little experience with, many early fusion craft carried a number of chemical engines intended to serve as a backup source of thrust in the event of an emergency, but as the technology proved itself both powerful and reliable, these would increasingly become a thing of the past or ever more vestigial, ultimately regressing to small thrusters used for
Almost immediately from the moment when the first fusion powered craft were constructed, pieced together from modules hurled into orbit on the backs of chemical rockets, it was clear that they would change everything. Journeys that would have once taken years now took mere months and even weeks, removing the greatest obstacle to expansion throughout the length and breadth of the solar system - the duration of the journey. Ever since the days of the first few pioneers who tentatively took the first steps into space, the need to provide all the resources that were so essential for life had always been the most limiting factor for space travel; a mission of any major length required more supplies and more capable life support systems, and those in turn required a greater expenditure in thrust, money and manhours...but with fusion engines so drastically reducing the length of a mission and with growing experience in carrying out long missions anyway, the issue of mission longevity had been solved from both sides. Humanity was not only prepared to carry out long missions and understanding of the challenges that might be encountered on the journey from one world to another, but had found a way to shorten them dramatically and greatly simplify the challenge of interplanetary travel. Missions that would have seemed to be impossible even for the practically limitless resources of the Eurasian Space Command, such as a manned mission to the moons of Saturn or beyond, became entirely viable, and it was such incredible missions that were done first.

And none were more iconic than the Grand Tours, immense voyages where a ship would visit every planet of the solar system in a single flight before returning to Earth with all the information and samples that had been collected during their travels and ground operations.

A TAO astronaut, Remigio Fernández, erects seismological sensors on the surface of Venus, as part of the Christer Fuglesang's Grand Tour of the solar system. Propelled by a fusion reactor and equipped with more refined versions of the very same equipment used aboard Freedom Station, the
Christer Fuglesang would be the first ship to visit every planet in the solar system in a single mission, with EVA Specialist Remigio being the first man to walk on Venus and the second to set foot on Pluto, and is well known for his memoirs that recount his experiences during each of the landings he participated in, as well as his famous description of walking on Venus as akin to "treading water in an ocean of fire."

Within but a handful of years, humanity would have set foot on every terrestrial planet in the solar system, with even Mercury and diminutive Pluto having bootprints and rovers on their surface by 2038, but that was only the beginning of the revitalization of the space age, for the very same ships that could carry landing capsules to the outermost planets could carry the same modules that had been used to build the lunar colonies, and so they did. Scientific outposts rose into existence throughout the asteroid belt and beyond, studying the exotic fields of high energy physics and experimental genetic engineering and virological research far away from the precious homeworld, automatic communication relay posts linked together a chain across the system that made it possible for immense quantities of data to be sent back to Earth from amongst the moons of Neptune whilst even the first supply posts would begin to appear to allow the greatest of Earth's fusioncraft to stay away from the homeworld for longer. In their wake came a growing number of off world colonies, much smaller than those on Earth's moon, tended to by the occasional freighter, small things that brought supplies and spare parts from the homeworld to the various enclaves that had begun to spread across the solar system, but these were limited in their scale by the problem of the "first mile", or Earth's atmosphere. With the effects of humanity's blundering error that was the usage of sulfate aerosols still burning like a wound that had only just begun to heal, there was no desire in any community to risk the unknown possibility of trying to use the raw power of a fusion torch in the atmosphere, meaning that all fusion ships were forever confined to the void and able to be resupplied only through the use of tried and tested chemical rockets to cross the first and final length of every journey.

It was an obvious bottleneck, but one that had no easy answer for the science of the time. Titanic mass drivers had been considered on many occasions for their ability to rapidly launch an immense amount of material into orbit in a manner that had grown even cheaper with the development of fusion energy, but were fatally flawed by their inability to safely deliver fragile items such as precision electronics or even a human crew...as well as being considered a diplomatic gamble by both the TAO and the EU due to their ability to function as a form of intercontinental nuclear artillery, particularly due to the ability for the entire structure to be concealed in a mountain side until deployment: properly designed, a concealed mass driver would be able to fire a massive volley of nuclear weapons beyond the atmosphere, where they could rain down over enemy cities without the risk of interception by any existing defense system, or even wait until after the initial exchange in order to destroy any surviving population centers. Although the world had little need for such weapons due to the growing detente between the powers of the east and west, the potential for such a system to be retrofitted for the role and the resulting arms race was feared as a way to break such a friendship and return global relations to the tension that had reigned supreme before Sanvu, and so other means were needed to be found. SSTOs, or single-stage-to-orbit craft, took on the mantle of transferring crew to orbit, finally retiring the venerable Shenyi series rockets, but it was obvious that they could not ship so great a cargo as to allow for true expansion beyond Earth's atmosphere, just as it was ever obvious that there was a need for humanity to grow to new worlds. The increased longevity of Augments and their ability to remain young for a much greater period of time than unmodified humans had doubled their childbearing years, whilst an improved resilience to disease and trauma alike had dramatically reduced the mortality rate of young and old alike just as their emotional volatility made them fall more deeply in love and in less time, all of which could mean only one thing.
Earth's population was soaring.

And as some statisticians feared, there was the serious risk that humanity could simply outstrip the Earth's resources and burn itself out, and more than a few scientists shared such a fear with them, saying in their papers and journals and blogs that it was growing ever more likely that the Great Filter of the Fermi paradox was nothing more than a collapse brought about by what they called "resource burnout", a situation where a civilization exhausts all readily accessible resources before developing the means to expand to new areas, causing a fatal lack of material that would then lead to economic stagnation and, ultimately, collapse. Intensive strip mining would have been able to delay the problem for a time, but only at an enormous cost to the natural world that humanity sought desperately to protect following the Green Revolution, a betrayal of the ideals that an entire generation stood for, whilst recycling could only prevent the waste of resources, not create new ones. A new source of material was needed, a new land that could take on the burden of providing the ever increasing number of people on Earth with the amenities and space that they needed for a comfortable life...and just as how space was one of the requirements, so was it the answer. It was obvious to all that the various bodies of the solar system could provide the resources that Earth needed without needing to resort to processes that would devastate the environment of the homeworld, the only challenge was in obtaining those resources and bringing them to Earth, and the only problem in obtaining those resources and bringing them to Earth came in the problem of the "first mile", or breaking through Earth's atmosphere, to which massive amounts of resources were dedicated to solving.

The answer, once again, was fusion power.

The immense quantities of electrical energy that a fusion reactor could output for a substantially lower price than any reasonable alternative allowed processes that would have otherwise been too intense in their usage of electricity to become economically viable and no longer cost prohibitive, and one example of this was in the form of the chemical vapor deposition process; historically the most effective form of producing carbon nanotubes, or CNTs, the system worked by using nanoparticles as a substrate upon which the CNTs could form, heating the substrate to 700 °C, then feeding in both a process gas and a carbon gas, with the result being that the carbon gas breaks down with the carbon itself accumulating at the edges of the nanoparticle, forming high quality carbon nanotubes, often assisted through the use of plasma to create CNTs that all grew in the same direction. However, the difficulty in scaling up the containment unit where the reaction took place due to exorbitant costs had rendered the process infeasible for large scale production...but with the practically unlimited power of a fusion reactor at one's disposal, it became a trivial challenge of increasing the scale, opening the door to an improved technique that used existing nanotubes themselves as a seed for the growth of more, ensuring an even greater quality than ever before. Cheap, high quality carbon nanotubes had thousands upon thousands of potential applications, with even their still-notable-expense not stopping them from entering the everyday life of the average consumer, but one particular result stood out from all the others as the undisputed pinnacle of what CNTs could do, and it was this innovation, this wonder of the sciences, that would give humanity the solar system.

The space elevator.
An Eurasian space elevator descending from orbit to the isles of Indonesia with a large cargo of pressurized gas canisters containing Helium-3 extracted from the lunar surface. Though constructing a full space elevator as opposed to a similar construction such as a skyhook or launch loop or other forms of non-rocket space launch is both a massive engineering project and expensive, the extreme ease by which both cargo and crew can be sent into orbit or brought down again has made space elevators into the number one choice for travelling out of Earth's atmosphere for reasons both civil, economic and military and made their orbital stations into growing hubs of commerce.

In an instant, the problem of the first mile had been solved in the greatest possible manner, for space elevators presented the ultimate means of passing through the Earth's atmosphere, for components and modules could be moved into orbit for a price not even a tenth of what they had been but a decade before, whilst the orbital side of the elevator presented the perfect location for the construction of true spaceports able to handle the cargos of the ever increasing amount of traffic around the solar system and similarly ideal for the construction of orbital drydocks, where modular fusion ships could be assembled, repaired and refitted without needing to enter the atmosphere...but even with all the funding that could ever be needed for a project of such magnitude, it still took the better part of a year for the great tether of the world's first space elevator to be woven and finally moved into its final position in the Indian Ocean. Extensive testing of all the project's parts followed, in orbit and on Earth itself, with every section being checked over and over to ensure that there could be no faults, no errors that might risk so great an investment in time and money, until, at last, the elevator was deemed operational, its first cargo nothing more than a series of experiments and test
equipment meant to ensure that the elevator was fully functional and that everything was working as it was intended, the eyes of the world watching, hopeful yet cautious...but when the platform descended again carrying not only the experiments that had gone up, but a bottle of champagne placed by a ship of the Transatlantic Organization that had been watching the occasion whilst waiting for a supply shipment to rendezvous, it was obvious that the elevator would work.

And almost immediately the entire solar system seemed to explode with life and activity overnight. Corporations beyond counting had long hoped to expand their businesses to the frontier, to harness the limitless resources of space without the need to worry about ecological considerations on the homeworld, but had been confined to the Earth by the expenditure of conquering the first and last mile, but with the development of fusion travel and the construction of a working space elevator, such an obstacle was no longer an obstacle and the planets and moons and asteroids of the solar system were finally coming within humanity's grasp. In under a week the entire schedule for the space elevator was fully booked for two years of constant use, a plan filled by those who saw the infinite potential that stood above, and with these first corporations came the first pioneers, men and women not serving any national government, but attracted to space by the lavish pay and benefits that were offered for those who were brave enough to take them, and with the first pioneers came the first civilian settlements, off world mining colonies that existed solely to sate Earth's hunger for raw material...and of all the goods that returned to Earth, none were more precious than those priceless elements that were the foundation of modern society - Scandium, Yttrium and Lanthanum and all the other rare earth elements that were so critical for the construction of computers and high performance alloys that were difficult to extract on Earth and only accessible through environmentally damaging procedures, yet readily available in the asteroid belt and beyond. With these first few colonists came those who would be needed to sustain their lives away from earth: technicians to maintain the life support systems, airlocks and reactors, physicians to treat whatever ailments might develop in the settlements of the final frontier, entertainers and cooks to make life so far away from family and home that little more familiar and comfortable, along with engineers, architects, foremen and even security personnel to ensure that order would be maintained even in the event of an unanticipated disaster.

Whilst the first of a new generation of settlements were planted into the rocky soils of distant worlds, the first of Earth's off-world colonies on Luna and Mars blossomed into new life. Long kept from expanding by the lack of manpower despite a number of native births of their own, the sudden simplification of the journey allowed them to grow and expand, with small research outposts becoming towns and the largest of the lunar colonies growing into cities outright, encouraged and nurtured in their development by both the Transatlantic Organization and the Eurasian Union in their ever ongoing quest for more prestige and more things of which to boast over their friendly rival. But there were far more reasons to settle the Earth's companion than to simply show off the nation's power through feats of engineering excellence; the development of fusion energy had awoken an enormous demand for helium, which Luna, lacking a magnetic field, had in great abundance due to having been bombarded by the solarwinds for billions of years, providing a means of sating the Earth's hunger for clean and abundant energy with no less than sixty five shipments a year, whilst specially designed foundries exploited the low gravity of Luna and Mars to develop entirely new superalloys that were utterly impossible to forge on the homeworld itself and which opened the gateway towards a series of new possibilities in the field of construction, there was even the development of semiconductor fabrication centers that exploited the low gravity of the Martian surface to create isograted chips an order of magnitude more capable than anything that had ever existed before. All these were the invaluable rewards of humanity's expansion to new worlds and the fuel that encouraged thousands to consider a life on a world other than Earth, but as was ever the case where immense riches could be found, crime followed, and it was the crime of the greatest corporations in their struggles to gain an advantage over one another that would cause the development of an entirely new kind of spaceship for humanity.
The battleship.

A comparison image of an Eurasian battleship of the Warsaw-class and the TAO Atlantic-class battleship, circa 2053. Typically equipped with rotating habitation rings for a crew journeying far from their homebase and armed with a plethora of weapons ranging from racks of missiles and point defense systems to railguns and the dreaded burster, such ships were the most powerful craft of their age and typically escorted by a retinue of escort ships to further enhance their formidable point defense capabilities.

But the development of purpose built warships was but a symptom of a greater problem, and that problem was piracy. Although the word and concept often conjured images of swashbuckling pirates forever on the run in the eyes of the public, in truth they were what were best defined as corporate corsairs, privately contracted hitmen who were a service provided by the various security companies that handled the policing role necessary for the day to day operation of even the smallest civilian settlements. It was a problem brought about by the arm of law and order not reaching far enough, allowing private enterprises to run wild and act without restraint, and it manifested most dangerously in the acts of corporate piracy that became an all too frequent sight in the asteroid belt and beyond: ship captains could be blackmailed into faking technical issues that would delay their shipments through bribery, battery and even the threat of death, whilst the ships themselves were an even more common target, often being delayed with illusionary sabotage or cargo checks or a thousand other things that were time consuming inconveniences. But some rare
times and never in the inner system, a ship would be attacked and destroyed or disabled by missiles, and though it was never difficult to find the cause due to the telltale light of a fusion engine burning in the night sky, it was almost impossible to bring them to justice. They were simply too far away from Earth for speedy justice, giving the attackers the chance to disappear, not into the depth of space, but into the large freeport colonies that served as routing stations for the smaller settlements to send their goods to and from the homeworld, for in such places the law was only as strong as the bribe was large and who one's employer was, and where all the skills needed to change a ship's identification information could be found...for the right price.

They were lawless places where the grip of Earth was just forever an inch out of reach, and the reason was one that dated back to the founding of the first underwater city: who owned these offworld colonies, and whose was the jurisdiction? The nation who first landed there? The corporation who established the colony? The nation whose settlers comprised the majority? The nation where the business was headquartered? What if the business was headquartered off Earth? It was obvious that some colonies belonged to Eurasia, some to the TAO and some to the African Confederation, but what made them different from the freeport and corporate colonies of the places beyond the belt? In the event of an emergency, which nation would be the senior leader of the response? If a war occurred, were they targets?

Such questions would bring the great powers of Earth together for an international summit held in the cities of the Sargasso Sea, where this very same question had once been answered. For six weeks the matter was debated by representatives of the three superstates, with observers from those who had not joined any of the three, with the backing of a veritable army of lawyers to determine if there was any prior precedent to the situation. For four weeks it seemed as though there was no true answer, but by the sixth week a breakthrough in reasoning had occurred...and an answer found.

The might of Earth's militaries would be brought to each colony of questionable legal status where a fair and binding referendum would be held to allow the settlers themselves a chance to choose which nation they belonged to or whether they were a corporate settlement and thus independent.

This was considered to be the tidiest option by the governments of Earth...and as evidenced by the overwhelming choices of those on the frontier to declare their loyalties to their homelands, the right one. Although a corporation might have built the settlement, although it might own the very machinery that gave the colony a breathable atmosphere, corporations were not sovereign over the territory; the individuals within were citizens of their respective nations who just so happened to be employed by private interests. A swathe of annexations followed, with the different colonial approaches becoming apparent - upon integrating an already established corporate settlement, the TAO would integrate it as another member state of the organization, albeit a tiny one, and generally allow the existing structure to continue, whilst the Eurasian Union, having outlawed private military contractors due to their tendency to get involved in ethically dubious events, carelessness and questionable loyalty, looked upon the activities of various colonial security forces and their so called justice with no favor, forcibly disbanding them and bringing in fully trained members of the state police service in the stead as part of an annexation process that would integrate the colonies directly into the Precinct system's framework, with any asteroid settlement as much a part of the Union as any of its planetside territories, commanded and controlled by an Eurasian administrator and with vital services paid for by the taxpayer, not out of a corporate finance ledger, but even still, private interests were entirely allowed and even encouraged to continue their enterprises, serving as the primary source of employment for the majority of Eurasian settlements.

This put an end to one cause of the militarization of space and started another, for where there had once been a great ring of neutral territories there was now an interspersed mix of Eurasian, Atlanticist and African settlements, not all of which interacted with one another in entirely legitimate manners,
and as on Earth whenever border friction occurred, the armed forces stepped in, for the same patrol ships that were used to hunt down corporate corsairs were just as capable of taking war to enemy territory if there was a need for it...and although relations between the great nations of Earth had never been more warm, there was still the opportunity to boast of having the most powerful space fleet, and that alone was more than enough to encourage governments to build bigger and better ships, even if it was the presence of corporate corsairs that had started them on the path. With it now being the armed forces of nations that were competing against one another for supremacy and not against mercenary organizations, there was the clear need for an obvious form of professionalism similar to the other branches of the armed forces on the homeworld, and so came the first dedicated training academies intended to turn out officers and crewmen well suited for the task of serving on a military spacecraft, as well as civilian equivalents for those who might want a career on a civilian freighter or on other, off world facilities...though the limited availability of such postings meant that they, like the military, accepted only the very best. Should any recruit fail to progress for whatever reason, whether it was failing the civilian electronics course necessary to ensure that they had a basic understanding of the computer systems necessary to life in space or even something as simple as the military weapon familiarization exercise that served to guarantee that every man and woman aboard even the most humble warship could handle a weapon should there come a time when such skills were needed.

With the legal question of the status of the offworld colonies resolved, with Earth ever hungry for the materials that the asteroid belt and the other worlds could provide and with the difficulties of travelling around the system finally solved, it was impossible for there to be any result other than the development of a true, interplanetary civilization.

****

The Man and the Museum
The Museum of Mankind, 2058...

Maxwell smiled as the old man stepped forth into the great and crowded halls of the museum that was not just a testament to one nation or era of history, but to the shared heritage of all mankind, looking around with eyes eager and curious at the first of many wings, the main center of the building that was devoted to the history of the species itself rather than to any of its achievements, good or bad, locking his attentions upon the great helix that dominated the center of the atrium, an ever shifting structure of golden metal that rose from a lush garden surrounded by benches and which was a precise model of the ninety nine percent of genes that all humans shared, no matter from whence they came or whether they were augments or no. It glittered in the afternoon sunlight that shone directly through a clear opening in the white dome above, shining in a fixed configuration for but a moment before straightening out into a ladder, as though to invite all to simply climb into the heavens. Architectural styles had changed over the century that he had been around on Earth, from the sleek and colorful stylings of the mid twentieth century to the grim and blocky and utilitarian stylings of the final years of the millennium to those that had risen from the smoking ruins and shattered concrete of war, the first of the Century Cities and their sleek-but-sharp contours and colorful and green designs, and he adored it all; every wall seemed to scream progress, even if they did remind him of the Jetsons, almost.

The museum's interior thrummed with the sound of people young and old, even children who had come to visit with their schools and parents, and he turned his head towards the map of the complex, placed at the helix's base so that all might see it - there were nine buildings, all of which made up the Museum of Mankind, but the other eight surrounded the main and were each devoted to some two hundred and fifty years of history each, barely even beginning to scratch the long annals of civilization, yet it was the main building that so many came to visit, for it was the main building that had the halls of triumphs and the halls of failure, placed to the east and to the west. They were what
he and so many had come to see, and he knew it best to see mankind's mistakes first before going towards its successes so that he might have something to cheer him again, and so he turned to the left, where letters the exact same size and shape and color as their counterparts on the other side of the entrance and placed upon the same shape of archway spelt out the *Hall of Defeats.*

He stepped forward, slowly making his way through the crowds and into the hall...and immediately, he was barraged by sights, by objects and texts and photographs all protected behind glass cases, of walls that rose above his waist so as to ensure that young children wouldn't need to see what was concealed behind, and there were many hundreds of objects, big and small and yet all were mistakes or symbolic of them. An old and faded banner of red cloth made all the more crimson by the faded blood that had soaked it a millenia ago, the very Banner of the Holy Roman Church that had been raised above the Al-Aqsa Mosque at the culmination of the First Crusade, a witness to the massacre of defenseless prisoners that had taken place there. A complex system of beakers and flasks and air compressors, the key components of the Haber–Bosch process that would usher in a golden age of plentiful food through the production of previously unimagined quantities of fertilizer and yet whose dawn had made industrialized warfare possible and would ultimately culminate in the pointless slaughter of the First World War. A political cartoon from the mid twentieth century laughing at the first wave of environmentalists in the misguided and disastrous belief that humanity had little to no effect on the world's environment and that climate change was little more than a myth, foolish words that would ultimately lead to the Great Mistake. All these were items that he saw, and there were many more - skulls collected by American soldiers in the Vietnam War as trophies, the katanas of the two Imperial Japanese officers who had carried out a competition to reach a hundred kills in the Rape of Nanking, dozens of hands collected by Belgian troops in the Congo during the brutal years of colonialism, all of which made any man or woman recoil in horror at the sight and cover the eyes of the children nearby to ensure that their innocence wasn't taken by such grim things.

Yet one thing stood out to him, one thing close by and one thing he recognized in an instant, placed within a glass case and surrounded by a thinner group, examining that which was within with curious eyes and a somber sadness. It was a pair of models of a small mining town in Pennsylvania, the exact same place seventy years apart, with one being made of how the town had looked in 1957 and the other in 2027...and yet, the more he looked, the less he found himself able to recognize it. The mountains that had been the town's lifeblood had been mined to exhaustion, their summits torn away and their valleys filled with the waste earth, making the rugged terrain flat, and the water and plant life were discolored and dying from half a century of industrial run off that had poisoned the air and the ground and the water, reducing the tall conifer trees he remembered seeing with his own eyes to dying husks and left the beautifully clear rivers murky and filled with but a handful of carp and trout where there had been so many *thousands* that a man need only put his hands beneath the surface and snatch one up. Yet for all this the town had grown ten fold, but become all the poorer; the old bar was gone, and so was the store, outcompeted by a larger supermarket, and so was almost everything else he knew, most of them wearing tiny closed signs like burial shrouds.

"Carbon Creek," he murmured quietly and with a sad voice. "What did they do to you?"

"They ran out of coal," a young man answered, a dark-haired and brown-eyed Augment towering half a foot taller than him. "When the mines went under, there wasn't anything around to keep the money coming in, they couldn't even use tourism since they'd ruined the mountains, so the town just melted away."

Maxwell frowned at that, and sighed.

"Were you there? Before it closed?" the Augment asked with a curious voice, but with judging eyes. "In the mines?"
"That was a long time ago," Maxwell said with honesty. "But I was there for six months, not long, but those months taught me who I wanted to be, what I wanted to do. I never went in a mine again after that."

The young Augment seemed to smile at that, and extended a hand. "My name's Tom. I was from Carbon Creek."

"Maxwell," he answered, shaking the young man's hand. "Glad to know you got out."

Tom laughed, gesturing to the glass and the models within. "They forced the last of us out because of how unhealthy the place is these days. The TAO's trying to clean the place up, even using old photographs and paintings to try and reconstruct the shape of the mountains using rock from tunneling projects all over the world to replace what was removed."

"How's it going?"

"It looks better than the models do, at least," Tom answered with a smile. "Give them a century and there'll probably be another Carbon Creek."

"Hopefully with less emphasis on the carbon," Maxwell smiled as the Augment laughed again. "How did you come so far away from Pennsylvania, anyhow?"

"I was about to ask you the same thing," Tom said as he shrugged his large shoulders. "I guess we Creekers get around."

"It seems that way," he answered cheerfully. "Seen anything more interesting than the rest in here?"

"The whole museum's great," Tom said, looking down the hall. "This side is more...it's right about these being mistakes, that's true, but it's grim as well, so you don't want to stay over here too long. The other side is more cheerful, so I was going to go there next."

"Mind if I come along?"

"You don't even have to ask," Tom said warmly as he started towards the Hall of Victories that stood opposite its twin. "Though you might want to be careful they don't mistake you for an exhibit."

Maxwell couldn't help but laugh, then, and followed with slow steps that Tom slowed himself to match. "I should give them my writings when they're done. I've seen the world change a lot since I was young."

"How old are you, anyway?" Tom asked as they entered the atrium again. "You must've seen the world the way it was before us."

"Before Augments, you mean?"

Tom nodded. "We haven't been around long."

"You wouldn't believe me if I told you," Maxwell joked before growing serious. "I have seen the world change. When I was your age, the world was more different than it is similar to today; everywhere and everyone in the world was afraid of a nuclear war that was felt to be but a few minutes away from an argument between the superpowers of the day. The Soviet Union and the
United States were both still around, then, and they didn't get along the way the Eurasia and Atlantia do."

"They had proxy wars, didn't they?" Tom asked with a somber voice. "Like those in the Hall of Defeats?"

"They did," he answered. "Both thought they were in the right with what it was that they did, as both thought that their ideas were the best for mankind. Neither thought they were villains, as it was in the Augmentation War."

"But there was a villain, wasn't there? The United Nations was the villain of that war, seeing how they were so quick to treat my kind, so there must have been one in the Cold War, too?"

"The only villains in the Cold War were those at the top," he reasoned. "Men and women willing to play their games of power and risk the destruction of everything in their ambition. The peoples of both sides were innocent and wanted nothing more than peace, I promise you that as someone who visited both. The Berlin Wall was torn down from both sides."

"Really?" Tom asked with an intrigued voice. "They did it from both sides?"

"Really," he nodded, Maxwell all too happy to take the chance to change the topic. "Take a look at some of the photographs and you'll see bulldozers from both sides taking the Wall down."

"You must've seen so much you aren't even able to tell me," Tom mused. "Did you see anything...bad?"

"I saw the Cuban Missile Crisis," he said, acknowledging how it was the closest the world had come to nuclear war. "But I saw so much more than that, too. The Apollo landings, the end of the Augmentation War, the rise of the superstates. I saw it all, and could tell you more about it than this museum ever could."

"Then...why don't you?" Tom asked with a hopeful look in his eye.

"Because there's no point in telling just one person when you can tell millions," he said as he reached into a pocket and took out a small notebook, the Augment's eyes going wide in realization. "I'm working on it."

"Maybe one day that little book of yours will be in here," Tom smiled as they stepped through the arch of the Hall of Victories...

...and what victories they were, moments of glory that all humanity could share as triumphs that had brought forward new eras, expanded humanity's knowledge of the universe or simply improved the lives of all. A running replica of one of James Watt's steam engines sat in the corner, happily pumping water that had been dyed a bright blue through in a perfect, closed loop and letting out the occasional puff of white steam. A fully functional scale model of the Hoover Dam, a testament to the engineering abilities of the turn of the twentieth century and the greatest dam in the world at the time of its completion in 1936, the experience of which would pave the way for the three times more powerful Coulee Dam a few years later, both providing immense quantities of clean power for millions for the first time. A full size Vostok capsule, cut open down the middle to reveal the pilot within, Yuri Gagarin sat in his seat as he had all those years before on the flight that would earn him recognition and fame in all parts of the world, even in the United States where thousands would write him congratulations despite the silent stance of its government. And then there was the Apollo
XI capsule, fished up from the bottom of the sea years before and generously donated to the new museum as a show of good faith between titans, its heat shield still warped and deformed from the heat of reentry from the culmination of its journey, perhaps the greatest achievement found within the Hall of Victories, humanity's first landing on another world eclipsing in importance even the tokamak that was sleeping but a few dozen feet away, one of the earliest forays into the fusion technology that would liberate the Earth of fossil fuels and free its peoples to explore the stars.

Whereas the Hall of Defeats was a place of failure, this was by its very nature a place of hope, a demonstration of what could be done when humanity lived up to its potential, as it did now with its terraforming of Venus and its first tentative grasps for systems beyond their own. These were the acts and actions of a civilization coming of age and doing that which it could be proud of, and he saw some few in the hall who wept to see it...and was almost tempted to do the same. He had been on Earth for a long time, too long some would say, and he had seen the world change in ways that few would ever imagine, fear and superstition and anger giving way to hope and understanding and curiosity and a genuine desire to learn from the mistakes of the past so that they might be avoided again, to truly change for the better; even what millions and even billions thought of as the sins of the United Nations were rooted not in the fear of a powerful few who were terrified of losing their power or of being made obsolete, but a fear that the rise of the Augments might undo the precious peace that so many had given so much to create. To be stood in this room was worth every moment of fear and unease that he had lived in his life, every moment when he thought that fateful day in 1957 might have been a mistake.

He had he seen anything so beautiful.

"I'll be back soon," Tom said with a wide smile as he looked around before turning his attentions on old Maxwell. "I'm going to the twentieth century section. I have some bulldozers to see."

Maxwell nodded in understanding and smiled, clapping Tom on the shoulder and waving the Augment goodbye as he started towards the entrance...and Mestral turned towards the rest of the museum with eager eyes and a happy smile. He had been amongst humankind longer than he had ever been amongst his own, much longer, and in many ways he was more a Human now than a Vulcan, yet he had seen so much that those of his homeworld would never have thought to observe and done things that they would never do, and he knew how much they had changed over the years since the crash, both culturally and technologically and physically, how they saw barriers before them not as something to change their plans or to dash their hopes, but as barriers to be tackled, never allowing their hopes to be dashed as they worked a thousand hours for that lone minute of success. He had seen the little rockets and satellites of the fifties give way to ones able to reach the moon and then asteroids and comets and then fragile ships of spidery modules linked together and now fusion ships that could race across the solar system in ways that had been unimagined but a century before, and now they stood on the cusp of breaking the faster-than-light barrier, of achieving their very first warp jump, and all in half the time that it had taken the Vulcans after the Time of Awakening...and therein lied the reason, he knew. His people in their quest to seal away their emotions so as to avoid another war had sealed away everything that had made them who they were, but it had taken their fire with it, their dreams and ambitions.

But the Humans had done the opposite, they had embraced their emotions and their feelings and no better was this shown than in one of their oldest myths, the tale of Pandora's Box, for just as the box had let out all the world's evils, so had the Humans let out all their emotions and yet stayed forever in the company of hope. Hope of surviving the harshest winter, hope of defeating the most dangerous predator, hope that the new lands they reached would be better than the last, hope that the herbs they tried might defeat their sickness, hope that they could defend their homes against implacable enemies, hope that the crops they planted might give a bountiful harvest, hope that the children they had
would grow up healthy and strong and live a better life than they ever did, hope that their actions might bring them salvation, hope that their ship would find new lands beyond the horizon, hope that they could tame the wilderness and forge new homes, hope that they might be able to overwhelm injustice, hope that their industry would bring forth an age of plenty, hope that they could reach new worlds.

There lay what it meant to be human; to hope and dream, and it was these hopes and dreams that were carrying them to the stars sooner than any Vulcan could have ever anticipated.

He only hoped that his people might learn what he had so that they might mourn that which they had lost.
Part 3: 2030-2060: From Cradle to Nursery - The Great Family...

The Great Family...
The Young Queen

The first celestial body to have a human presence, one that began with the first boot to be planted upon its pale and rocky surface in the earliest days of humanity's expansion into space and one that had become permanent in the years before the development of fusion travel, Luna is both the oldest of the Earth's colonies and the most developed, even if still a pale imitation of the splendour of the homeworld itself. Benefiting from its privileged position in the solar system at Earth's side, both figuratively and literally, the immense demands of modern civilization for resources had acted as a stimulant to greatly accelerate the development of the lunar surface - helium, the precious gas that was the fuel for the Green Revolution and essential for fusion power, was in abundance in the regolith that comprised the moon's surface and readily accessible through the use of proper sifting equipment that could, at the same time, extract the rare earth elements that acted as the bedrock of modern civilization and the other elements necessary for the creation of the superalloys that were being increasingly used on Earth to create arcologies and transoceanic tunnels and other such wonders that would have been impossible but a decade before...all of which swiftly became the foundation of the lunar economy, thanks to all being both easy and quick to send to the markets of Earth. The desolate nature of the lunar surface, utterly devoid of life, meant that there was no need to follow even the most basic of environmental procedures, if only because there was nothing to protect in the first place, but as was ever the norm, the extraction and processing of such resources was often a labor intensive task even in the fusion powered age of the twenty first century, and the simple reason for such a thing was the unpredictability of the task itself: with the failure of computer scientists across the globe to develop artificial intelligence of any real kind outside the capabilities of an expert system, which themselves could only react to planned for eventualities and only to the extent of the plan itself, causing one such engineer to dub one of the most complex and expensive of such systems (a massive Eurasian meteorological system meant to provide early warning of storms that might potentially evolve into hypercanes similar to the disastrous Cyclone Sanvu) as "a fancy, upjumped flowchart."

With machines thus unable to adapt to the unpredictable situations of life in a lunar colony, or indeed, life in any colony then established, it fell once more to human labor to do so: as with many of the first generation colonies, and particularly so on Luna, many of the machines and pieces of equipment that were necessary for the operation of systems as vital as life support or power generation were often webs of mismatched equipment, where a state of the art fusion reactor could be found alongside a fission reactor itself based off a design from before the turn of the millennium, and although a machine would have difficulty adapting to such a situation, or even misidentify the system with potentially disastrous consequences, a human being, augmented or otherwise, could easily recognize the differences and act accordingly, as well as adapt to changing or unknown circumstances...and, of course, being a greater technical achievement due to the nature of a human being needing more to survive than a machine, making it something all the greater for the powers of Earth to boast of in their competitions of science and engineering triumphs. For all this, the colonies on Lunar would, although most certainly not primitive, often use human labor where a machine might work, and such a thing only added to their already impressive population counts - between all the colonies of Luna, regardless of population, there were nearly two hundred thousand permanent residents by the end of 2060, working in power plants, water processors, hydroponic blocks, workshops and everything else that was needed to support the industrial juggernauts that were mining and metalworking. Some were born on Luna itself, the first generation born offworld, but many more had come as a part of the
constant and unending stream from the homeworld, the space elevators having rendered it a small enough expense for the average citizen to be able to book passage on one of the "space buses", small and cramped fusion craft designed to ferry as many people from Earth to Luna as was possible, rendering it possible for any man or woman interested to have a chance for a fresh start, for a new life in what many called a new land of opportunity, and it was not uncommon for a corporation to pay for the expense of a particularly desired individual in both travel and rent in order to bring them to the lunar surface where their skills could be made use of.

A group of settlers supervise the first ever loading of a Lunar mass driver. Although such systems were rare system wide due to the difficulty and resource intensive nature of surface level construction, as well as the immense energy requirements needed for their operation, they would find a use on Luna in the mass transportation of sturdy materials like ore or highly pressurized gas, whose containers could easily be collected in Earth orbit and delivered to the appropriate space elevator by tugships.

But the strength of Luna did not only come from economics, but also from military ones. Although the conditions on the lunar surface were harsh even by the standards of much of the outer solar system, being susceptible to both extremes of hot and cold due to its lack of even the most basic atmosphere, the proximity to the space elevator stations of Earth, and thus to the major shipyard complexes, made it an ideal proving ground for newly constructed warships of all shapes and sizes, a place where newly commissioned crews and officers could familiarize themselves with their
equipment in a safe but genuine environment, whilst the lunar surface was itself an excellent training
environment for the troops of the various, spaceborne part of the Earth's most powerful militaries,
allowing them to conduct simulated assaults on fortified positions and other training exercises, with
the practical knowledge gained on which equipment was useful or useless being worth the expense
of fighting in an environment utterly unlike any that humanity had ever fought on before. Armored
personnel carriers and infantry fighting vehicles, concepts that had proven their worth all through the
Cold War and again in the Augmentation War, had proven themselves even more valuable than ever
before due to the limited amount of oxygen that infantrymen could carry with them into battle, thus
making it a necessity to incorporate systems such as quick working oxygen candles into their systems
in order to increase the amount of time that troops could be deployed in the field before needing to
pull back for resupply. For these reasons Luna was home to several permanent military installations,
ranging from radar posts manned by half a dozen temporary officers to full garrisons of battalion and
even brigade strength, as well as being the only body in the solar system other than Earth itself to
have a dedicated training ground, the Honoris Vacuum Academy, located in the Sinus Honoris and
specializing in the training of "vacuum infantry", or VIs, who were specialist forces intended for the
extreme situation of fighting on a body lacking a breathable atmosphere and on spaceships.

More infamously and a place of much secrecy and conjecture was the Eurasian Union's complex in
the Lacus Somniorum named Dreamlake and referred to on paper as "Site E". Heavily guarded and
surrounded by a no-go zone for twenty five kilometers around in all directions, where patrols were
given the order to remove any unauthorized personnel by any means that they deemed necessary and
supported by camouflaged remote controlled gun platforms, the supposed roles of the secret complex
varied from one person to the next - some thought it to be the most classified and secret of military
black sites, where Atlanticist spies were dealt with by means that would not be legal within the
atmosphere of Earth, whilst others named it a place where the Eurasians dabbled in dangerous
technologies such as antimatter energy or artificial intelligence or, most terrifyingly of all, as a
bioweapons research facility. The Transatlantic Organization, ever curious as to what their neighbour
on Earth was trying to do, would spend billions attempting to breach the security of the complex
through a hundred different means, ranging from an "accidental" impact of an unmanned probe
several kilometers outside the restricted zone, giving it the proximity needed to do an invasive ground
penetrating radar scan, only to discover that the complex beneath was shielded with thick walls of
solid lead that appeared to be at least six feet thick, and attempts to intercept Eurasian
communications from the secret facility were only moderately successful, with the few sections that
could be decoded being words and phrases with secret meanings and part of a codebook that the
TAO had no prior evidence of...leading them to assume that such a facility reported only to Khan
Noonen Singh himself, whatever its mission might be. Undercover operations failed to penetrate the
facility's complex defenses, with no agent ever getting anywhere near the complex before being
cought out by their Eurasian counterparts and shut out, whilst further investigation of Sites A through
D (a mixture of low-level military materials processing centers, civil defense sites and warehouses
warehouses) in search of clues lead only to the discovery that "Site E" was seemingly disconnected
from any other military structure within the Union but for some rare number of cargo manifests that
revealed that, whatever Dreamlake was, the site was consuming immense quantities of optical cable
for telecommunications purposes, high quality tunneling machinery, computers of the kind best
suited for brute force tasks and, most alarmingly, an ongoing search for "individuals of the utmost
loyalty in the fields of linguistics, exobiology and theoretical physics" that had the TAO's own
intelligence services committing the great majority of their resources to the site in the fear that the
Union may well have discovered something constructed by a civilization not of the Earth...

In truth, the infamous Site E was nothing more than a mind game, a honeypot dreamt up by none
other than Joaquin Weiss, head of the Eurasian Union's Internal Security Agency, as a means to
focus the efforts of the TAO on a location that held no real value - beneath the lead walls that
blocked all attempts of scanning there was nothing more than barracks and recreation centers for the
troops that patrolled the area, warehouses for the machinery brought to the complex and several floors of excavated area where the other materials brought to the facility were stored, with new areas being dug whenever there was the need to reinvigorate the TAO's interest in the location, whilst the seemingly unbreakable code phrases that were transmitted from the facility were created through the use of a small computer that randomly attached words together in ways that seemed to make sense. In truth, the Eurasian Union's most precious scientific facility was one in the asteroid belt, known to the public and protected by a fifteen man defense force and a warning beacon that said anyone docking without prior authorization would be prosecuted...and nothing more, for it was Site E's role to deliberately draw attention away from it, using the reversal of an old spy-adage as inspiration: if something was heavily guarded, then it was certainly important, so if something was lightly guarded, then surely it was unimportant?

But just as the Lunar surface was home to industry, military bases and decoys, so too was it home to works of culture, schools, gardens, and a thousand other things that ensured there was one thing in the solar system truly without doubt: that Luna was the greatest of Earth's colonies.

**The Bitter Prince**

Mars, the second extraterrestrial body in the solar system to have a permanent human presence, was not nearly as strong as its seniority might imply, for whilst the colonization of Luna might have been an unmitigated success, the colonization of Mars was less fortunate, the culmination of a long tale of hardship, abandonment and ultimately, war. In the first days of the colonization of Mars before the advent of fusion rocketry, the initial pioneers, those rare few who had volunteered to make the almost four year journey to the red world and who were willing to expose themselves to the hazards of space flight, had worked hard for the dream of a colonized, developed and even terraformed Mars, genuinely believing in the idea that they would be remembered as those first heroes who tamed another world despite the thousands of obstacles. Making up for their lack in number with strength of heart, they had excavated the first underground settlement spaces, deployed the first water pumps, activated the first fission reactors, all to build the first colonies, and did so with little support from Earth, certain in the knowledge that even with the Eurasia orbiting overhead that there was little chance of rescue if something went terribly wrong. Far away from the steady shipments of supplies that had allowed the Lunar colonies to expand at a frantic rate, to survive on Mars was to survive in the hardest environment then encountered by man, for the entire world was treacherous and unforgiving: the atmosphere was thin and comprised almost entirely of carbon dioxide, which could saturate liquids such as mechanical lubricants and corrode steel, greatly increasing the rate of wear on machines that ranged from drills to vehicles, whilst the lack of ozone greatly increased the amount of ultraviolet radiation present on the planet's surface, damaging the artificial fabrics that comprised the settler's space suits, and all that whilst the traditional threats of space - the risks of radiation poisoning, the lack of oxygen and other critical supplies, the failure of vital machinery and dozens more - were present. Even the bodies of augmented individuals, well known for their immense resilience, could not take such punishment forever, and a number of colonists would be forever marked by their time on the crimson planet by irreparable damage to their genetic structures that often manifested in the form of permanent sterility.

But despite such terrible conditions, the settlers pressed on to make the world ready for the next wave.
Three recruitment posters for Martian colonists, released as part of a TAO initiative into building public awareness about the Mars colonies during the early days of settlement on the Red Planet; although the organization had many astroanuits available for dispatch, the nature of life on the Red Planet meant only a handful were willing to set aside their lives on Earth for a new one on Mars, meaning that the organization often resorted to public awareness campaigns in the form of posters, advertisements and the like in order to find suitable settlers.

Amongst the disparate groups of settlers friendships were made, forged in the cruel trials that were shared, and from these friendships often came more, till there was at last a time that even a small number of children had begun to be born by those who were still able, parents telling their children
that one day, one day soon, that the red planet would become green, that thousands and even millions of settlers from the homeworld would follow in their footsteps and build a civilization where there had been none. It was what had kept them struggling and building for so long when the stress of the day to day existence had become too much, and with the dawn of fusion travel...it seemed for a time that they were right. Mars, long prophesied as the promised land that would usher in a golden age for mankind by both works of fiction and by real words, was the destination of choice for many would-be colonists who had become able to travel from one world to the next with the construction of fusion powered craft and the first space elevators, filling Mars with new colonies and new cities, but, ultimately, the promise of a developed Mars with billions of inhabitants would be one that could not be kept, for the great distance between Earth and Mars, even with fusion travel, prohibited the outpour of the tide of eager men and women that so many had expected to occur, bringing the excitement of the first ever Martian settlers grinding to a halt, replaced by unease and concern over the future of the world that they had given so much of themselves to build. Mars, although plentiful in resources, was hindered by the distance that seperated it from the homeworld, for Luna could make the same things that Mars could and send it to the markets of Earth far quicker, with only Earth's immense and growing demand for resources of all kinds that kept the Martian economy alive. But the hope of seeing Mars transformed into a paradise of mankind's own making still captured the imagination of those thousands of souls who called the red planet home, who had heard the stories of the settlers of the first wave in the great challenges that they had encountered and overcome, of those who had died to build the Mars colonies, and saw this as yet another obstacle to be overcome - fusion travel was still young, came the reasoning, so it would surely have some improvements in time that would make it quicker and more capable, and it was not like Mars was lacking for people now, so perhaps it would be humans born on Mars that would see the planet made lush and prosperous and not those of Earth.

Then Venus was colonized...and many Martians lost whatever hope they might have had left for the future of their world, driven into despair by the celebrating announcements of those scientists of Earth who so eagerly said that Venus, close to Earth in mass and size, was entirely suitable for terraforming even with the technology of the day, that all it would take is an effort the likes of which the world had never seen before, an effort which the coalescence of Earth into three superstates was able to provide...and many pointed out the benefits of doing so there instead of Mars, particularly the ability to develop the planet already through the use of flying cities that could serve as terraforming stations and, most notably, its similar gravity and the presence of an induced magnetic field to help reduce the burden of radiation. The idea of turning Venus green caught wind quickly in the hopeful atmosphere of Earth, its people evermore confident in their technological capabilities, and it was a death sentence for the idea of a terraformed Mars, for it became ever more clear that the future of the red planet was not to become green, but to become a strip mine, its crust torn through in search of materials for projects that benefited other worlds. There would be no billions of inhabitants, no lush forests, no blue oceans, only voracious mining machines and foundries filling the atmosphere with the byproducts of their processes.

Almost immediately, the view of the people of Mars began to change, dissenting ideas spreading through the colonies in the form of impossible to trace leaflets and anonymous radio broadcasts, and though the few unmodified individuals who called the planet home did not succumb to the fear that Mars was being replaced, even those augmented individuals who had come after the first wave were frustrated and angered by what they perceived as the abandonment of their new home, many having sold homes and belongings on Earth for a chance at a fresh start on another world. The situation began to destabilize, with vandalism on high visibility targets such as prominent monuments and memorials - one such monument, the famous copper tripod built in honor of the legendary British author H.G Wells, was outright torn down by a four wheel cargo mover and its green eyes smashed - but the great governments of Earth, those who had large investments in both money and manpower on Mars, typically dismissed the situation as being nothing more than the complaints of a small
number of malcontents who were, in the genuine belief of Earth, trying to rile up the masses in revolt over a trivial issue for their own ends...but when intelligence agencies began questioning the loyalty of the various Martian garrison forces themselves, a large number of troops having taken their families with them to the new world so as to be in closer contact, Earth began to finally wake up towards the issue. Trying to discover the root cause of the discontent amongst the Mars colonies, the powers of the homeworld would take a soft handed approach to the matter in order to avoid the risk of escalating the situation further, to avoid the potential loss of life that could result if tempers continued to rise.

At first, some progress was made in calming the fears of the planetary population through a public awareness campaign intended to make the masses certain that Earth had no intent of abandoning them and all their work...and then the Mercurian Precinctual Republic was born.
The surface level section of a Martian colony - although the great majority of the settlement's colony lives underground and only a handful of its residents ever visit the surface, the necessity to vent waste gases and heat from the settlement below and the need to have communications systems on the surface due to difficulty in penetrating the thick layers of rock ensure that some few humans remain on the surface, nestled within heavily shielded structures to protect them from dangerous doses of radiation.

With Mercury declaring its independence of the homeworld and being let go of freely, even if perhaps still utterly enthralled by the Earth’s colossal economic strength, the belief that the people of the red planet could do the same spread through the colonies like wildfire, despite the fact that Mercury's autonomy came from a legal ambiguity that was not present on Mars. Growing ever more defiant and and ever more reckless in their actions, a grave mistake was made: an extreme secessionist group operating on the surface of Phobos were caught attempting to modify an orbital mass driver used for mining shipments in order to reconfigure the system into an interplanetary terror weapon able to strike the surface of Earth itself...and although men and women across the solar system and on Mars itself unanimously condemned the act, genuine in their belief that there was nothing in the universe more precious than their beloved homeworld, the navies of Earth mobilized for an intervention before lighting their fusion torches on a Marsward trajectory, as part of a joint Atlanticist-Eurasian-African operation to show a unified front in the face of adversity and wave the banner, with the plan being that the overwhelming strength of purpose built warships and the show of force that they represented by operating in Mars' own orbit would show the gross imbalance in capability between the two worlds and thus create a de-escalatory atmosphere, allowing time to be bought for the situation to be settled in a final, peaceful manner...but a rogue colonel whose identity would remain forever an item of conjecture, spread news that the Earth ships entering Martian orbit were not a show of force, but a full blown invasion fleet intent on instituting martial law and in breaking any spirit of defiance on the planet below.

Firing the first shots in a battle against a neighbouring garrison, violence tore through the colonies...and the Secessionist Crisis began.

By the end of the first day, the colonel who had started the crisis had been confirmed killed in action, shot down whilst aboard a military transport craft enroute to a more heavily fortified position, though the body would never be found due to the nature of his death...but blood had been shed on both sides. Sympathy revolts fired from one settlement to the next, plunging many colonies great and small into civil war, though rapid interventions by loyalist forces would see many such insurrections quelled and the colonies themselves secured firmly in Earth's hands, but a total of thirteen colonies, over one tenth of the planet's total population, stood in open defiance of the governments of Earth and armed with a mixture of weapons and vehicles taken from local military forces or improvised from modified tools and machinery, all led under the unified command of the highest ranking rebel officer, formerly of the Transatlantic Organization - General Demétrio Cardoso. Leading the mixture of professional soldiers, security contractors and colonial militiamen that were all unified under the Martian Independence Front, General Cardoso made the gamble that Earth would not be willing to shed any real quantity of blood over the colonies, as evidenced by how they had allowed Mercury to secede peacefully, thus leading him to believe that quick, decisive action would be the key to winning the conflict before the navies of Earth could arrive. With rebel territory primarily centralized around Olympia Planitia, the Martian north pole where access to frozen water had allowed the colonies to grow large, he commenced an offensive based off a heavily modified TAO staff exercise for a war on Mars, titled Case Roman Winter: using the knowledge that ground forces operating on a planet lacking a breathable atmosphere were heavily limited in their logistical capability, the plan called for the quick occupation of areas that possessed any notable means of producing oxygen so as to prevent hostile forces from resupply and to then force them into submission.
Pain and bloodshed would come in the wake of the first war beyond Earth's atmosphere, with a total of three thousand left dead and many more wounded or displaced by the conclusion of the crisis...but in the end, Earth would overwhelm all opposition on Mars. Future historians would point out that there would have been no other way for the war to have gone differently, for Earth possessed an industrial base well over a thousand times greater than that of every colony combined, as well as limitless reserves of manpower and shipbuilding capacity, but at the time of the crisis itself, many would feel for a time that the war could truly have gone either way, with some claiming that all that had been needed for Mars to be free was Phobos and Deimos, who had remained loyal to Earth and served as a staging ground, who both possessed a number of surface level mass drivers designed to send ore to the Martian surface for refinement, but which could have been converted into massive, anti-ship railguns able to annihilate Terran warships from afar. In any case, Earth's victory may not have been quick, but it was both crushing and absolute: with the final surrender of General Cardoso and his command nearly two years after the start of the Secessionist Crisis, the general extradited back to his homeland to face trial on charges of grand mutiny and sedition, the agitation and discontent of the Mars colonies melted away almost immediately, not due to the presence of Earthborn troops in the hallways of the most defiant Martian colonies, but due to a strange revelation in the eyes of the general population.

If Earth was so willing to fight Mars and bring it back in line, then surely Mars was important enough to be worth fighting for?

It was a bizarre reversal of the previous situation for the governments of Earth, with Khan Noonien Singh writing in his own memoirs years later that the entire Secessionist Crisis could have been summed up as nothing more than a vain lust for attention on a planetary scale, but it was capitalized upon to the extreme now as the nations of Earth knew what it was that the Martians were so afraid about - they were afraid of being abandoned, forgotten and left beyond. And so, the Eurasian Union, the Transatlantic Organization and the African Confederation changed tactics, and instead began to subsidise the transition of any "dirty" industries, such as those chemical plants that needed to use a particularly noxious process in order to produce a vital substance, to Mars, alongside other polluting industries like metal foundries and the like, all as part of a greater plan.

Mars would have its place at Earth's side, not as a garden, but as a forge and a foundry, a place of industry that would take on the burdens that the homeworld itself could no longer carry due to the damages of the Great Mistake.

The Pretty Princess

The very reason for the fear of so many Martians that their world would be forgotten and one of the direct causes for the rebellion, the colonization of Venus was the result of a long process of technological advancements brought about by the game of boasting between the nations of Earth, accelerated by the need for living space and resources not just for Earth, but for the colonies as well...but for many years, Venus was considered to be amongst the least inhabitable places in the entire system. For many years before the dawn of space flight, there had been much conjecture and curiosity as to what lay beneath the thick veil that was the Venusian atmosphere, with some even believing that there might have been forests and oceans of its own hidden beneath the clouds, ripe for colonization by those settlers intrepid enough to go forth, but when the surface was seen for the first time by the Venera probes of the USSR, the photography that came back showed not land of green fields and blue waters, but a fiery landscape that was the closest any human eye had ever seen to biblical Hell, where the nightmarish combination of crushing pressure, scorching heat and caustic air could destroy even the strongest alloys then designed, and not much had changed after the turn of the millennium when the newborn Eurasian Union began venturing out into space once more only to
discover that even fifty years of technological advancement were still not enough to allow even the largest, most well built lander then designed to survive for longer than a day. The miraculous invention of fusion power opened up the entire solar system for colonization and exploration, but even that was not enough to allow for a permanent human presence on the surface as there was on Luna and Mars, for it was the materials that were failing in each and every design, due to the simple fact that there was no material in existence, natural or manmade, that could deal with the combination of corrosion, pressure and temperature whilst still being suitable for use in the development of spacecraft, meaning that even the ships and explorers of the Grand Tour were unable to stay on the Venusian surface for even as long as they had on Mercury or other, inhospitable places, able to remain there for but a few hours before needing to depart and hope that the sensors that they left behind, hefty bricks of composite construction hoped to be able to last longer than anything yet designed, would be able to survive where they could not.

But whilst the Venusian surface was a hellscape beyond imagining and a place well beyond the science of the day to access, the upper atmosphere of the planet, despite being a grim demonstration of the results of a runaway greenhouse effect, was possibly the most suitable environment for a human presence in the solar system beyond Earth itself.
An early scientific outpost held aloft by a balloon filled with common nitrogen, at the start of the age of a permanent human presence on Venus and characteristic of the "spider" style of construction that dominated the first half of the twenty first century’s space design. Although comparably primitive in comparison to later structures in the Venusian atmosphere, with many being abandoned as technology progressed, stripped of their most valuable elements and allowed to fall to the surface, the work conducted on such outposts would pave the way to permanent colonization of the veiled world.
At a high enough level in the atmosphere, the temperature and the pressure reached an equilibrium with one another, creating an environment where both were entirely manageable by even the technology of the early 2000s, yet alone that of the 2040s, but most critically of all, the weight of the carbon dioxide atmosphere itself meant that the oxygen-nitrogen mixture necessary for comfortable life was a lifting gas, similar to hydrogen and helium on Earth, rendering it able to lift the settlement that it was contained within to the habitable zone where the strain on the materials that the craft was constructed from would be negligible, or utterly nonexistent when complemented by a small helium balloon to hoist the structure higher into the atmosphere, where the pressure and temperature both were equal to those on the surface level of the Earth. All this dramatically simplified the engineering challenges of creating an object able to survive the Venusian environment for long periods of time, with even the hazard of sulphuric acid clouds being low enough at fifty kilometers above the surface to be defeatable with the technologies on hand, yet alone the superalloys that were coming to the homeworld in ever greater quantities with the slow maturation of the foundries of Luna and Mars.

The primary challenge, then, was in assembling the structure in the planet's atmosphere itself and in transferring the crew to, made far more complex than in any other world due to the mobile nature of the target site itself, but the development of reliable single-stage-to-orbit craft, or SSTOs, as part of the Transatlantic Organization's approach to building Freedom Station during the early years of the twenty first century provided a viable means - attached to the underside of an interplanetary craft, an SSTO engineered for the task could be used in the Venusian atmosphere in a means not too dissimilar from an aircraft, carrying cargo from orbit to the station in a relatively simply manner, but the speed of the colonies themselves, carried along by the Venusian winds at over three hundred kilometers an hour, made such forms of docking maneuvers tricky, but not impossible, thanks to the use of a "lancing" technique similar to that which had been used for in-flight refueling during the Augmentation War.

This allowed for individual modules to be hooked together closely enough that their own seals could latch together and bind the two together, or at the very least make it possible for a properly trained individual to be able to emerge into the outside environment and do it manually, though such things were considered only suitable as a last resort due to the risks. Over time, it was not uncommon to see entire colonies binding together, with settlements that had been intended for a dozen individuals latching onto one another like vast crystals, till the final object could house hundreds, with the largest colony assembled in such a manner being able to hold nearly six hundred...but for a time, it was thought that was all that could be done, as the sheer difficulty in exploiting the rich resources of the Venusian surface meant that there was little means of gathering the raw material for further construction without importing the necessary resources from other worlds, which itself would be both expensive and redundant, as it would mean that Venus would have no real economic activity to speak of, and thus little reason for permanent settlement.

But then came superalloys. Forged in a low-to-zero gravity environment such as those present on the moons of Mars, in the asteroid belt and on Luna, these materials were stronger than anything that had ever been developed before, a new generation of metals for a new age in human history, and they opened a door that had previously been thought to be forever shut.

Surface level colonization.

Though the size of the complexes constructed on the Venusian surface were naturally limited by the expense of the materials, it was possible to construct a large mining complex at the north and south poles of the planet, where the surface temperatures were nearly as cold as the surface of Luna itself, an environment that was becoming ever easier to conquer, thus simplifying the material requirements again by removing the need for a complex cooling system from the design, albeit introducing the requirement for a heating network in its place. Yet even at the north pole there was a crushing pressure equivalent to ninety times that of the Earth's atmosphere, a third higher than the equivalent
crush depth of the greatest submarines of the Augmentation War, but it was here that a structure with an external shell comprised of a combination of super alloys and carbon nanotubes, beneath a corrosion resistant polymer coating, could be built, able to withstand the pressure. With such a facility in place, mining operations could be conducted with little challenges that humanity had not yet encountered by that point in time, with even water being readily available in the form of the sulphuric acid in the atmosphere, which could be condensed into its liquid form and then neutralized into water through the use of sodium hydroxide, leaving only sodium sulfate as a waste product alongside drinkable water. Once the mining and refining facility had been completed, becoming a full blown colony of Earth in its own right, there was only the simple matter of getting the finished product to its destination: a task that was easily handled by a mass driver, which could throw cargo cylinders into the upper atmosphere where their balloon packs would erupt and allow them to gently float to their final destination, either the uppermost parts of the atmosphere where they were easily collected by SSTO craft for export, themselves gaining the name of shuttles by that time in a reference towards the original Space Shuttle, or the lower levels where the colonies were calmly gliding along.

By this means, raw materials could be produced and processed on Venus itself, and with local production of the raw materials that were needed to start proper colonization now in effect, true progress could finally begin, and it came with a discovery that would shock the solar system, and would be considered perhaps one of the most important discoveries in the history of human civilization.

Life.

Although Mars had been long revealed to have been a lifeless world throughout its entire history, never having had the still unknown "spark" needed to convert organic molecules into life, Earth's sunward sibling had not only been home to simple microbial life in the past, as evidenced in microfossils uncovered in the arctic surveys that had stumbled upon a tiny fraction of the planet's original crust prior to its resurfacing, but was home to life still, tiny bacteria living in the acidic clouds and feeding off of the Sun's bounty of ultraviolet light, the last surviving remnants of what had once been a thriving biosphere in the planet's shallow but wide oceans. Never having been able to progress past the single celled stage of development due to the planet's deterioration into a deadly inferno, they were simple creatures by the standards of Earth life, but incredibly resilient. The abrupt discovery led to a surge in interest by the masses of all facets of Venus and its history and its impact on human culture, just as it caused an upheaval of epic proportions in the scientific community - finally, after many years of questioning and searching, it was confirmed that humanity was not alone in the universe and had living neighbours in the same system...if perhaps simple ones.

But the discovery of life on Venus, a world that was in many ways one of the most and least inhospitable planets in the system, lead to a renewed hope in the idea that there were other forms of new life amongst the stars on strange new worlds, perhaps even new civilizations. Fusion probes bearing a curious and hopeful humanity's message would be launched into the depths of space, far greater in size and content than those earlier messengers of the Voyager series and the Zheng He, all dispatched to systems that were thought to have a serious probability of life, including the 40 Eridani and Procyon systems that had been the source of the strange transmissions of 2025 and which were believed to have been created by intelligent, spacefaring life forms much like humanity itself. But perhaps even more importantly than that, the knowledge that Venus was once a living world with oceans of its own and even an atmosphere comprised of oxygen and nitrogen told humanity an important message: if there had once been oceans on Venus, why could there not be oceans again, filled with the life that never had a chance to develop? The technology to develop Venus into such a world had existed for decades, with some saying that it was even doable with the technology of the 2010s, if perhaps over a longer timescale, and there were certainly many reasons to do so: the ever
growing population of Earth was slowly but surely expanding to fill the available space, and though there were plenty of bodies in the solar system to be colonized, none were truly able to support the billions of inhabitants that would be necessary to take the strain off of Earth's fragile ecosystems, whilst the knowledge that humanity could have had a sibling civilization in the same star system, brothers and sisters born of the same sun, only for them to be lost to a runaway greenhouse effect long before they ever had a chance to look to the third planet of the system and wonder who called it home, struck down by the very same kind of climate change that had once loomed over humanity like an executioner's axe. It was argued by many that geoengineering, although tainted by the Great Mistake, was not an entirely flawed field of science, that its errors could be blamed solely on humanity's inexperience with the concept, and so, Venus presented an ideal testing ground for ideas that were hoped to be able to, perhaps, mend the scars that had been inflicted on the homeworld by three hundred years of industrialization. Some simply argued that terraforming a world from hazy skies, crushing pressures and a daytime temperature able to melt lead to a place of fluffy white clouds, blue seas and even snow would be to complete the most incredible wonder in human history, the greatest possible gift from the people of the twenty first century to those generations as yet unborn.

For all those reasons and more, an international council of the three superstates of Earth was made, given the singular duty of transforming Venus into a paradise through any means that they deemed necessary for the project, thus combining the three disparate entities that were the individual attempts to study such knowledge into a single, unified force. It was fully expected to take at least a century to complete, perhaps more, but it was also expected that each decade would render the planet that little bit more habitable, till the first fifty years would allow it to support so great a population as to make it feasible for Venus to be able to pay for its own terraforming, or at the very least subsidize the expense.

And so, on the eighth of April, 2051, the terraformation of Venus began.
An image of a almost completely-terraform Venus from orbit, taken in 2141. The culmination of ninety years of work set in motion by the first ever tapping of the hydrogen reserved embedded in the planet's crust and aided by a complex network of sunshades, ammonia heatpipes and genetically engineered bacteria, the world was still only partially habitable due to a lethal quantity of carbon monoxide in its atmosphere, but would be suitable for full colonization by 2150, and would be considered one of the greatest achievements in the history of human civilization, though the weak magnetic field, a problem that had been anticipated from the very start of the project, would need to be solved by the science of the time due to a lack of sufficient technology in the twenty first century.

But whilst terraformation of Venus began, the development of its cities proceeded apace as the spidery frames of the first half of the twenty first century gave way to floating cities proper, self contained ecosystems that depended upon a balance between colonist and colony in order to survive.
Drifting lazily through the clouds, the almost mythical nature of living in a home in the sky made such cities one of the most desirable places to live in the entire solar system, a home to millionaires and billionaire and the greatest of celebrities, as well as the others who were fortunate enough to be able to make a living on Venus and call the planet home...and many such colonies were constructed on Venus using Venusian resources, assembled little by little through the use of factory blocks, floating manufacturing centers that had been painstakingly constructed in low orbit before being sent down into the atmosphere and sank to the appropriate level where they could be kept afloat by the same storage tanks that contained their breathable air reserves. Collecting the resources extracted from the Venusian surface, they could produce almost everything that would be needed for the day to day life on the planet, but their primary function was none other than the creation of other colonies, which could be built from the outside-in as the craft floated along until they were ready to be released for settlement, though some things, such as fusion reactors and other high tech equipment, needed to be imported from the homeworld or from Luna. But with the ability to construct new cities almost entirely without Earth's involvement, Venus was finally almost entirely self-sufficient from Earth, albeit still a financial expenditure, but as the terraforming process began to take root, as the harsh climate of Venus began to shift for the better, such things would change in time, as Venus took its place as the most favoured of all the Earth's colonies. Although both Luna and Mars could boast of having a larger population than Venus and a larger industrial output per year, the average wealth of a Venusian was several times higher than that of the settlers on the other colonies, not because they were vetting potential settlers so that only the rich could live there whenever new colonies were completed, but because of how many of Earth's wealthiest men and women called the planet home and made their permanent residence in the cities that soared through the skies, sometimes even bringing the headquarters of their primary businesses with them, making it all the more desireable for others to want to follow in their footsteps - if someone was able to live on Venus before the terraformation process was complete, then it was a sign that they were either incredibly rich, incredibly well connected or incredibly lucky and most certainly someone who were "finished" enough in life to be able to reap the rewards.
A group of floating cities travelling through the skies of Venus. Acting as mobile terraforming centers due to the immense wind speeds that allow them to circumnavigate the planet in a matter of days and constructed from acid resistant ceramics that were kept aloft by the very same air that the inhabitants within breath, the colonies of Venus float fifty kilometers above the surface, where the pressure and temperatures are similar to the conditions on Earth, allowing any individual, augmented or otherwise, to walk around the exterior freely with a need for nothing more than a combination of a respirator and a hazardous chemical suit, far simpler and more comfortable than the spacesuits of Luna, Mars and beyond.

Such feelings, however, would be the direct cause for the alienation of much of the Martian populace in their fear of being abandoned by the homeworld...and the Secessionist Crisis that followed.

The Son of the Sun

Although the scorching temperatures and horrific amounts of radiation had always been thought in fiction to have served as a bar towards permanent colonization of the solar system's innermost planet, in reality, however, life had found a way to survive even in Mercury's often hellish environment. Both the youngest and least populous of Earth's inner system colonies, though still greater in the number of settlers and economic activity than the majority of those constructed in the asteroid belt and beyond, the colonization of Mercury was accomplished more out of an attempt to answer the engineering puzzle that such an immensely difficult task presented than out of economic reasons, but as the spirit of the age so often boasted, there was no challenge too great to be overcome by the mind of a dedicated and hardworking engineer who truly believed in the vision that was given to them,
and as with all the other bodies of the inner system, civilization found a way in which to take root and grow. Although the equatorial regions of Mercury could reach temperatures so high as to melt lead, the polar regions, kept in perpetual shadow by the planet's minimal tilt, were never hotter than the freezing point of acetone, or a mere -94.15°C, much warmer than the dark side of Luna and thus well within the capabilities of the life support technology of the time, whilst the poles themselves contained almost a hundred billion tons of water ice thus making it a simple matter of using a fusion reactor to thaw out enough liquid to support a colony of almost any size, leaving only the minor challenge of accounting for solar radiation, which was itself no real challenge - the same method that had solved the problem during the other colonization programs, building underground, was entirely viable on Mercury if not even more so due to the presence of extinct lava tubes that were a leftover remnant of the geologically active period of the planet's life, making it easy to build colonies that would be shielded from the deadly radiation of the sun by Mercury's own crust.

Thus, there was no technological obstacle in the colonization of Mercury, for everything involved in the process was by then time tested equipment and science easily usable for the task.

The main problem, then, was finding a reason beyond colonizing Mercury for the sake of it.
A high definition image of Mercury's surface, prior to the start of the colonization process. Although
the surface of Mercury would be colonized, the lack of a magnetic field would cause the planet's
orbital area to remain undeveloped: cargo could only arrive to and from the colonies with the use of
mass drivers, the extreme conditions and the need to develop at the poles rendering the construction
of a space elevator or other system impossible.

Many of the factors that applied to Luna, Venus and Mars still applied to Mercury, but the difficulty
in bringing items out of Mercury's gravity well due to the lack of a space elevator rendered such
activities less feasible from an economic perspective, as well as the more mature state of the other
colonies all but guaranteeing that they would be able to out compete any such equivalent operations
on Mercury itself, with the creation of high quality semiconductors made using the abundant silicon
present on the sunbaked planet a less profitable venture than its Lunar equivalent, even the idea of
harnessing the power of the sun's rays to reduce expenditures to a competitive level was not viable, simply because there were no solar panels, or even any complex electronics, that could stand up to the might of a star for longer than a few days at most.

This lack of any real economic reasons for the colony’s existence would have consigned it to a slow, gradual death by depopulation brought about by settlers leaving to seek better prospects elsewhere, were it not for one thing.

Prisoners.

Despite the legal system of Earth having taken towards a focus towards the rehabilitation of criminals into productive members of society rather than in punishing them, as well as a combined effort on treating the various causes of crime that ranged from poverty to mental illness and a thousand other things, there were a number of individuals who had not been forced into their actions because of their health or because of their situation, but who had chosen to break the law entirely of their own accord. These people were corporate corsairs, private assassins, traitors, nationalistic terrorists and, of course, corrupt precinct administrators, as well as a wide variety of other particularly condemned individuals, and for them the possibility of rehabilitation was but another opportunity to merge into society to commit crime anew, but life in prison was considered too inhumane, especially for Augment individuals who could spend an entire century in custody, wasting away with little possibility of parole. With the isolated nature of the Mercurian colonies guaranteeing that there could be no escape from the planet without outside involvement, these damned individuals were given a chance to redeem themselves and one that was always open, ready to be accepted at any moment it was desired: to be sent to the Mercurian colony of Caduceus on the planet's south pole. There they would be free to make a fresh start, unmarked by the sins of the past, free men and women once more if perhaps confined to the surface of a single world where they might be able to do no more harm.

Many would accept such an offer, being transferred in great groups inside of automated transport ships reminiscent of the prison barges of old, carried alongside large supplies of food and clothing and machinery to help them make their start.

And although the idea of a penal colony might bring to mind ideas of brutal repression, constant surveillance, grueling conditions and bloody infighting, the colonies of Mercury were nothing of the sort, for there were no guards, no surveillance systems, nothing but the knowledge that the life support systems needed to be well looked after if they were to survive and that they had all the tools they might ever need to maintain their home - mining machinery to extract usable ores from the hard Mercurian crust, foundries to process it into useful metal and workshops with which to machine spare parts. The combination of private soldiers, corrupt administrators and other unsavoury elements blended together not into a place of anarchy, but into a rudimentary state, its peoples bound together by the mutual understanding that everyone had to set aside whatever differences they might have had with one another, whatever ambitions, in order to work together so that they might have a chance to survive in one of the least hospitable environments in the entire solar system. Mercenaries became policemen, saboteurs became engineers, politicians became foremen and leaders, even professional assassins found a role in the emerging colony as doctors and physicians due to their knowledge of human anatomy...and despite all expectations, the colony of Caduceus not only survived, but thrived, remaining long after its civilian equivalents had started to decay. The colony expanded, accepting any and all who might wish to start anew within the tunnels that were ever more looking like cities, even civilians from the Transatlantic Organization and the Eurasian Union were welcome if they had useful skills, and what had once been a certain economic failure blossomed into a small, but successful, settlement. One of the densest planets in the solar system, precious gemstones, a resource long overlooked by those who had called it a nonviable world, were in the utmost abundance and of an extremely high quality, with unique types of gem not found anywhere else in the solar system that
were often both useful for industry and beautiful...and not even the most perfect diamond excavated from the mines of South Africa or synthesized in the most precise lab could match the famous beauty of a Mercurian ruby, whose very imperfections seemed to enhance their beauty and which managed to break more than a century of the diamond's cultural momentum as the gemstone of engagements, weddings and love.

A high quality Mercurian ruby. The result of a combination of pressure and temperature unique to the planet and impossible to replicate in a lab, a true Mercurian ruby can be separated from its terrestrial counterparts by its famously pinkish-red color that turns a dark violet when exposed to short length ultraviolet light and, more precisely, by the unique internal structure that can be viewed through the use of a sufficiently powerful microscope.

But more notably than anything else was how the very use of prisoner colonists had created a cultural melting pot, a place where Eurasian and Atlanticist culture and ideals had blended together to create something uniquely different, with even the precinct system of the Eurasian Union having fused with the democratic ideals of the Transatlantic Organization to create a system where the bureaucratic system of the Union was counselled and aided by democratically elected councils intended to keep the government in touch with the needs, hopes and concerns of the general population and to keep them from the risk of dehumanizing their own citizens...but more notably than that was the blurry line as to who owned the settlement, since it had been a joint project between the greatest of Earth's nations, leaving it vague as to who actually controlled Caduceus and whose laws should apply there.

Hoping to resolve the matter through a referendum, several possibilities were proposed towards the population:

1) Annex the settlement into the Transatlantic Union as a member state.
2) Annex the settlement into the Eurasian Union as a constituent territory.
3) Annex the settlement into the African Confederation as an associated member.
4) Remain in the status quo as a Territory of the Earth, with legal issues to be handled on a case-by-case basis.
5) Become independent.

In a first in the history of all mankind, the Mercurian settlers voted for independence by an overwhelming 76%, shocking the governments of Earth who had not expected such a possibility, but having been the ones to give the penal-colonists of Mercury the choice, indeed, having been the ones
to push for the referendum in the first place, they had no choice but to accept.

Thus, on the 20/11/2056, the Mercurian Precinctual Republic was born, the first independent nation not of the Earth.

The state flag of the Mercurian Precinctual Republic depicting a sunrise on Mercury, symbolizing the new era that began for the Mercurian colonists with the arrival of their own independence. The lyre, a classical symbol of the ancient god from whom the planet takes its name, represents the triumph of Mercury and its settlers over the magnificent power of the Sun.

Although the planet was now legally independent of Earth, it was still extremely dependent on the homeworld for goods that could not be produced with the equipment that the newborn MPR lacked, such as complex computer circuitry and certain material substances, as well as for additional settlers, but even on Mercury itself, there was little desire for a complete break with the homeworld - it was more commonly considered that the Declaration of Independence and Republic, the document stating their sovereignty and outlining the framework of the nation's governmental structure, was simply them asserting their desire for home rule and their right to make their own laws and to ensure that they can remain free of any international affairs on Earth. Thus, despite having its own currency in the form of the Mercurian Merces, symbolized on prices as Mercury’s astronomical symbol (?) , its own constitution and even its own defense force (albeit of twenty five men), the MPR was little more than a satellite state for the powers of Earth, and the Mercurians themselves were happy to remain in such a role, with some on Earth saying that the only reason they voted for independence in the first place was to strike back at the homeworld for using them as penal colonists in the first place.

Little did they realize, however, how their choice would cause the first ever interplanetary war.

The Little Children

Although the inner planets were certainly the greatest of all of Earth's colonies, they were far from the only ones, for in the asteroid belt and beyond there were dozens more, ranging in size from the small outposts that were frequently set up for reasons both scientific and military to the large cities
that acted as filters for all the resources that flowed back to the homeworld from the outer system, great hubs of logistical activity that served as meeting points where the short ranged asteroid mining craft of the belt could transfer their goods to the longer ranged convoy ships able to make the journey from the outer planets to the inner system without needing to dock for resupply along the way. These colonies never had a large population, with the largest of them all typically in the low thousands and with none higher than ten thousand permanent settlers, but they served a role of vital importance in that they were almost always abundant sources of resources that could only be extracted on Earth with either great difficulty or the risk of serious environmental damage...but with the asteroid belt never having had the touch of human hands to gradually reduce the amount of easily accessible resources over the centuries and lacking even the most basic of biospheres to be damaged by their actions, usable resources could be stripped away en masse with little danger, and it was these resources that fed the development of the inner system as an equivalent of the old trade goods of the age of sail once had: rare earth elements were critical for the production of superalloys, fusion reactors and electronics of both consumer and military kinds, but they were difficult to extract on the homeworld without causing further damage to the environment and with existing mines already starting to experience a lowering output as the most readily available material was extracted (and were, of course, located predominantly in the Eurasian Union's core territories of the Central Asian Precinct, formerly part of Mongolia and Xinjiang, which would cause the American President John Grissom to quip in a defense meeting with other leaders of the Transatlantic Organization that the Union "has us by the balls and can give them a squeeze whenever they want, not that they want to" and were considered one of the main factors in the defeat of the United Nations Coalition in the Augmentation War), thus forcing humanity to look to the stars in order to sate the hunger of its industries. Gold, silver and platinum were similarly highly desired goods, not for the reasons that had they had been in the past, but for the vast array of uses they had in industry, with gold being particularly desired for its thermal reflectivity, which made it invaluable for the creation of faceplates for spacesuits and for the engine bays of fusion powered hypercars, with silver also being wanted for its use in space telescopes and in water purification systems for the offworld colonies. And as the free market had proven so many times before...if there was a need for something, there was often a means to obtain it. The Grand Tours and many decades of asteroid impactor probes and even a Ceres rover had revealed that everything that the peoples of Earth needed could be obtained from the rest of the solar system, and with the first space elevators entering operation, it was now economically viable for a sufficiently wealthy corporation to construct an offworld colony for use as a mining base, away from the harsh taxes that had been passed in the wake of the Green Revolution to encourage clean industrial practices. The development of the first superalloys and their amazing technical properties opened the door towards thousands of new innovations and engineering accomplishments, but they could only be forged in environments that ranged from the low gravity found on the Lunar surface to that of Jupiter's cloud tops, where the combination of a gravity twice that of Earth and a monstrous magnetic field could create a form of steel exceptionally well suited for super-to-hypersonic aircraft and heat shields, but such environments were impossible to replicate on Earth. This only acted as more kindling for the flame of an interplanetary economy, alongside other commodities like fluoride glass for superior transcontinental communications systems an order of magnitude beyond traditional fiber optics, zero-gravity semiconductor electronics of a far greater capability than those made on Earth and even medicines could be made of higher purity in a low gravity environment than they could be at sea level. All would sell for a high price on the homeworld, and all would do so with so great a profit margin as to make developing the infrastructure to extract and process such resources into a venture where the profits would outweigh the cost of investment in just a few short decades, even sooner with the extensive subsidization of such developments by the governments of Earth, who were more happy than not to get such dirty forms of industry away from the homeworld's fragile ecosystems, still recovering from the damage of the Great Mistake.
And as the first space colonies were constructed, the economy of scale began to wake. Production of items such as spacesuits, oxygen candles, electric powered space rovers and all the other things necessary for the construction and day to day operation of a space colony were made a thousand times more expensive by the need of the manufacturer to develop the machinery and techniques necessary for their production, tool the assembly lines accordingly and then recoup the costs of having done all those prior tasks off of a handful of items...but with consistent orders for these goods, the cost of tooling the lines for the task could be spread out over more items, reducing the cost of the individual item significantly, in turn meaning that more organizations could afford the item and thus lowering the cost further in a self sustaining chain reaction that would drastically reduce the cost of such items to the point that even small, limited enterprises could buy the equipment they needed to run a small operation in space...and from there, the spark became a bonfire.

A civilian freighter ship is maneuvered into docking position by a number of small tug ships - although capable of travelling from one planet to another in a timely manner, fusion engines were unsuitable for the precise, short range work of carrying out rendezvouses and other sensitive maneuvers, and most craft lacked a primary, non-fusion form of propulsion other than for their RCS thrusters. To allow them to enter dock in a more timely manner, every port contained a squadron or two of bright yellow tug craft, small ships equipped with magnetic grapplers and a gimbaled primary engine able to do fine movements when accompanied by their own thrusters, allowing a coordinated number of tugs to be able to precisely maneuver even the largest craft into an appropriate docking location.

In a matter of decades, the first few mining colonies blossomed into dozens and then hundreds, feeding the unlimited appetite of the homeworld, and many would flock to the opportunities that such mining operations presented. The profit margins were often so high that the pay and benefits of a career in space were second to none, to the point that the average technician with the difficult but necessary task of working on the subsystems necessary for a comfortable environment on even the most Earthlike of colonies could easily earn over 120,000
Of all the worlds and moons and asteroids that the people of the solar system called home, there were none that were considered more precious than the homeworld itself. Earth had been the cradle of human civilization, and though humanity had begun to outgrow the world of their birth, it was still by far the most cherished and important place in the solar system, with those few who had been born away from its surface even going on journeys to the Earth whenever they had the chance, pilgrimages of the modern age that were considered by those who made them to be just as enlightening and life changing as those that men of faith had embarked upon centuries and millenia before. As the place of origin for the human species, Earth led the way in all things: in a single day its cities consumed more electrical power than every colony did in a year, whilst its factories produced more goods in an hour than those of every colony combined since the construction of the first lunar colony. It was a titan surrounded by dwarfs, yet despite the immeasurable difference in scale between Earth and its children, few worlds were more affected by the dawn of interplanetary colonization than the homeworld itself. By the start of the 2030s, what had once been hundreds of nations had begun to coalesce into a handful of superstates that had begun to count the African Union amongst their number, the sleeping continent finally able to begin to take its place in the international community as it began to morph into the newborn African Confederation, and with such political transformation had come massive upheavals in the ways that the masses lived their lives - people on the opposite side of the world were but a few taps of a keyboard away, civilization had finally been weaned off of the tempting milk of petroleum and other fossil fuels as part of a grand reawakening in environmental awareness, but more than anything else, an entire generation had come of age lacking any of the hereditary illnesses of the past and looked to the future with hopeful eyes. The long dance of diplomacy between the colossal superstates was a warm and friendly one, kindling the belief that perhaps there might be but a single nation on Earth before long, whilst the markets were healthy and yet shackled thanks to legislation intended to keep the great businesses and banks of the world honest and true so as to avoid the risk of repeating the crashes of the past, and never before had so many lived so well, with the threat of plague and famine forever banished from the Earth thanks to revolutions in the genetic sciences.

For the first time since the start of history, humanity had less problems to solve than it had means of doing so, with all the issues of the time having clearly planned out solutions that were the result of hours of hard labor and consideration. Earth’s growing dependence on fusion power had created a need for fusionable elements just as the Green Revolution needed alternative sources of raw material than strip mines if it was to truly allow the world to heal from the damage of the Great Mistake, and such resources were easily acquired throughout the system. And acquired they were, for once the first fusion ships had completed their tours of the solar system and found dozens of sites ideal for the development of the colonies needed to feed Earth's demand for resources, the first colonization missions of a new wave of settlements began with the construction of small outposts further and further out into the system, with a steadily increasing number of ships, but it would be the construction of the first ever space elevator that would usher
in the golden age of colonization that people beyond counting had long dreamt of. With the construction of orbital stations around the upper platforms of the space elevators, it was finally possible for a large number of fusion powered ships to be constructed in a timely manner, as well as greatly simplifying the task of moving cargo in and out of the Earth's gravity well, finally overcoming the greatest barrier that had stood in the way of would be explorers and colonists since the first rocket was sent screaming towards the heavens. Within but a few short decades, the small colonies of Luna had blossomed into cities proper, Mars and its moons were shipping back a quantity of raw material that would have been unimaginable at the turn of the millennium, there was even active talk of terraforming Venus as Mercury was colonized, one of the many places that humanity had found a way to build and survive despite the incredible hostility of the environment present there. The number of colonies in the asteroid belt and beyond swelled with the combination of state-owned investments and corporate settlements, with the latter growing to so great a number as to need an international summit on the status of such privately owned colonies, all to provide the resources that had become vital for the economy and were yet too dangerous to the environment to be extracted on Earth.

But the extraction of resources was only the beginning.
A nighttime view of North America, showing the golden web of city light spreading across the continent alongside the bright blue flashes of thunderstorms. Thanks to an unprecedented increase in birth rates combined with a dramatic decline in death rates, humanity's numbers were skyrocketing on all continents, causing cities to grow ever larger and ever more interconnected, though the green policies of the Century Cities ensured that damage to the environment was reduced as much as possible through the incorporation of large open spaces and a preference to build both higher into the atmosphere and deeper into the crust whenever possible.

With the development of new materials such as superalloys and fluoride glass, the products of the growing space economy, many ideas that had been previously condemned as beyond the science of the times at best or fit for fiction at worst became entirely practical, and such resources came in a steady stream as all the wealth and production of the colonies flowed back to the homeworld. Channeled into a renewed quest for knowledge and the hopeful ambitions of the masses, these materials whose strength and resilience was thought by some to be almost magical in nature would
revolutionize the world of science and engineering in a way not seen since the
development of electricity itself, for there was seemingly a new metal or alloy suitable
for every role in which one might be needed for on Earth. Solite, for example, was an
iron-boron alloy that could be created only in the corona of a star, thus needing specially
shielded ships able to reach the Sun where they could commence the final forging
process, but the result was a metal whose internal composition had been shaped by the
Sun's immense gravity and magnetic field into an interlocking crystalline mesh that
could spread out stresses across the entire surface, giving it an enormous strength and
thermal resilience far superior to that of diamond, albeit at a substantially increased
weight. The combination of such traits, however, would render deep drill projects
viable, if expensive, and thus open the gateway towards tunnels of a length and depth
that had never before been tried, and nowhere else was this better shown than in the
Transatlantic Vacuum Tunnel, or TVT, that connected North America and Europe
together with a fifteen minute train ride, making it quicker and cheaper to travel from
one continent to the next than ever before. At the same time, cables of fluoride glass
were lain down to replace the old oceanic fiber optic lines, hurling internet speeds well
over the terabit barrier and allowing massive quantities of information to flow both
freely and swiftly and for a lower price than ever before, the Internet having grown so
large and so utterly encompassing a means of data transfer as to have evolved into a
planetwide communications network that could be accessed everywhere in some form
or another. Ideas, thoughts, messages, all could be instantly transmitted from one side of
the world to the other at almost no cost, ushering in another wave of expansion for the
Internet that would see movies made before the turn of the millennium transferred from
one continent to the next in a heartbeat, so great was the Internet's increase in speed,
allowing the new generation of Augment-Humans to discover the works of the past with
the utmost ease as well as allowing truly massive organizations to coordinate themselves
in a timely and efficient manner, with one such group being the Unification Movement,
a transnational political faction with over a hundred million supporters who extolled the
virtues of planetary unification: if the superstates were able to do so much more with
their strength than the small countries that had come before them, then what could an
Earth undivided do?

But just as the political scene was transforming, so too was the physical world and the
cities that had been built years before. The Century Cities, named for their construction
at the turn of the century and built with the idea of constant expansion in mind so as to
avoid the growing pains and inefficiencies that plagued the cities of the twentieth
century, had done well in reducing the environmental footprint of the world's cities and
in creating places that were both more efficient and more comfortable to live in than the
cities of the past, aiding large scale mass transit programs in taming the beast that was
suburban sprawl, but were beginning to struggle with the ongoing surge in population
that the rise of the Augments had brought, with the combination of needing additional
farmtowers, living space, schools and other necessities causing the city infrastructure to
be kept forever stressed as the population grew as quick as the cities themselves did,
with only the fact that the Century Cities were designed for such massive expansion
protecting the inhabitants within from a harsh deterioration in their living conditions, as
was seen in those few areas that had not yet made the transition from the more primitive
forms of city design, where police cars, fire engines and ambulances could all be lost
and isolated in mile long traffic jams brought about by an inefficient design. To fight
such extreme growth rates without trespassing on the freedom of its inhabitants was a
difficult challenge, but one that would be addressed in the addition of an entirely new
direction for a city to expand in: vertically. Skyscrapers were a time tested idea by the
era of the Century City, a way for an owner to maximize the amount of floorspace on a
limited amount of high value land by building higher, but building downwards into the crust had never really been a serious idea for the vast majority of city planners and architects. The cost of excavating the soil and bedrock were considered too great to make such forms of expansion economically viable, as were the costs of ventilating such a large area in order to maintain a breathable atmosphere, all in addition to the psychological challenges of overcoming the inherent human distrust of underground spaces and the fear of being buried alive, but advancements in technology in the years since the first considerations of such an idea and the designing of the Century Cities had made it so that such challenges could be overcome. The construction of the first interplanetary colonies, many of which were buried deep underground in order to use the surface as a form of natural radiation shielding, had lead to a number of improvements in the planning and management of such projects along with plenty of practical experience in the design of underground habitats that were both comfortable and functional, whilst an old friend, nuclear fission, had grown powerful enough in the form of fourth generation reactors to be entirely able to provide the necessary power without adding to the Earth's already notable consumption of helium isotopes, whilst also being cheaper and smaller than a fusion reactor, whose second generation had only just began to enter the testing phase and were still difficult to shrink down in a cost effective manner even if they did utterly decimate the competition in large scale applications.

Thus, constructing underground cities were entirely viable, now, and surprisingly popular an idea as well due to the rise of environmental awareness in the general population and the understanding that expanding the cities outwards across the surface would only incur more damage to the Earth's ecosystems...and for simplifying one's day to day commute, as all underground cities were built with the exact same principles of the Century Cities above them, with an emphasis on affordable and high quality mass transit and open green spaces, albeit ones that were nurtured by artificial sunlamps. Many of the world's Century Cities would expand into the underground area, contracting dozens of engineers and architects to build their new "undercities" that were often laid out in such a way as to complement the city above, with an underground police station being placed beneath a city park so as to allow its officers to patrol the grounds on foot all the more quickly and a recreational center beneath a housing block among other things, as well as the almost prescient case where a fire station was placed beneath a San Francisco nightclub, saving over a hundred lives when an electrical short in the lightning caused alcohol spilled on the bar counter to set ablaze. The rise of truly three dimensional city planning radically changed the nature of many cities and the day to day lives of their occupants, with thousands upon thousands making their homes beneath the buildings where they worked in the day so as to minimize how long it took them to go from one place to another, and this was similar in form to another form of city planning that had began to gain traction in those parts of the world where it was thought that a sudden but massive increase in capacity was better than a slow but steady climb, places where human ambition and materials developed throughout the solar system could be harnessed to build structures the likes of which had never been seen before, a new kind of superstructure that was as gentle to the environment as it was hospitable to the many thousands of people who might call it home, a titan that would be utterly self sustaining in food and water and able to generate its own power from the resources that were delivered to its power plants, perhaps even able to aid in the mending of the Earth's atmosphere due to their immense size. These buildings had gone by many names in fiction, but to the people of the Earth alive when they began their long construction, they were known as only one thing.
Arcologies.

The Essen Arcology Complex as seen from a passing aircraft, the EAC was the second largest arcology structure in the world at the time of its completion in 2058. The permanent home to one hundred and seventy five thousand individuals, the gargantuan building was also the location of the headquarters of several German automotive corporations, as well as their main assembly plants that were located in the underground level of the structure that connected together all the surface level buildings.

Cities in themselves, arcologies were structures that required an industrial effort above and beyond that of a space elevator, but whose impact could not be in any way understated. Built tall, deep and wide, there was nothing that could be found in a normal city that couldn't be found in one of the many levels of a fully constructed arcology, which stood as the crowning jewel of every megacity that was grand enough to call one their own, for constructing them was a challenge the likes of which not even space
colonization could have prepared humanity for. Normal metals forged on Earth were utterly unable to deal with the colossal weight of the structure above at the places where the greatest amount of strain would be placed, thus ensuring that every arcology, no matter the size, would be heavily dependent on superalloys in order to maintain its structural strength in those critical areas, adding to the structure's expense (and acting as another accelerant for the growth of the space economy) even through the use of hybrid skeletons that used a combination of superalloys and an intricate Earth-steel frame in order to spread the strain over as great an area as possible. Even a completed arcology had issues in that they were often so large as to be able to alter the climate of the area by creating a rainshadow in its wake and through generating so much heat as to warp weather patterns, challenges that had to be addressed in order to make their environmental impact as light as possible and which were solved through the incorporation of massive vent shafts that allowed air to flow through the structure and an enormously complex pipe network that radiated the heat of the structure into itself in order to warm water and the living space of its inhabitants, as well as for industrial processes such as recycling or water purification. Yet in the game of international prestige that was forever ongoing between the superstates, an exercise in proving one's power without the mutual obliteration that would come with a war in the space age, a war that no one on any continent had any desire to see, arcologies were the ultimate prize and the ultimate thing of which to boast, true wonders of the modern world that not even the Eurasian Union and the TAO could build in any real abundance. Even the greatest of all arcologies, the pyramid shaped Cairo Arcology, was only made possible by the vast amount of empty space that there had been on the construction site allowing for the building to be built wider rather than higher, creating a wide but relatively shallow pyramid that eased the burden on the exotic materials that made up a large portion of the building's price.

Yet they would be built all the same.

In stark contrast to the problems of building ever higher skyscrapers, the sheer scale of the construction site made building an arcology quick for a structure of its size, as the enormous area that was the building’s footprint could be worked on by an army of builders and engineers and technicians all at once, the great majority of them augmented and aided in their work by the most advanced construction technology and methods yet developed, ensuring that progress would be swift once construction was underway: six to eight years was the expected timeframe of construction, followed by six months of system tests and another six months of furnishing and decorating before being declared ready for opening. Entire industrial cities could appear around the construction site of an arcology in the same way that villages of masons and blacksmiths and carpenters had often formed to support the construction of medieval castles in past centuries, providing a constant and unending stream of tools to replace those that were broken and everything else that might be needed to complete the titanic project before melting away at its completion, its entrepreneurs and their workshops moving to the next great project in the world. But the construction of arcologies, even if there were but a handful of them in the world, would forever change the way that humanity lived in cities, for an arcology was the ideals and principles of a Century City carried to their logical culmination, the ultimate triumph of urban development - a place where massive amounts of people could be put into the least amount of space and yet still be comfortable, where all the services of a city were within walking distance or accessible in but a short journey upon mass transit, where the structure itself could help repair the environment and where more than enough food, drinkable water and electrical energy was produced for every inhabitant so that the excess might be given to the surrounding communities.
But even with such perfection of ideals, there would be no more than twenty of them in
the world by the end of the century, their prohibitive cost rendering it unfeasible for
most cities to be able to build one and instead encouraging them to build deeper into the
crust or higher into the sky, functioning in so interconnected a manner as to be as an
arcology made of a thousand towers...and although future generations and centuries
would come back to the idea, none would be considered greater than those of the twenty
first century, not because of their size or the quality of their furnishing, but because of
how they were an ever present reminder of the ambitious and hopeful spirit of the
twenty first century...and that no challenge was too great to be overcome by the power
of human determination.

****

Life On Luna
Armstrong Colony, Luna, 2053.

Amy yawned contentedly as she stretched beneath her blankets, glancing at the silent
alarm sat upon her bedside table before smiling as she saw the time, a good hour later
than the time that she normally woke up for. It was a Saturday, the start of the
weekend...and more importantly, the first of the two days she had off per week, the only
two that she could afford to have off as a self employed contractor if she wanted to be
able to live comfortably and be able to buy a few Earthmade luxuries every once in
awhile, with something as simple as a one kilogram bag of soil-grown wheat flour being
an expensive buy for one such as her, even in a place so close to the homeworld it cost
the better part of a few hour's work. But she cherished such little things and her free time
as much as the miners and technicians of the first of Earth's children did their own days
and moments of rest, those rare moments where they could set down their tools and put
away their bulky suits and heavy oxygen bottles for a chance to simply sit and relax
with a warm drink without needing to worry about their oxygen levels or about carbon
dioxide filters or helmet lamps or anything at all, but such moments were made all the
sweeter with the fruits of one's work, and that one day of extra work was worth it for
that alone, that was something she knew for certain...

...even if it sometimes made her wish she could book an appointment with herself for a
change, Amy rubbing at her back wearily as she climbed up off of her soft foam bed,
the mattress swiftly reshaping itself back to its default, featureless surface as she did. She
placed her hands together as she stood, pressing them against one another as she raised
them over head before bending over in a long stretch, touching her toes and holding
them for a few seconds before releasing and walking freely over towards her mirror,
roused of what little tiredness might have remained by her morning exercise, and in front
of her reflection she engaged in her morning ritual, the small thing she did every day no
matter how busy she was.

Checking for grey hairs.

When she was twenty, her mother had told her that the women of their family always
found their first strand of grey hair by the time they were twenty seven or so, and
certainly by thirty, but those days had come and gone and she hadn't found a single hair
discolored, not once, not even when she once messed around with dye and had blue hair
instead of her normal chestnut brown for a year or two, and her mother had always
warned her that hair colorants always made one go grey sooner...

...and yet here she was at forty nine, older than her mother had been when she said that
without a single grey in her hair or even looking more than a day past twenty two, if not
better. She was certainly wiser than she had been then, at the very least.

"Sorry, mom," she said quietly with a small smile as she examined herself in the mirror, raising a hand to move her curls out of the way of her eyes as she did. "But it seems I'm going to keep my brown hair for a little bit longer than you thought."

She laughed to herself, then, glancing back towards her blankets to make sure that the small, inflatable pockets of air inside of her duvet and the mesh they were connected to had restored the bed to its normal, pristine shape, not a single crinkle in its surface, before turning her attentions towards the small on suite bathroom that was attached directly onto the side of her bedroom, both of which were the only ones she had in the place that was her apartment; it was small, but placed in the heart of the colony and easily affordable, allowing her to save money for other, more important things, and it was enough space for someone on their own.

"Vesta," she said. "How much water do I have left, exactly?"

"Your command was not recognized," came the soft and womanly voice of the apartment's computer. "Please remove any possible obstructions to your voice or face a computer panel."

She sighed. Vesta was supposed to be the state of the art in affordable smart-apartment systems, with the latest in voice recognition systems, yet sometimes she secretly wondered if hers was brain damaged somehow, though she knew for a fact that the more expensive and more lavishly outfitted apartments had all the latest amenities inside of them, and that meant more advanced computer systems that were better at understanding the nuances of human speech,

"Vesta," she said again, keeping her voice as flat and monotone and empty of emotion as she possibly could. "Please state how much water I have left in reserve."

"You have twenty two point three one percent left, Amy," came the apartment's response, its voice always harsher and rougher whenever it ran into an answer that had not been pre-recorded by the system's Italian programmers, though she had seen systems where it would outright end the sentence after the end of each word only to start again on the next, and was grateful she didn't have to deal with it herself. "Would you like me to order more?"

"No," she answered.

"Alright then. Is there anything else you need?"

"Not right now, but in a moment or two," she said as she walked into her shower, using the tiny digital display built into the walls to preprogram in the exact quantity of water it was allowed to use, and exactly how it was to use it, all in just a few seconds of tapping on the display.

"Alright then. I am here if you need me, Amy."

"...I am so having you torn out when I can afford it," she said, tossing her nightgown into the laundry basket before stepping inside and closing the door with her elbow.

Then she closed her eyes and pressed the button.
Then, finally, she pressed the button, and on all sides of her, even above and below, came four sprays of hot water premixed with the perfect amount of a deep cleansing soap as good for one's hair as it was for the rest of them, and she turned around twelve times, letting every part of her body be washed thoroughly before the water ceased to spurt forth and a torrent of hot air came rushing through instead, drying her from all sides in a mere minute before disengaging and beeping loudly to announce that the preprogrammed cycle was done.

"And to think it used to take so much longer just forty years ago," she muttered with amusement as she stepped out and put on her bathrobe, a long soft thing of purple satin that her wife had bought her as a gift for their third anniversary some twenty years before, and continued on her way out into the bedroom and out onto the main room that was the vast majority of her living space. It was a place that was one part kitchen and two parts living and dining room, little bigger in its entirety than that of two bedrooms the same size as hers placed together, but the lack of space was countered by good quality furnishings, including a wooden dining table that was without a doubt the most valuable thing in her entire apartment, and one other thing.

"Vesta, would you mind opening the curtains?" she said with a yawn.

"Your command was not recognized," came the apartment's response. "Please -"  

"Vesta. Open. Curtains," she said again more slowly and with a growing annoyance.

And after a moment's silence, the curtains that covered the glass wall that was her window and the door to the balcony slid open...

...revealing the entire colony for her to see. Armstrong Colony was not the biggest or the oldest of the lunar colonies, but it was her home and perhaps even the most beautiful, for a brief glance through the clear glass of her window revealed a place as green as any city on Earth, with her apartment and all the others besides it built into the walls of a great underground cavern that surrounded the feature that dominated this level of the tall colony - a park, a hundred meters from corner to corner, covered in a neatly arranged assortment of yellow tulips and red roses and blue cornflowers, all placed so as to make the three star flag of the Transatlantic Organization, around which was wrapped a circular pond itself surrounded by tall coniferous trees that had grown taller still in the low lunar gravity. Through the slightly opened window she could smell the flowers and the trees, hear their leaves gently rustling in the artificial breeze of the colony's atmospheric system and the gentle chirp of the handful of birds that had managed to make a home on another world, just like her and everyone else who called Luna home.

The sight of it melted away whatever frustrations she might have had with her apartment's computerized "mind", and she couldn't help but think that the park was no longer a place of Luna, a place of dead grey stones and no water and no atmosphere, but of a place of Earth, a piece of the homeworld brought beyond its barriers, and she watched for a time, content...at least, till her stomach reminded her that she had not yet had breakfast. Whistling cheerfully, she strode over to the kitchen part of her room, flipping open cupboards and seeing what she had before smiling as she came up with the idea for exactly what to make: pancakes. Low gravity did bizarre things to pancakes, and though she did not exactly understand the science behind it herself, they always came out fluffer than they did in Earth gravity, and the fluffier a pancake was the more delicious it was. Taking out her sole bag of Earthgrown flour and carefully placing it on the counter before doing the same with every other part of the recipe, reaching into the
depths of the deep red fruit bowl only to grasp nothing.

She sighed. That meant one thing.

"Vesta, how many food credits do I have left?"

"You have zero food credits left on your rent," the apartment answered helpfully. "You will receive twenty more during your next rent payment, but you can get some now by exchanging some of your water reserves. Today's ratio is two percent of water reserve for one food credit. Would you like me to make an exchange?"

She glanced at the empty fruit bowl, stomach tingling and tastebuds wanting.

"Fine."

"Transaction complete," the apartment stated, Amy hearing the soft blubbing of the water tank losing a percentage of the liquid within. "You now have one food credit. Would you like me to make a purchase?"

"Buy a bag of apples," she commanded.

"Transaction complete," the apartment obeyed. "Your delivery will arrive by drone soon. Please ensure that the delivery receptacle on the balcony is clear of all obstructions."

"It always is."

"Command not recog-"

"Turn on the news," she said, cutting the apartment's voice off. "Make that EBN. They're more interesting."

Instantly, the twenty four inch screen that was completely flat to the wall on the opposite wall came to life, showing an image of a news studio so utterly clear as to be as though she was looking through a window, were it not for the obvious difference in angle between her gaze towards the screen and that of the angle of the desk that the presenter - a well dressed and swarthy woman from the Middle Eastern Precinct of the Eurasian Union, from around the Mesopotamian region if Amy's judgement was right - was sat behind, but that was a minor qualitative thing at best, and not really something that an engineer could fix. Behind the presenter was footage of the Baikonur Starport, the great space station that had grown up around the upper platform of the Baikonur Space Elevator (which was reserved entirely for military usage, civilian and commercial traffic instead going to Indonesia so as to be able to go directly onto superfreighters once it arrived on the surface, but Amy was sure the only reason the Eurasians had built it in the first place was to thumb their nose at the TAO by having two elevators instead of just the one, to which the TAO had replied by building another in the mid-Atlantic and causing the Eurasians to make another in the Indian Ocean, which summed up some thirty years of diplomatic relations between the two blocs) and which was comprised of a large central structure, storing goods coming to and from the Earth and forever immobile, cleverly connected to a rotating ring that housed the entirety of the station's populace and exploited the centripetal force to create artificial gravity. Past that, the eight spokes that spread out from the station like a spider's web, growing thinner as they went further out with the outermost sections meant as docking ports for the various fusion ships of the Eurasian fleet to call home, the innermost points a honeycomb for the
construction of new vessels.

And today, it seemed a new vessel was being launched, a thin and spidery ship with a ring of its own in the middle being pushed out of port by a squadron of tiny tug ships no larger than her small abode, cameras changing to show a close up shot of the ship leaving dock.

" - with construction finally finished, it is expected that the new escort ship, newly named the EUWS *Kathmandu*, will take several weeks to complete trials in Earth orbit before being sent to its final station in Saturnian orbit, where it is hoped by many to act as a deterrent to the increasing number of pirate attacks that have plagued the outer planets in recent years."

Amy scoffed, then. There was a reason why the TAO and the EU were building warships, and it all came down to how they viewed their offworld colonies; for the TAO the various off world colonies were exactly that, colonies, being semi-independent and with representation on Earth and with their services such as security and engineering being primarily provided by various corporations paid for by the TAO until the colony is developed enough to support itself and pay its own bills, like Armstrong Colony did, being recognized as its own thing separate from the nations already a part of it and instead as a fellow member state of the Organization - this worked fine, since the economic reasons for expansion were more than enough to cause new colonies to pop up on their own, with little outside interference needed except to claim the colony itself as being part of the TAO's jurisdiction. But on the other hand, the Eurasian Union saw its colonies as a direct extension of the Eurasian Union, with a colony on Ceres or Mars being as much a part of the Eurasian Union as Moscow or Baghdad, with services paid for by the taxpayer and with governance provided by the Precinct system, meaning every colony had some form of self rule right from the start in the form of a colonial administrator from Earth, exactly the same way as it worked on Earth for the Union, with economic policies varying from one settlement to the next in accordance with what was considered to be best for each unique settlement. This was also fine, since whilst the Eurasian government would occasional setup state-controlled colonies and then later privatize the economic aspect of them so as to avoid the messy part of managing a colony, the corporations had the same freedom to establish colonies and then later privatize the economic aspect of them so as to avoid the messy part of managing a colony, the corporations had the same freedom to establish colonies that they had in the TAO and were similarly claimed by the Eurasian Union, with the businesses that started them up having the added benefit of not needing to pay for security or medical care for all that long after the EU claimed the area as theirs, but as was ever the case, the Eurasian Union kept a very close eye on its administrators, watching for corruption or financial irregularities or anything of the sort, and thus kept a close eye on the corporations that managed the economic aspects of their settlements, even more than they normally did through their regulations.

Which of course meant that they noticed whenever a small corporate merchant ship was carrying railguns in its hold instead of rare earth ores, and that's exactly why the Eurasian Union had a fleet of its own - security companies policed the frontier colonies of the TAO, yet had the tendency to get "uppity" if left on their own for awhile because no one ever got rich patrolling a space station, and that meant "pirate" attacks on people's transports, and that meant corporations hiring security vessels to escort their ships, but a hired security ship is at that point a mercenary, and a mercenary can just as easily be paid to attack someone else's ships as they can be hired to protect one's own, and this made them corporate corsairs, which was a fancy way of saying privateer, which was a fancy way of saying pirate. It was a self sustaining cycle, with corporations hiring mercenaries to attack other corporations, and then that corporation would hire
mercenaries to retaliate against the other, and no one really knew how to stop it; the TAO preferred to settle these kind of disputes with serious prosecution on Earth whilst stripping away the sec-corps contracts, effectively blacklisting them solar system wide, but this had a tendency to cause them to burn their bridges with Earth, change their name and start all over again out on the frontier and wind up with those corporate controlled colonies that hadn't, for whatever reason, fallen into the sphere of one of Earth's powers, or those that were still so young that Earth hadn't yet taken control of them.

The Eurasian Union, on the other hand, had none of that - private military contractors were illegal union wide, with only the state military being recognized, and though the regulations it put on its corporations might have been stricter than the ones the TAO did, it acted like a guardian angel over them...and with the Eurasian Union considering its colonies an extension of the motherland, even those founded whenever the state auctioned off a colony charter or two, and so an attack on them or their assets was considered an attack on the Union itself and was treated as such.

Typically with a ship-to-ship missile.

And if the Eurasians had warships, then the TAO had to have warships too...and that meant the TAO could police its own space and rein the corporations in, but that was only practical out as far as Jupiter - any further past that and the distance between patrol ships got so large that it was impossible to protect everything, and the corsairs knew that, and knew that a quick hit and run attack on a freighter and a quicker escape could see them rolling in money and getting away free. It wouldn't last forever, that was obvious, as Earth's grip was tightening on the rest of the system as more ships were built and more military ports established further out in the solar system, but for now, anywhere past the Asteroid Belt was a place where private military contractors fought over private military contractors, only to run in terror when an actual warship from the TAO or the EU showed up to bash their heads together.

And it was just some of that bashing that was being shown next, hinted at by the news headlines beneath the presenter and the studio..

"In related news, the Warsaw, flagship of the Eurasian Union's Space Fleet and commanding vessel of Commodore Komarov's battle fleet, led the charge against a secret stronghold located within the local asteroid belt. " the presenter started with an obvious pride that Amy couldn't help but laugh at, considering that the Eurasian Union's Space Fleet was limited to twenty four ships, eight of which were commercially built transports meant for supply operations.

Then there came the footage of the battle, and it was an utter brawl compared to the usual, several hour long or even day long events that were normally reported on, and incredibly so - the Warsaw was a long and bulky battleship in comparison to its picket ships, with two thick habitation rings for the crew and two sets of two engine nozzles at the front and a much greater engine bell at the rear lit with the blue fury of a powerful fusion engine, but in the front of the bulky body were a set of railguns, spinally mounted for maximum striking power and with smaller ones mounted around the ship for protecting against other threats or against multiple small targets, whilst on her dorsal and ventral sides there were row upon row of missile tubes, ready to fire at a moment's notice, the most powerful eight carrying multi-megaton warheads in them. At the very front and between the two railgun tubes, however, was the reason why the duration of close range space battles was measured in seconds and not hours - a specially designed
weapon called a burster, which was a cannon designed to fire a round that was not too
different from a shotgun shell, and whose pellets could strike with such speed and force
to rip apart the lightly protected hull of any civilian and even some military vessels,
venting dozens of decks at once and disabling most of the ship in the process...and it
wasn't hard to get a ship able to carry something like that. But such a weapon was only
useful at point blank range, when the enemy was too close for missiles and when the
railguns weren't good enough, and yet...there was the Warsaw, closing into point blank
range, charging towards a base placed atop a remote asteroid. A small freighter that had
been refitted into an ad hoc warship moved to protect its homebase, only to be disabled
on the first shot from the Warsaw's burster, the volley of fire ripping through the thin
hull and leaving the ship drifting as one of the escorts moved in close and extended a
docking umbilical, starting a rescue and recovery operation even against an enemy they
had defeated just moments before.

But the Warsaw, furious in its advance, kept going, raining fire down upon the fixed
positions of the station's defensive systems, knocking them out before launching a
squadron of assault shuttles to storm what remained of the complex, the boarding craft
latching onto the largest structure and blowing through with breaching charges before
the footage cut out and returned to the studio.

"Following this heroic victory, Commodore Komarov was promoted to admiral and
given personal command of the upper platform of the Baikonur Space Elevator, granted
the task of overseeing the construction of further Warsaw-class vessels and other
designs."

"Well...that's the end of his career," Amy laughed again. "I bet it was because he risked
his ship trying to show how brave he -" 

Then there was a soft whirring sound, and she looked out her window to see the
delivery drone, a bright green quadrocopter with a small round camera at the bottom
centre of its body, slowly lowering a clear bag full of bright red apples, perfect in color
and form, into the delivery receptacle before flying off in the direction of the access shaft
that allowed it to reach this level of the colony in the first place. Amy started whistling
again as she walked out onto the balcony, took the soft bag of recycled plastic and
carried it back to her kitchen, easily pulling it open atop of her fruit bowl without the
slightest difficulty before sliding the wrapper into the recycling bin and looking back to
see the small portrait she kept of her wife and children on Earth, the very reason she was
there on Luna in so small a space as compared to Earth, working to make the money to
send home so that the rest of her family might live in true comfort on the homeworld.
There was the reason and it was a million times more motivating than any desire for
adventure or change or wealth.

And it was with a thought of home and a blissful smile that she cracked her knuckles
and got to work on breakfast.
But despite the progress on Earth in the past half a century and all the marvels of engineering and technological triumphs that were to be found in the solar system, there were few greater technological achievements than the sleeper ships, vessels that combined the new technology of cryogenic suspension with the incredible power of a fusion reactor in order to conquer the greatest barrier known to mankind - the interstellar void. Whilst most fusion ships of the 2030s to the 2060s were relatively small, with even the greatest battleship carrying few more than a hundred souls and the short duration "space buses" of Earth's orbit carrying two hundred and fifty in cramped conditions and designed solely for the back and forth journey from Earth to Luna, the sleeper ships carried a thousand, stacked one atop the other in massive cryotrays stored within the ship's heart. Each and every craft was a monument to the sciences of ship construction, the culmination of over a century of work that began with the launch of the first ever satellite - advanced computer systems allowed the craft to pilot itself to the destination with only a miniscule risk of error whilst all of its passengers slumbered in cryosleep, allowing them to survive the long journey from one star system to the next with their safety guaranteed by no less than four layers of redundancy, whilst the ships themselves were so titanic in scale compared to the other ships of the time that they took well over a year to complete, with the investment of tens of thousands of manhours of work over a twenty four hour period necessary for them to be completed in a timely manner. And yet, it was often that these ships were not filled with settlers who swore their loyalty to the superstates of Earth, but to other groups, people whose views differed from what had become the mainstream and who had made their existence on the fringes of the political spectrum and of normal life, eager for their chance to make the world that they had always fought for.

Thus, the segment of history that would be known as the Diaspora, the scattering of the first wave of human settlers to the stars, has its roots in the political transformation of Earth following the climax of the Augmentation War and the rise of the superstates...and in the power of charismatic individuals and fame. These causes varied dramatically, with one ship carrying what could only be described as neo-fascists and another the communist revolutionaries of the twenty first century, even a wave of diehard liberal democrats who believed that Earth was becoming too "strict" in its restrictions on the economy could be counted amongst the groups that would leave Earth for a chance to claim a world of their own amongst the stars, where outside influences would be practically nonexistent due to the limitations of slower than light travel and communications. Eleven sleeper ships would be launched, each greater than the last thanks to a growing practical knowledge of the construction of humanity's first true starships, but of them all, only five would come from the superstates, with the remainder coming from political movements and even the corporate sector, where some few executives thought that the only way they would ever be able to truly stand up to the governments of Earth was if they had a world of their own to do so with and where others simply thought that there were more than enough people on Earth who would be willing to give their life's savings for a chance to explore new worlds.
A view of both sides of a cryogenic storage tray of the kind used in the first generation of colony ships, often nicknamed "brick racks" due to the way they stacked five rows of twenty people one atop of the other, thus making it possible to fit one hundred individuals in the minimum amount of space possible. Loaded into the colony ship's underside in groups of ten to allow a maximum number of one thousand settlers, the tray will automatically begin thawing ten individuals at a time upon arriving at the target destination, bringing them to the top of the tray to emerge before folding the now empty cryocasket into a storage position in a tiny chamber beneath the main cryoblock.

And of them all, there were three groups greater than any other.

**The Return of the King**

Of all the events that occurred in the twenty first century, from tales of secret black sites on the Moon to supposed extraterrestrial encounters in the outer planets, it was the supposed return of King Arthur Pendragon from the dead that was considered to be the strangest and thought by some, particularly those in the aging and unmodified generation, to be a sign of what effect neural modifications had on humanity and how the still as-yet unknown reason by which Augments were seemingly more likely to have mental issues than the general population could cause them to believe in impossible occurrences, whilst others simply pointed towards the presence of non-modified individuals in his retinue as a sign that it was not evident of any flaw in the genetic makeup of the Augments, but rather the result of group hysteria of the same kind that caused some small number of people to maintain the belief that the world was "obviously" flat and that humanity's presence in space was simply the result of a governmental conspiracy. Whatever the cause, however, the man who claimed to be King Arthur returned, as according to the traditional myths and tales of the Once and Future King, having finally recovered from the almost-mortal wounds that he had received in his duel against Medraut (whose name had been changed by later generations to Mordred) at the place of his supposed conception - Tintagel Castle. Emerging from the ruins during an archeological dig intended to solve the mystery of whether or not the ancient Romano-British had a presence there, garbed in the ring mail of a warrior-king from the sixth century and carrying a sword on his back that would never once be drawn from its scabbard, he surprised all present simply by revealing his presence and through words spoken in a bastard creole of Old English and Common Britannic, the former still heavily tethered with its Germanic roots and the latter the source of all later Celtic languages. Although such a language meant that he could not properly communicate with those of the archeological team, many of whom thought he was simply a reenactor who had come to the castle's ruins to watch the work, the use of the oldest language of humanity, silent hand gestures, communicated the location of several previously undiscovered cairns in the hills of Cornwall, which
he would later claim were the burial places of his greatest champions - the legendary Knights of the Round Table.

Quickly grasping the basics of modern English, he explained of his return to stunned onlookers, tourists who had come to visit the site of the famous castle, and news of his supposed reappearance spread like wildfire, with millions swiftly learning of the king's return and catapulting the Pendragon to ever greater heights, with famous celebrities coming to meet the ancient and listen to his stories for themselves - he explained the exact location of Camelot was not in Cornwall or anywhere else, but in the now ruined city of Viroconium, the greatest place in his realm, and would personally explain the entire chronology of his time on Earth to a team of believing autobiographers and historians who would arrange them into a massive anthology known as "The True Tales of Camelot", which some would say revealed disturbing contradictions in ancient British history...and so great was his oratory skill that he quickly amassed thousands upon thousands of hopeful men and women as his loyal supporters, amongst rich and poor alike, to the point that the internal security agencies of the Transatlantic Organization warned that there was the very real risk of civil war if he so desired to press his claim on the throne, made worse due to the low popularity of the House of Windsor in comparison following the scandalous "Trial of 2044" that would see a member of the royal family imprisoned for the murder of the husband of a young schoolteacher, who had discovered an affair between his wife and the royal that had resulted in several children that his wife had tried to pass off as his own, an act that very nearly spelt the end for the monarchy and had one high ranking TAO official being on record as encouraging of the abdication of the House of Windsor in its entirety in favor of the return of King Arthur Pendragon, who had such legendary charisma as to be able to sway millions to his point of view and in being able to turn the arguments of his opponents around on them without fail.

But for the would-be king, there were two grave flaws in his tale: a cursory medical examination that he had happily consented to as a show of trust revealed that he was in fact a genetically engineered individual of the kind that were the result of the mass-augmentation of the Ascension Flu, albeit one who was of Cornish-Welsh descent, and the scraping of a single metallic fragment from his armor revealed that it contained cobalt-60, a mildly radioactive material that was released into Earth's atmosphere following the Trinity test in 1945 and again with the minor regional exchanges of the Augmentation War, indicating that his armor had been made in the modern age, even if it still had the markings of a blacksmith's work.

Such things would have likely been fatal for his reputation, were it not for his charisma allowing him to easily brush off such contradictions as being the result of the recreation of his body upon his return to the physical world and nothing more. Although the Eurasian Union and Khan Noonien Singh viewed Arthur Pendragon as little more than an overly imaginative man with delusions of grandeur at best and a raving lunatic at worst, for the TAO he posed a serious issue for all of the British Isles, not just England and Wales...so much so that they were very much ready to have him assassinated if he began pressing for an armed revolt or anything of the sort.

Yet such things would never come to pass, for King Arthur, having constantly told the media and even his closest supporters that he would tell them the reason for his return when the time was right, finally revealed his plans during a nighttime event in London, surrounded by hundreds of thousands. Claiming to have been witness to all the changes in the world since his departure millennia before, he said proudly that he had returned in order to lead those who were willing to follow him to Avalon, a place that he claimed was not on Earth but amongst the stars, a world of fertile fields and rolling hills and bountiful oceans, a verdant paradise for those one thousand he would hand select to accompany him on the task of building Camelot anew. Many of his supporters thought him mad in that moment, even those who had been there on the day of his supposed reappearance in the world, and many would abandon his cause...but those who remained were thus the most devoted, the most loyal, and
the ones who would do anything for their king.

They would even build him a starship: the Excalibur.

The official symbol of the Excalibur, a recreation of the heraldic crest of Camelot as described by King Arthur Pendragon, was emblazoned on the ship's hull from the earliest stage of construction and was also commonly used by a number of individuals as a means of identifying other "king's men" during the day to day routine of everyday life, even though there was little stigma involved in believing that he was who he claimed to be in any of the world's superstates or other major organizations.

The collective result of countless donations large and small collected from those who genuinely believed in his cause, the Excalibur was the first ever sleeper ship, and would take four years to build due to the experimental nature of much of the technology incorporated in its construction, including that of the cryogenic suspension trays themselves, as well as other exotic technology such as a number of heavily modified vats of the kind used for the growth of replacement organs, but repurposed to act as artificial wombs, allowing the twenty five thousand frozen embryos that the ship would carry to be gestated after arrival, thus dramatically increasing the future colony's population and genetic diversity. A genevault, similar to those built on Earth before and after the Great Mistake as a guarantee of the world's biodiversity, would carry the genetic material of thousands of species that might be thought to be of any potential use on the new world, along with an equally massive datavault, a network of data storage drives with triple layer redundancy modeled off of the system used in the construction of the Museum of Mankind's underground level, intended to carry as much cultural and technological knowledge as possible so as to ensure that the settlers would never forget their heritage as children of the Earth, no matter how many generations might pass before they and the homeworld were connected again, whilst a greater variety of tools than could be found in some
of the smaller Mars colonies were stored in its holding bays, alongside inflatable shelters and everything else that might be needed to ensure that Earth's first interstellar colony would have the greatest possible chance of success.

And on the first day of spring of 2056, King Arthur and his carefully selected thousand entered cryosleep...and left, their ship's automated systems carrying them to the king's chosen destination.

An Old Dream...

But what the general masses of the Earth viewed as little more than a bizarre savior cult was not the only group to leave the Earth during the age of the sleeper ship, even if that was perhaps the most high profile of all the groups to have done so, for whilst the hero-worshipping "king's men" finished constructing their ship, another was already starting to have its structural frame assembled in the asteroid belt...and the activities of the so called King Arthur on Earth were one of the things that caused it, for the TAO was not the only one to have groups looking to the past for glory. The Eurasian Union, under Khan Noonien Singh, had seen dramatic advances in the quality of life for those beneath its flag for generations, having welded together the disparate nations who had once been in its place into a single, unified force, but there were those who heard tales from their grandparents of another union that had once stood in Eurasia's place, a mighty powerhouse that had smashed one of the greatest evils humanity had ever seen, a place built on the hope and idealism that the work of the many could improve the lives of all, a dream that had been perverted by the greed and ambition of a few men who had twisted what the proletariat had wished to be a paradise into a totalitarian nightmare.

They spoke of the Soviet Union.

With the greatest of the world's communist nations having collapsed in 1991, an event that would provide the power vacuum necessary for many of the first Augments to rise into power, it was thought that communism was a discredited ideology and a dying beast, with even the last few smouldering embers that were all that remained of the USSR's international influence finally guttering out during the Augmentation War: Fidel Castro had gambled all on the knowledge that there would be no ally for Cuba should the United Nations have prevailed over the Eastern Alliance, and so had joined the Augment side of the war in the belief that their opposition would have little desire for a major war, only for the Caribbean island to be stormed in the first months of fighting in a devastating campaign that would be one of the bloodiest of the war due to the sheer amount of guerilla actions as the United States systematically eliminated each and every Augment friendly state in the hemisphere in order to protect its home territories from possible air attacks or long range missile strikes, invasions that fostered memories which were the very reason why the states of Central America have little love for the TAO. Venezuela had more wisely declared its neutrality in the conflict alongside much of South America, though they certainly had a small lean towards the Augment side of things and would officially join their side of the conflict in the final months of the war, whilst in Asia an entire generation of Korean men, northern and southern, had gone to the trenches and never came out in what had been the most deadly fighting of the entire war and been made all the more furious by the shared history between the two Koreas, so much so that it took on a life of its own as a conflict known as "The Brother's War", which one veteran said only coffin makers had won. Even China, the greatest of the communist states left in the world, had abandoned the ideology in favor of what could only be described as a resuscration of the Chinese empire that ended with the assassination of its new Emperor by one of his consorts, the zhaorong, the Lady of Bright Countenance, who was in truth a deep cover Taiwanese spy leaking information about the activities of his court and any other information she could draw out of him, only becoming an assassin when he attempted to arrange a romantic evening for the pair so as to try and secure his rule with an heir.
All this meant that by the end of the war, communism was well and truly dead, with Khan's own doctrine of precinctualism having replaced it as the most powerful ideology across almost the entirety of the Eurasian continent. The legacy of Marx had been reduced to little more than a handful of student groups and small political parties around the world, never more than a few hundred members in strength and with little in the name of financial resources or public support. They seemed destined to remain irrelevant forever, to gradually disintegrate into the near-nothingness that was the political fringe alongside other such ideologies as laissez-faire capitalism and national-anarchism, to become more a thing of the past that was learned from than an active organization in the present.

Or so it seemed.

In reality, the dawn of the Internet had breathed new life into the world wide communist movement by providing an instantaneous means for these tiny fragments to connect with one another, to create a single large and open space for the discussion about the future of their beliefs in the post-Augmentation world...and such an increase in connectivity between the disparate parties and organizations could not help but give rise to a unified front: the International. Intended as a banner beneath which all communist and socialist organizations, regardless of the precise nature of their particular variant of the ideology, could combine their efforts and act as a single entity, the International's primary advantage over the previously separate parties being the unified name and symbology itself; a sympathetic individual could read an article about an International rally in a city on the opposite side of the globe, and then join the local branch in their region and know that the two organizations, though possibly slightly different on the details of their plans, were both fighting for the fair treatment of the working class. In addition, and unlike past incarnations of the socialist movement, the International - lacking a number so as to better differentiate itself from earlier forms of the ideology - also lacked a single leader, but were instead commanded by a central organization committee of twenty five members who were elected by all registered members every three years during an international rally that would typically take place in a suitably large venue like a convention center, functioning as both a real world meetup and political event...and as a fundraiser, the expenditure of the donations received being freely viewable at any time.

But what truly separated this new form of internationalism from its earlier forms was how it was first of all forms of communist ideology to properly interact with the new Augment generation, and it was in this area that the red flame was lit once more: the Augmentation War had resulted in the reinstatement of conscription in many of the combatant nations, and as was often in such eras of total war, this had resulted in a "mixing of the classes" that saw men from the most privileged of origins fighting alongside those from the least and whose every interaction with one another showed the immense differences that came from such a radically different upbringing, whilst an almost communal nature had formed as a result of rationing due to how most people understood that growing a single type of vegetable and trading it for a different kind from a neighbour was often more efficient than trying to grow many different kinds of plant at once. All this had served to dissolve the barriers that existed in societies across the world, bringing the rich and the poor, the minorities and the majorities, men and women of all classes, faiths, cultures and sexual orientations, all were brought together and their combined strength had smashed prejudices that had stood for decades and centuries...and all this had been witnessed in the most formative years of the first generation of the post-war period. They had seen first hand that the failures of society - poverty, homelessness, illness and crime - could be easily treated with an open mind willing to listen and understand the root issues that were the cause of such problems and how they could be better combated with social programs and education than by harsh laws or through needless suspicion. They had seen the power of compassion and the unrivaled capability that it had in changing the lives of men, and it had woke the slumbering titan that was class consciousness, the awareness of the different statuses and inequalities that existed between the upper, middle and lower classes and how
they could shape people who were born the same into radically different individuals...and as was demonstrated during the riots of Buenos Aires before the Great Mistake, Augments were much swifter to rise up and turn against the status quo when it was proven faulty.

In combination with all the other factors, this meant that Augments frustrated with the status quo were entirely willing to move towards the red banner and rally around it as a means of changing the world towards the better...and with that, communism was resurrected once more.

The cover of a children's book authored by the International, intended as an introduction to communist ideology and history for children ages eight to twelve. Although intended for young readers, the book would find itself more frequently purchased by older individuals who found Josef Stalin's almost complete absence from the book in favor of Lenin and Trotsky to be "deliciously ironic" and who enjoyed the detailed but cheerful artstyle.

Yet, at the same time, the return of communism was an incomplete blessing, for the very same thing that allowed it to come back from the dead almost put it back into its grave: the social mixing of the war had caused great strides in common society, which had dramatically reduced inequality, highlighting all the flaws in modern society and allowing them to be made right again...and Augments were just as willing to abandon the cause of the worldwide revolution once their issues had been addressed as they were to join it in the first place when they felt that they were being
neglected, and even then such movements began to weaken as the rising generation began to assume the reins of power and were better able to communicate their reasonings and actions to the ever-growing post war segment of the population than unmodified individuals. Communism had been reborn and made into a serious political force again, but it was being strangled by the realization that there was little place for it in the modern world - the injustices and inequalities that communism had been made to fight had been fought and beaten without the need for violent action, whilst even those who might have been attracted towards it for the idea of a strong, centralized state were instead drawn towards Khan Noonien Singh's preciutism. What was jokingly referred to as some as the "undead ideology" for how it had risen from nothing was once again starting to drift into the shadows, and would have likely devolved into a small but potent force for worker's rights in the world ever fighting for the concerns and issues of the common working man or woman, an interest group with a noble goal, but as before and as again, the changing situation of the world and the greater solar system kept it from any further decline...and opened the door once more. Powerful corporations, such as those that had been the source of investment for the first wave of truly commercial colonies, had always been considered the anathema of the communist ideal, and in space where there was little governmental oversight and where every minute of work could cost tens of thousands of dollars or credits on Earth, they proved themselves to be harsh and often uncarng masters: with all the vital substances for life paid for by the parent organization itself, including the very air that they breathed, as well as medical care and law enforcement, the average worker had few means of readdressing any wrongs that their employers might have carried out, even ones as simple as making them work overtime without the agreed compensation. With the governments of Earth had to reach, such colonies were fertile ground for the communistic ideals of the International, and it was never hard to find a pamphlet, manifesto or any other form of communist literature in the quarters of those who toiled in the mines...and the age of the corporate corsair, though a brief one, only added fuel to the fire as workers now found themselves at risk of death or injury due to the dangerous games of their employers, something that would make Earth's assertion of strength over the colonies all the more welcome.

But no better was this lingering influence shown than in the asteroid colony of Vesta in 2046.

A major nickel extraction and processing facility, the deposits on Vesta were as valuable as they were scientifically important, being both readily accessible for even the most basic of mining tools and an insight into the internal structure of a world like Earth itself, the great asteroid having a differentiated interior. Supplying the nickel necessary for the construction of the superalloys that were becoming ever more vital to the economies of the superstates of Earth and the space economy, Vesta was a boomtown of the modern age, where any man or woman could come to find their fortune...or so the organization that represented the interests of the corporations with the largest ownership stake, the VMC, or Vesta Mining Consortium, would have people believe. Vesta was one of the most lucrative mining operations in the asteroid belt, but the VMC executive board had decided to try and further increase the profit margins via squeezing the colony for whatever loose income and unnecessary expenditures could be found - the price of the little luxuries that a settler might wish to buy and which were bought through a VMC controlled storefront, such as chocolate or coffee from Earth, quadrupled as a means to return more of the settler's salary back to the VMC's own funds, along with the price of food and communication time with Earth (already an expensive commodity due to needing to be relayed off a series of laser communications satellites in order to reach Earth in a timely manner) which all received a notable price hike. This was already testing the patience of the workers there, creating a dangerous cocktail of workplace unrest that needed but a single spark to erupt into violence, but the VMC made the greatest error that they could have possibly made - they began charging the workers for the repairs of their own equipment. From the perspective of the executives of the VMC, all of whom were born before the release of the Ascension Flu, this was nothing more than an attempt to encourage them to treat their equipment better in order to reduce the amount of maintenance and thus lost production time required by each
...but the Augment miners, life support technicians and service personnel, three quarters of Vesta's inhabitants, did not see it as a means of cutting costs, but as a form of wage slavery, a way to keep trained workers there for longer for the same price by reducing the amount of money that they had available to save. The Internationalist Brotherhood of the Workers of Vesta, the IBWV, was one of many local variants of the greater International movement, a small chapter of but a dozen members who occasionally held worker meetings with any who were interested in the colony's public green space, had often acted as a voice for the complaints of the colony's workers and support staff, but when the VMC began what it called "corporate streamlining" its support base swelled...and at last, it called for a general strike and work stoppage. Across all of Vesta the miners downed their tools and went back to their living quarters, refining personnel shut down their foundries and forges, even the workers at the colony port abandoned their forklifts and tugships as the economy of one of the most valuable asteroid colonies ground to a halt, all joining their comrades in blocking off access to the main smelting complex with with a wall of workers hand in hand. With their ore not being processed and their ships not being loaded, creating a titanic loss of revenue, the VMC panicked and utilized a clause in the employment contracts of all its colonists that clearly stated that disruptive individuals could be removed by any means necessary. Up to this point, there was the chance that things could have perhaps ended peacefully - if Earth had intervened, there was little chance of it not siding with the IBWV and forcing the VMC to roll back its actions and meet their demands for a fair and friendly workplace, or even if the VMC had not panicked and instead met with the workers things could have yet been settled in their favour. Instead, they made a grave error in judgement, and one that would cost them everything.

They sent in their private security contractors with the orders to break up the strike.

Disconcerted by the orders of their commanding officers, they approached the strikers and stated their command, ordering them to return to their work or be deported and held liable for breach of contract, only to be met by the defiant singing of the colonists who sang a song that had not been heard in a public place for decades - the Internationale, the anthem of transnational socialism. Uncertain of what to do next, the security officers hesitated, knowing that they were greatly outnumbered by the workers before them and sympathetic to their plight...allowing an unstable charge in the hip holstered gyropistol of a new contractor, overheating thanks to the warmth of so many bodies in so small an area, to detonate. Were the contractor more experienced, he would have known that such issues could occur and that a good point of safety practice was to never chamber a round before the weapon was to be used so as to avoid the risk of the round going off in the barrel, but new to the use of vacuum weaponry he had instead treated it like any normal firearm and so the bullet instead howled through the soft material of the holster and struck him in the thigh, sending the Augment officer crashing to the ground with a cry.

The air filled with the wailing cries of an automatic sensor that had detected the sound of gunfire, instantly sending an alert towards the base of the colony's security...and believing that they had been fired upon by the crowd, the contractors returned fire against the believed location of the shooter, hitting a number of miners.

Screams and the stench of blood filled the air and instantly a strike became a riot that became a revolution, as miners overwhelmed the confused security forces and stormed the colony operations center before any knew what was happening, using the station's own lockdown systems to contain the security forces in their own areas and forcing them into submission by the threat of cutting off their air supply. From there, they declared that the VMC no longer had any power over the Vesta colony, that the workers were in control now and that the station itself was to be the reparations for their abuse of the working population.
The governments of Earth, having been utterly unaware of the situation until then, was rather surprised to see one of its colonies abruptly declaring itself a socialist state, and the TAO, who held the charter for such an organization, promptly began an investigation that would result in a legal case against the VMC, resulting in its quick disintegration in a process that a lawyer described as "rats fleeing a sinking ship", as well as bringing the Vesta colonies back into the fold as a constituent member, drastically softening their stance towards Earth in a major diplomatic victory, but leaving them in control of what they named the Vesta Colony Commune.

The flag of the Vestal Colony Commune, as seen on cargo pods, uniforms and outside of governmental facilities where it is flown alongside the three star banner of the Transatlantic Organization. Lacking the hammer and sickle symbolism of the previous generation of communist banners, the VCC instead uses a large round cog, inside of which is the astrological symbol of the asteroid, symbolizing a flame upon an alter, beneath which there are three stars to correspond to the three continents of the TAO and to the three miners who were killed when the private security contractors opened fire.

A semi-independent state, like all the members of the TAO, life without corporate interests on the VCC slowly returned to normal, for much the same reasons that civilization found a way to survive on Mercury - the need for mutual survival. Without the VMC to pay for irreplaceable supplies, spare parts and luxury items from Earth, it fell down to each and every individual labourer to do their part to ensure the survival of the whole, but for all the communist symbolism behind the VCC and the red and gold of its flags and sigils, it was more a worker cooperative than not, for the organization was
still ran for profit so as to pay the salaries of those who wished to serve there for a time and then return home to the Earth...only now that the colony also had to pay for its own upkeep. But despite the assumptions by some that the VCC would collapse upon itself before long or perhaps transition into a regular democracy over time and become more like the other semi-independent TAO controlled colonies, the colony had been united in a way that it had never been before by their shared experiences under the corporate whip, motivating the workforce into laboring long and hard to provide for their new home and for the friends and family who shared the settlement with them. From this strong sense of community grew a new way of life that was utterly unique within both the TAO and the Eurasian Union, who had watched the situation on Vesta with mild interest, one where the colony's large and well stocked armoury was the property of the entire colony and manned by police officers who were not chosen for their loyalty to the leadership, but elected by the general population so as to find those who were believed to be the fairest and most respected amongst the community, whilst much of the colony's surplus revenues were equally split amongst all members to make them amongst the most well paid in the entire solar system, with those who had gone beyond the expectations of their peers earnt tokens that allowed them access to the most expensive parts of life on an asteroid colony: extended access to the colony laser communications system beyond the normal times allocated for each resident, the ability to use the excess empty space that might be on a returning cargoship or even to have a little more time off. For the International on Earth, the success of the VCC was not only a surprise, but an enormous breakthrough for the movement, who could now point towards the settlement as proof that not all communist states were doomed to end in oppression, blood and tragedy, even if the VCC represented only a single form of anarcho-communism, and many of the more committed members of the movement would resettle there, transforming Vesta from a mining and refining colony into the beating heart of communist thought and ideology throughout the entire solar system, a place where they could live out their lives according to their political beliefs with minimal outside influence.

But what would bring about the greatest change to life on the colony, and indeed to the socialist movement itself, was the development of a complex computer system that was embedded into the colony mainframe as a means of bringing about a fairer society, called Opis. This system was designed for workplace management and labor assignment, initially intended as a means of rotating the worker shifts in the most dangerous mining tunnels (where immensely valuable ore deposits and immensely dangerous deposits of uranium ore were found side by side) due to the immensely difficult task of measuring the exact amount of radiation that any miner had received during their time on Vesta due to the amount of radiation that they received in normal colonial life as a result of different parts of the colony being closer to the surface and thus less protected from cosmic radiation than lower levels. However, Opis, an intricate expert computer system comprised of several different networks each designed for a specific task and named for the mother of Vesta in ancient Roman mythology, was capable of far more than simply ensuring the safety of the most vulnerable of the colony's population, for in many ways it was the grandchild of the experimental work of the Chilean government of 1971 called Project Cybersyn. Like its Chilean ancestor, Opis featured an array of statistical modelling software that allowed it to use present and past data, such as the amount of raw ore remaining in the foundries and the amount of colonists at work, to feed a complex economic simulation system that was then able to predict future trends, including production peaks and shortfalls, all of which could then be dispatched towards the colony operations center along with several possible solutions...as was well demonstrated when Opis detected the virus responsible for the common cold in the station's air circulation system brought aboard by a contaminated cargo pod from the homeworld, predicted that any significant outbreak would greatly decrease productivity and created a vaccination timetable that would minimize impact on the day to day routine of the colonists for immediate implementation by the VCC's elected community leaders at their discretion. Further, its capabilities went beyond simple management, as Opis had access to all records kept on the colony's computer systems, including health records and psychological evaluation profiles all intended to allow it to minimize the risk of potentially dangerous situations that could come about as a result of
stress or preexisting conditions that could be triggered in certain situations, but also into colonial planning as well - if there was the need, Opis could be told to plan for an increase in the colony's population, which would cause the expert system to quickly devise an altered production time table and work allocation to make best use of the additional manpower, determine how much existing support infrastructure might be strained, how the new personnel could be best used for the good of the colony and even how the colony structures themselves could be expanded with the least burden on existing life support systems and transportation.

All this meant that Opis should have been the greatest aid towards urban development since the creation of the Century Cities, but the network was limited in its capabilities due to technological limitations: Opis was an expert system, not an artificial intelligence, and thus could not adapt towards situations and tasks that were outside the network's intended and expected functions, and it couldn't plan something from nothing, always dependent on a root situation from which things could be grown...and even then, a city planned by Opis would resemble those of the world before the rise of the Century Cities, since it was not designed to take future growth into account, only expansion to support present growth. Lastly, and most notably, the system couldn't understand the nuances and complexities of human life due to them being inherently unpredictable, as was well demonstrated four months after the system's first activation on Saint Patrick's Day. Operating only with the awareness that the day was a holiday and that thus workloads were to be dramatically reduced, Opis, using the sensors incorporated into the spacesuits of every miner to determine their status remotely, detected the presence of low quantities of alcohol in the breath of an entire mining team who then proceeded to bring in an immense yield of high quality nickel ore due to a lucky breakthrough into a pre-existing cavern that was left over from the hardening of Vesta's mantle. But rather than understand that the mining crew had simply been fortunate and had taken a few small drinks to celebrate the spirit of the day, Opis made the connection between the amount of alcohol a miner consumed and their productivity...and so sent a recommendation towards the operations center for miners to be allowed several breaks through their workshift in order to reach peak safe blood alcohol level so as to raise productivity, estimating that each miner would require a pint of gin a day at minimum to reach peak ore output, or around fifty units of alcohol a day.

This suggestion was promptly rejected by the leaders of the colony.

But the use of Opis as an administrative aid for centrally or communally planned economies such as those found in the VCC could not be understated, if perhaps requiring the sacrifice of some amount of privacy for it to be in the best possible position to give accurate data, and Opis was quickly adapted for the role in which it was used - functioning as a perspective into the mind and soul of the colony itself through its calculations and plans, it gave the leaders of the commune data that would have been considered impossible to gather quick enough to be useful at any time in the USSR, even in its healthiest and most productive years. In so doing it gave the International something that was direly needed and something that had some believing that the greatest failure of communism was that it came a century too early: a means by which a command economy could be ran in a quick and efficient manner, free of the bureaucratic labyrinth and confusion that had crippled all previous forms of the ideology. For the International, its many chapters and incarnations, this was the equivalent of finding the Holy Grail itself, for the development of such a system had long been one of their greatest aspirations thanks to having learnt from the failures of the past. Thus, the use of massively complex computer networks in combination with a small cadre of specially trained individuals to carry out the SCP process, or Smart Central Planning, would become the telltale sign of the next generation of Marxist thinking and one that would forever consign earlier models such as Stalinist or Maoist forms into the dustbin of history as ideas that were both flawed and primitive.

And then King Arthur and one thousand of his King's Men began boarding their completed sleeper ship, and the VCC and its parent International grew concerned. Monarchism of the kind that Arthur
represented was not just an opposing force, it was the very thing that the first forms of communism had been made to fight against, its sworn enemy, and there was little love lost between the King’s Men and the members of the International, whose interactions often replayed the bloody and tragic battles of the Russian Civil War. But the revelation that the monarchists, reborn under King Arthur, were ready to flee out into space and claim a world for their own had many members of the International concerned - were their old enemies about to achieve ultimate victory by placing themselves forever out of the reach of the revolution, or was the movement itself in danger of being harmed by the wealthy and by corporate influences, as shown by the great amount of support that the so called king had received from amongst the rich, whose donations had constructed his Excalibur and fitted it for the difficult journey of crossing the interstellar void? Or perhaps even the world was changing for the worst in a way that even the monarchists were readying themselves to flee, regardless of the cause however, the consensus was that the International should have a sleeper ship and interstellar mission as well, a way to secure their ideals and ideology with a world to call their own far away from outside influences that might undermine the paradise that so many were working so hard to create. In any case, it was obvious that the International would require a ship and extrasolar colony if they were to guarantee the survival of the ideals and dreams of generations of socialist thinkers, of the red spark that had waned so many times in the century already and had almost guttered out forever the century before, and so, inside the port of Vesta itself, they began construction of their very own sleeper ship brought about by stripping down two large cargo freighters (ones that still bore the marks of the VMC upon their hull) down to the skeleton before bridging their frames together with a small but high quality framework of their own construction and welding the resulting superstructure together, creating a shell around which the modules of the future colony ship, built one at a time, could be attached before being finally encased within the exterior shell that would protect the craft as it entered the atmosphere of the destination world. This was an ambitious plan even by the standards of the twenty first century, but constant small scale tests, including one conducted with a descent through the Earth’s atmosphere carried out with the permission and tracking assistance of the superstates, proved that it was workable with the materials and equipment that they had available on Vesta, if perhaps a more time consuming way of constructing a ship than in the drydocks of Earth's orbital stations. But such delays allowed them time to construct their craft piece by piece and test each and every individual section before attaching them onto the ship's hexagonal framework, the honeycomb structure giving it structural strength far beyond the expectation of such an improvised form of construction, but even with the entire industrial capacity of one of the wealthiest colonies in the asteroid belt, there were still many systems that couldn't be manufactured in their fabrication bays and refineries and thus had to be imported from the homeworld, such as the fusion reactors necessary to power the craft, the computer systems that would lead it to its destination and the cryogenic pods themselves, an area in which no expense was too great for the VCC and the International.

Labouring long and hard, it would take many years for them to complete their craft, but it would be completed on schedule and to a high quality, launching in the second month of 2057, a mere half a year after the Arthurian Excalibur had done the same, but out of their desire for isolation from the monarchist ideals of their cousins, they went the opposite direction to the King’s Men, to a system whose heart were a pair of particularly bright red dwarfs and around which several of mankind’s most powerful telescopes had detected ten worlds, one of which had an atmosphere comprised of oxygen and nitrogen and possibly even life. These stars were known by nothing more than their serial number, a machine's designation logged so as to give the observatories of the past a way to designate their travels through the heavens, and it was RS 8474-1353-8-11843413-345.

But despite the name being less poetic than the Regulus system and the twin stars themselves less well known than most, the International christened its ship the Karl Marx, in memory of the founder of their ideology, and carefully selected the occupants who would make the journey from the many hundreds of thousands of applicants, but just as the crew was selected, so was the cargo, and just as
the *Excalibur* took with it a cargo of genetic and cultural information, so too did the *Karl Marx* take with it a treasure trove of relics from the communist age: it recorded its heritage with original flags of the socialist republics that comprised the USSR preserved in specially designed viewing boxes intended to protect the aging contents within and with one of the first ever copies of the Communist Manifesto, it recorded the successes of the ideology with a collection of first print stamps made by the USSR to commemorate its achievements in the sciences and a massive twenty foot long recreation of Mikhail Khmelko's *Triumph of our Fatherland*.

Mikhail Khmelko's *Triumph of our Fatherland*, depicting the flag disposal regiment of the Moscow Victory Parade of 1945 throwing the dozens of captured flags, standards and banners of Nazi Germany before Lenin's Mausoleum as Josef Stalin, stage dignitaries and honored generals look on. Although the vast majority of the members of the International increasingly referred to their ideals as communalism in order to try and move on from the mistakes and failures of the past and show that things had changed, the destruction of Nazi Germany is one thing that the many different form of the ideology could agree on as one of the most important things that the Union of Soviet Socialist Republics had ever achieved.

Yet, it was not only its successes that were taken to the stars, but also reminders of its failures and the
sins of the past, items such as a section of the Berlin Wall, false confessions of many innocents who had perished in Stalin's mad purges and even a prisoner manifest from the time of the Gulag. All this was taken with them in the Karl Marx's cargobay so that the chosen few who had the fortune of travelling to a new world would be able to go into the future with the lessons of the past and build the paradise that communism had always promised to be. Launching with over a thousand settlers aboard, they would be the second of the non-national colony ships to leave the Solar System, but they wouldn't be the last.

...Made New Again

Yet monarchism and communism were not the only ideologies to come back from the dead, for there was a third whose return was considered to be a black mark upon the golden years of the twenty first century, a stain on an otherwise impeccable age and a spectre whose resurrection had been brought about by the increasing distance between the events that had brought about its destruction and the present day, combined with the initial "bump" that was properly communicating the events of the past to a new generation different than those who had ever came before...and unlike how the supposed return of King Arthur had been an issue that was felt mostly by the TAO and the rise of the International an occurrence that had began in the Eurasian Union before spreading outwards, the return of fascism from the ashes of the post war order was not the result of one individual looking to the past and finding texts with which they agreed, but rather that of people stumbling upon the pieces that had created the ideology and piecing them together once more without realizing that which they were a fragment of. In the Eurasian Union, the nature of the precinct system as transcending the traditional left-right divide of the political system in favor of raw pragmatism and in having a tool for every task rather than adhering to ideology, which allowed the individual regions to alter their laws in accordance with the needs and conditions found in that area, sometimes using concepts that would have once been part of a more dangerous whole and bringing them into effect as and when they were needed, such as how the territory focused on Sevastopol made it mandatory for all children between the ages of eight and sixteen to become part of a youth organization in an attempt to reduce delinquency and antisocial behavior such as violent gangs or vandalism by restoring the discipline that the local administrators believed to be lacking. In the Transatlantic Organization, fathers left haunted by those immensely rare instances of fighting against genetically enhanced foes and forever stricken with what psychologists would describe as "transhuman terror" abused the children they saw as being more closely related to the enemy than to themselves, never able to look upon them without feeling the terrible unease of being back in the war again, and such children grew into men and women who were left forever scarred by the experience, as scared of unmodified individuals as they were hateful of them. In the African Confederacy, the final maturation of the continent into a mighty superstate in its own right had some looking to the past, wondering what might have been made were it not for the brutal oppression of the empires that had destroyed much of what the African people had built since the dawn of civilization, what nations might have been built and what greatness forged, leaving them with the belief that only a great standing army of which every citizen had to be prepared to take part in for the defense of the nation was the only assurance that such dark days could never happen again.

These were all facets of the same thing brought again thousands of miles apart, but unlike King Arthur and the formation of the International, they were not sparks that would instantly resurrect an idea from the dead or bring it into the modern age, but rather the first few glimpses of something emerging from the shadows...and like many other things, fascism's return was made possible by the rise of the Internet. So it was that these more vulnerable individuals were able to meet one another and share their experiences and messages and communicate with incredible ease and in an unmonitored fashion, sharing ideas and concepts and contemplations and discoveries, slowly reassembling that which had been destroyed in 1945: many were suspicious of those unmodified
individuals who clung to the past form of the ideology themselves, but were entirely willing to take their ideology and interpret it in an Augment fashion before carrying out an irony by cutting out those who had so long believed in the idea of a single "master race" as obsolete remnants of a bygone age, fit only to grow old and take their failures with them to the grave. Rewriting the fascist screed for a modern audience, the new movement began slowly amalgamating itself, gradually absorbing similar groups of likeminded individuals, assimilating them into the whole whilst arguing in the doctrine's favor in digital forums and in real world environments such as workplaces and clubs, still an imperceptible blip in comparison to the titans of the political arena and yet slowly growing from within the rightwing organizations of the world like a tumor, leeching off of their fundraising events, their publicity and membership base. They thought themselves completely different than anything that had come before, and had yet recreated not just the ideology of fascism, but absorbed its heart and soul to their entirety and made themselves into its heir and its mirror, and all whilst ignoring its past name and symbols. Instead, as the movement began to solidify into a singular whole, they took on the symbol of the double helix, for it was an almost universal belief amongst them that their superiority came not from their racial heritage or from cultural practices, but that their very genetic material was written for greatness and named themselves Darwinists for the belief that they were fittest in his game of survival. They condemned the ideas of unmodified human beings such as democracy, communism and even the fascist ideologies their own doctrines were a clear descendent of as the flawed works of a flawed species and thus useless by nature, ignoring the greatest irony of all in that they themselves were the product of unmodified hands, and blamed the past generations for all of the world's issues, particularly those of an ecological nature, and their anger at unmodified human beings varied from a simple cold and callous disregard for their existence to a genuine hatred that would be satisfied only with their complete destruction. Almost all had some level of belief that the world would be a better place with their passing, even those who held some gratitude for their creation of the Augments themselves, and like other political organizations, there were several smaller forms of the greater Darwinist movement able to better cater towards the locality in which it was found - in the Eurasian Union, for example, they glorified Khan Noonien Singh to beyond the norm, praising him as the greatest man to have ever walked the Earth for his role in spreading genetic augmentations to all mankind, going so far as to almost revere him as a messianic figure.

Yet between them, the symbols and the name remained the same, serving as a means of mutual identification for an organization that the world had little love for, with even the vast majority of their fellow Augments swiftly condemning them as extremists at best and madmen at worst.

A collection of Darwinist images symbols from a variety of sources, demonstrating the shared imagery between various sects of the movement. On the left is the imagery side of a small calling card for the organization often used to provide a time and a place for potential members to meetup with others or, just as commonly, as a threat, with the movement's main helical symbol on the left.
side of the card and the sun cross that is the astrological symbol for the Earth besides it, with the white on black colors symbolizing their movement illuminating the darkness. In the middle there is a banner confiscated from a police raid on a Darwinist safehouse following the murder of an retired veteran of the Augmentation War who had fought against the Alliance, a flag which had taken up the colors of the old United Nations and which represents the global form of the movement as a whole.

On the right, a patch used by Darwinist militiamen that comprise the organization's military arm, a force comprised of ex-service members who had come under the movement's sway or simply those who are willing to fight for that which they believe in, featuring a smaller form of the helix beneath an eagle with its wings thrown forward, as if protecting itself from a strike.

Yet despite such condemnations, the Darwinist organization found ready recruits throughout the world, a slow trickle that would gradually swell its ranks with new members able to keep in touch with one another through the Internet, and with every day that passed the organization became more and more like its ancestors of the twentieth century, only with a reorientation that focused itself not upon the state that fascism encouraged a worship of or the race that national socialism demanded protecting, but upon the human species itself, or rather the form that they identified as *homo superior* to them, an Augmented Humanity was simply the first step on a path of human evolution that could only be progressed through by the destruction of those things that belonged to the previous incarnation, claiming that the process is thus similar to the means by which a more competitive form of plant might erase the presence of its predecessor, and so it denounced all prior religious movements, governmental ideologies and even cultural works and languages. It structured itself in a way that encouraged worship of mankind and the form that had allowed it to dominate the world in a way that no other life had ever been able to do, believing in a collecting spirit of all mankind of which an individual was but a fraction, so much so that this cult of man and its ancestor worship had official texts that encouraged one to pray towards the laboratories where the Augments had been made, yet despite this belief in a brotherhood of men came a condemnation of the International, which it attacked as an item influenced by the unmodified men of the past as well as by declaring it to be wrong based on its approaches towards economics, personal property and due to the Darwinist belief that individuals should be unequal due to the simple fact that such inequality was viewed as the results of personal capability and thus should be rewarded or punished appropriately...and it did similar to the democratic structures of the Transatlantic Organization and the African Confederacy. Only the Eurasian Union, whose precinque structure was the result of an Augment mind, was spared from such criticisms and the like and even praised by the Darwinists as what the mind of what they called New Men could accomplish, but such veneration of the Union and its leader would perhaps come back to haunt the organization in future days when it became apparent that the Union had little love of them and their ideals and Khan Noonien Singh even less so. But before such condemnations could occur, the Darwinists needed to first emerge into the public, and that came with the culmination of their gradual expansion, when their delight at strong corporations combined with the annexation of the interplanetary colonies by the superstates and drove a number of executives and wealthy individuals into the arms of the organization, providing a source of financial support far greater than that which could be mustered from the occasional donations of the individuals who were apart of the movement. Casting off its shroud and officially disavowing its militant arm despite rumored connections between the two, the Darwinist movement stepped into the light as a political force within all of the world's superstates, under the name of the Charles Darwin Party in the Transatlantic Organization, the African Preservation Front in the African Confederacy and as the Augment Interest Group in the Eurasian Union, supported by advocacy groups, journalist websites and even charities, all parts of the same Darwinist cause from different angles...and all protected from violent acts by the laws of the different states that condemned all forms of political violence. Gaining numbers with the strength of their words and through convincing arguments given airtime by the wealth of a handful of some of the solar system's richest, the distance between the events of the Second World War and the present allowed the various forms of the movement to gain great speed,
ultimately culminating with them gaining a single seat (out of well over a hundred) on the Atlantic Council of the TAO.

From there, however, their fortunes would swiftly collapse as they found themselves in the ire of the one man that no Augment would ever wish to defy. Khan Noonien Singh. The ruler of all of Asia and the one who ushered in the age of Augments with his victory over the coalition formed against his kind, all genetically modified men and women had a deep fondness for the man who made their augmentations a reality, and this made his opinions a powerful thing. His condemnations of the Darwinist movement in a three hour speech focused on the crushing of such a blight upon mankind, a scathing frontal assault on all of their ideals one after the other, a declaration to the world that the ideology that the Darwinists is both evil and descended from one which was based on primitive ideals lacking even the most basic of scientific principles, one that would have never tolerated the development of even the most basic of genetic sciences for the damage it would do to their beliefs and one which would have almost certainly plunged the world into eternal war and stagnation.

For the Darwinists there could have been no greater disaster.

A Canadian poster from the early 1950s, encouraging the population to remove the intolerances and prejudices that had made the rise of national socialism possible, prior to being updated for the modern age by an anti-fascist group in the Transatlantic Organization following Khan's speech.
Ardent supporters abandoned the cause by the thousands and tens of thousands and millions as public support simply fell apart and as the party began to die, as if struck with a mortal wound, its leaders turning against one another and arguing fervently. Its militant arm was crushed by law enforcement agencies worldwide due to leaked information from defectors and some parts of the organization such as the African Preservation Front simply disavowed the parent cause and transformed themselves into green parties focused on the environment and cultural preservation through an encouragement of the arts and the like. Years of work and billions of dollars of investment was collapsing upon itself in a span of days, and all whilst the populace of the entire solar system looked to the history books and stories of the Second World War with a renewed interest only to recoil in utter horror at the crimes committed in those days in the name of an ideology so unnervingly similar to that which the Darwinists claimed to be the way forward for all mankind, and there another blow was taken, as when an Augment was so affected by the sights and realizations of what had been done in the name of "racial purity" the raw strength that came from their emotional depth created a fury that burnt with an unquenchable loathing for those who would deny what was one of humanity's greatest mistakes. Even the International, who knew full well of the mistakes of the past and who made a strong act of condemning its predecessors and thus had done much to work on redeeming the image of the red banner, joined the offensive against them, spitting back accusations of extremism and in believing in an unworkable and evil ideology from the past, the exact same claims that the Darwinists had used to condemn them not long before. Yet even the Darwinists had a floor they couldn't fall through, and it was a little more than two thousand members who were the most extreme of them all, those most dedicated to the Darwinist ideals, but amongst their number were some of their richest members, ones who could afford to shoulder the burden of continuing its expenses with ease, yet the revelation that they would never be able to take power on Earth for a lack of support and that other organizations were leaving the solar system gave them an idea: why not do the same? Why not leave the Earth and the solar system behind, and make a world where their ideology would be the only one? Where they would never need to worry about the influences of unmodified individuals again?

And so the Darwinists began constructing a sleeper ship of their own, to take all their remaining members to the stars, to the third world of the RS 8474-1792-8-944 system, which had been determined to be habitable with an oxygen nitrogen atmosphere and amicable temperatures similar to those on Earth's northern latitudes. They announced the construction of their ship, the Darwin, and so warm was the reception to the idea of the Darwinists abandoning the solar system and leaving the rest of humanity that the group rapidly received donations to that effect, often earmarked with messages such as "get out of the solar system already" and "don't let the door hit you on the way out" and the like. Indeed, so great was the number of donations that additional labor could be brought on for the construction, allowing it to finish and begin its journey before the Karl Marx had been completed...yet it carried a cultural database that was much reduced from that of its sister ships, the Darwinists having shed everything from before the rise of the Augments and thus the vast majority of human history, having instead filled the remaining space with additional embryos for gestation after their arrival so as to greatly increase the future colony's genetic diversity. But as their ship began its journey proper after passing through the Kuiper Belt, it broadcasted a message back to the Earth by laser, and it was a promise that the nations of Earth and the rest of mankind held with scant regard.

"We will return."
When war came to the Martian surface, when the colonies of Olympia Planitia rose in revolt against what they perceived to be an ignorant homeworld refusing to take notice of their issues and concerns and readying itself to abandon them to the gutters of irrelevance, there were more than a few in those settlements who genuinely believed that the Martian rebels could at the very least force a stalemate and perhaps even win. The history of what later generations would call the Secessionist Crisis began with a gradual buildup of pressure over the years of the middle of the twenty first century, and like a steam engine beginning to buckle to the strain within, the rumblings of discontent had been clear enough for those who were willing and able to look for them - protests against Earth's lack of interest in terraforming Mars and its preference for Venus, which then lacked any significant population or economic output, had become ever more common, as had vandalism and disobedience and all the other signs of civil unrest...and like a boiler, when the situation reached its breaking point, it exploded with a violent fury. Riots tore through a dozen of the planet's greatest settlements, many of which were aided by the very security forces who were sworn to suppress such uprisings, whilst others turned to deadly massacres as Earthborn troops garrisoned on Mars due to the risk of a war between the superstates, however improbable it might be, remained loyal to the homeworld and clashed against the rioters and stained the streets and habitat blocks and manufacturing centers with blood, such forces simply not trained for the delicate work of crowd control and riot suppression. Over a hundred were dead by the end of the first week, with over a thousand wounded, and it all began with a single act of defiance - the creation of the Mercurian Precinctual Republic had roused the people of Mars into believing that they too could be granted independence and become the masters of their own fate, and such feelings were entirely allowed to exist by the governments of Earth, if perhaps being countered by an attempt at settling their issues through a public awareness campaign intended to show that Earth had not forgotten Mars...but a small number of extremists, none born on Earth and none older than twenty five years of age, would be found attempting to modify the Phobos Mass Accelerator by sabotaging part of its launch rail with the goal of altering the trajectory just so that it would strike the Earth itself rather than send its cargo cylinders into the planet's orbit. Although they failed and although the driver was too small to do any damage further than the destruction of a small home even if it had fired, the response was nothing less than universal condemnation, with even the oldest of the Mars colonists, the much vaunted first generation settlers who had came to the red world within chemical rockets, condemning the attempt as foolish insanity, yet the attempted attack had forced Earth's hand.

Combining arms as part of a peacekeeping coalition to ensure that no further attacks are staged against the homeworld, the three superstates set aside whatever differences they had left and amassed their fleet for an intervention on Mars in order to prevent the situation from escalating any further, their joint command believing that the show of force that would come with sending the fleets to Martian orbit would settle down the colonies long enough for hearts and minds to be won over again...yet it was the reverse that occurred instead: the Martians were afraid that Earth was coming to reinstate order with the end of a rifle, and were easily convinced that was the plan by a renegade who broadcasted under the pseudonym "Ares." A high ranking military officer, as shown by his access to the emergency planetwide communications system, a service that was shared by all three of the superstates in the event of a truly dire situation that might threaten all mankind, Ares announced that the fleet was not manned by a crew of peacekeepers hoping to bring about a nonviolent ending to the crisis, but by nothing short of an invasion force, an army that would crush all defiance in its wake and bring the entire world under martial law. In a radio broadcast that lasted an hour and could not be
cut off by those men still loyal to the superstates, locked out of their own system by the very countermeasures they devised to counter such attempts at intrusion, he went into excruciating detail about what such an invasion force might do in the worst case scenario - the local security forces, who would naturally be expected to be compromised, would be almost certainly deported back to Earth so as to cut out the most dangerous part of any potential uprising before it could begin, before the colonies would be placed under the cold and close scrutiny of military policemen to track down and investigate even the smallest whiff of sedition. Then, when Earth's grip over the colonies was secured by force of arms, the local colonial governments would be dissolved and replaced by fresh personnel from the homeworld, likely alongside another wave of settlers sponsored by the superstates and whose mere presence on Mars would serve to breakup the Martian identity and shared concern, whilst a media-propaganda campaign would be carried out to turn the colonies against one another and to shatter the last shreds of the bonds that all the settlers of Mars had forged in the fires of their shared experiences, leaving behind a broken world that would never again be able to stand against Earth's commands.

Earth had no such plans, of course, but the general population of the colonies were unaware of that fact, and thus unaware that there was no danger in the arrival of Earth's fleets. Rising up against the colonial governments and lashing out at all the symbols of the superstates of Earth, it took only one major revolt to occur for a chain reaction of rebellions to begin, spreading from one settlement to the next as the discontented masses became more certain of victory and were motivated by the examples and sacrifices of others, but they were not the only ones fighting that day, for whilst the average citizen might fight and brawl in the streets and gardens of their colonies and go home with little more than darkening bruises and a few minor cuts and scrapes, the military garrisons on the planet were locked in a deadly struggle that had not been seen in the solar system since the worst days of the Augmentation War. Located in both strategic locations in the uninhabited areas of the world and in the most important cities, four of the twenty three permanent bases on Mars joined the rebel cause with little more than a brief rounding up of those whose loyalty was in doubt, whilst another eight were plunged into brutal infighting as large numbers of the troops stationed there revolted against their commanding officers and against rule by the superstates, with the splits ranging from ones where only a few platoons whose soldiers had their families in the colonies rebelled to ones where the entire force mutinied but for a handful of officers and support staff, but perhaps the worst of them all were when the numbers were equally split, for it was those times that the destructive capabilities of all the weaponry and equipment that they held in their armories and storage depots was unleashed. Gyrorifles and machine guns, landmines and grenade launchers, flamethrowers and rocket launchers, all would be used in the tight corridors to devastating effect. Some civilians on both sides of the conflict, the brave few, would take up arms and join their allies in the vicious close quarter battles that were the colonies in civil war, yet the fear of hurting or killing men and women that one had grown up alongside or seen in their everyday life or served alongside left many such battles as low intensity but simmering conflicts over control of the colony's most vital sections, its powerplants and life support facilities and hydroponics bays, resulting in battles that would do more damage to the structures themselves than they would to the colonists. And there it was that the greatest damage of such battles was to be found - not in the losses that were taken by the population, which were thankfully kept forever low by the familiarity of both sides with the other, nor in the much greater number of wounded that could be treated with vat grown organs and other such techniques, but in the damage to colonial infrastructure brought about by the back and forth nature of such civil wars, the destruction of decades of work in but the few moments it took to place and detonate a block of plastic explosives, or in the complex failures of a ventilation system filled with the smouldering debris of a burning habitat block.

By the end of the first day, however, the man whom many Martian settlers expected to lead their struggle against Earth was already dead, Ares having been killed when his transport was intercepted by a pair of F-52 Skystorm fighters from an underground TAO airbase, who had been enroute to
intercept what they had initially believed to be a civilian shuttlecraft that had accidentally gone off course and entered restricted airspace. Broadcasting a command to change course and submit their flight plan immediately or be fired upon, the transport initially complied with the order and began turning away in a unhostile manner...only for the base below to identify the craft as stolen and enroute to what was now a rebel facility moments before being informed by an Eurasian radar station that the transport was carrying Ares himself, and that he mustn't have known the location of the TAO base due to not having high enough clearance for such classified information. Verifying the craft's heading and comparing it to the flight plan they had received, they confirmed that it was fake. Both fighters received the order to fire at the same time, just to make sure that the shuttle would be destroyed.

A minute later, Ares was dead, the burning wreckage of his shuttle crashing to ground and scattering over half a mile of Martian soil.

The body was destroyed in the explosion and in the crash, leading to even the TAO to deem it irrecoverable, yet they refused to announce his death until several days after the crash and even then said it was on the opposite side of the planet in order to slow down the Martian rebels in their quest to find a new leader. By the end of the first day, blood had been shed on the surface of the red planet, but it was only the beginning of what would be humanity's first ever interplanetary war and the start of what would be called the Secessionist Crisis by future historians, yet others would call it the Martian Civil War, for it was as much a war between the colonies as it was between Earth and Mars. Whilst the Martians claimed victory in a number of cities, defeating the local loyalist forces present and overwhelming the security teams or simply not having had any real number of enemies to defeat in the first place, they were defeated in just as many by fast, decisive strikes by the remaining loyalist garrisons who had not been so plagued by infighting as to be rendered no longer ready for battle and were indeed equipped for such rapid action, having used the equipment intended for maneuver warfare to quickly reach embattled cities and overwhelm the revolutionaries and mutineers there with ease, the sheer sight of so much firepower often being enough to force rebels to throw down their arms without so much as a single shot. Such equipment would have easily been enough to allow the forces loyal to the homeworld to prevail without any need for reinforcement or supply, but much had been captured by the Martian settlers before loyalist forces could disable the vehicles irreparably, and many of the traitor units still had access to all of their vehicles and heavy weaponry, but without a man to lead the formations - an adhoc mixture of professional units from the Eurasian Union, the Transatlantic Organization and the African Confederation, law enforcement personnel and militias comprised of those devoted civilians with experience in traversing the Martian surface either in a vehicle or on foto - even the greatest military would have ground to an uncoordinated halt, and it was there that the rebels found their new leader: General Demétrio Cardoso.

Born in the Municipality of Évora in 1996, Demétrio Cardoso was amongst the first Augments to graduate from the military academy of his Portuguese homeland, completing a seven year course in the field of military engineering at the Palace of Bemposta and receiving his commission at the age of twenty five in 2021, prior to being assigned to a combat engineering company specialized in bridge construction work. Although his nation had little need for military officers in the wake of the Augmentation War, even so far after the end of the conflict, Cardoso's engineering expertise made him a prime candidate to be part of the international reconstruction effort for the regions that had been recently ravaged by Sanvu, and it was there in the destructive wake of the hypercane that he would first come to the public eye. Dispatched alongside much of the West European relief forces to Mindanao, the most devastated island of the Philippines, Cardoso and much of the Portuguese detachment would be assigned to the Agus River, where the combination of the titanic storm and flooding had torn countless trees from their roots and dragged them into the river, creating a series of dams that were starving a hydroelectric power station responsible for powering almost the entire island of the water it needed for full operation. This was a substantial amount of work for what was a
small force of a few hundred men, as the roads and rivers were still difficult to navigate and regular shipping had yet to resume due to the sheer amount of debris blocking the regional ports and seaways, and that made the young officer's role all the more important - whilst the rest of the unit worked to clear the blockages and open the river again, Cardoso had the critically important task of mending the local infrastructure and ensuring that the supplies necessary for their work could arrive as quickly as possible. It was work that Cardoso both excelled in and enjoyed, working alongside his engineers in setting up a Bailey bridge a day ahead of schedule, and that would have likely been the end of his prominence were it not for his commanding officer breaking his left ankle after the bank he was stood atop of suddenly collapsed. Now the ranking officer in his unit whilst his superior recovered and until a suitable replacement could be found, Cardoso had the task of managing the entire operation...and his actions would make him the first man from Western Europe to receive the Eurasian Union's Silver Medal of Humanitarian Assistance, one of the highest awards that the Eurasian Union gave to those who served with distinction as part of the relief effort and would catapult him into the limelight and make him into the Transatlantic Organization's first choice to defend their colonies.

The reason was simple: Cardoso was not just a good quartermaster, he was a logistics wizard.

He had an immensely deep understanding of the chain of supply and how requisitioned items made their way to their final user, from the home country where they were stored in warehouses to field supply depots to his engineers; it was a labyrinth of bureaucratic tape and supply transportation, and yet it was one that Cardoso was said by his superiors to have a complete mastery of. He setup field distribution centers that would protect shipments from the elements whilst they were processed, reducing waste, and he had put what little spare labour he had to work as couriers to deliver them to the ones who needed them most, saving time, encouraged improvisation in the field and even contacted the local Eurasian government to see if they could assist with his task, who were all too happy to send him volunteers to help work on removing the blockages and in building the replacement new bridge and who made it possible for him to find local guides who helped map an off-road path through the countryside that shortened the journey to his location by forty five minutes. But more than anything else, he deferred the task of constructing the bridge and clearing the blockages to someone he knew was suited for the task before spending over a week in the command tent poring over maps and timetables and every scrap of information that he could find about the infrastructure of the area, its roads and rails and canals, before finally putting a plan into action. By the time his commanding officer had emerged to see how Cardoso was doing, the entire area was running like a finely tuned machine: supply shipments arrived at the exact moment they were needed, not a second earlier and not a second later, work shifts had been arranged to keep the machines moving all day and all night without any stop other than for pre scheduled maintenance and local volunteers had taken up much of the basic work so as to free up the engineering company for more important duties. A task that had been expected to take three months was over a week ahead of schedule and set to be done in just two months, and the moment the commanding officers of the international relief effort learnt of what he had done, Cardoso was instantly promoted.

His career had only gone upwards from there and meteorically at that, with some saying that he could one day have even risen further to the title of Supreme Atlanticist Commander, the de-facto head of the Transatlantic Organization's armed forces. Fifty-nine years old by the time of the Secessionist Crisis, meaning he was not even middle aged by Augment standards, the general had gone to Mars not only because the TAO wanted him to go there, believing that a man who could seemingly make weapons and ammunition appear out of thin air was the perfect choice for a remote but critical posting, but because he was genuinely intrigued by the idea of commanding an army on another world, and by all accounts had become smitten with frontier life by the time of Ares' broadcast. He enjoyed the ruggedness of the Martian landscape, the engineering challenges that everyday life there presented and the chance to escape from the politics of the homeworld and the
internal question over whether the Transatlantic Organization should further centralize or remain in
the status quo. He made his home in the Iberia Colony in the Planum Boreum region, the greatest of
the TAO offworld settlements, and when the colony rose in revolt against the homeworld, when he
was in position to give the order that would see the rebellion at the pole quelled in a matter of
hours...he turned his back on Earth and four thousand men, a full half of all TAO forces on the
planet, turned with him. Even before the death of the rogue colonel, General Cardoso was
considered by most secessionists to be the perfect candidate to lead the colonies to victory, having
been the architect and mastermind for much of the TAO's plans and doctrines for how to carry out a
war on the surface of the red planet, all of which were combined in the secret plan known as Case
Roman Winter. The result of hours of staff exercises, careful planning and theory on how to make
war in an unbreathable atmosphere, the main principle of Case Roman Winter was that the very
nature of the environment in which the war was to be fought radically altered the necessary supply
conditions of any force for an offensive by the need for oxygen, without which any unit from the
smallest fireteam to the largest regiment would not be able to survive, yet alone fight. Thus, Case
Roman Winter focused entirely on the location and capture of large greenhouses, water processing
centers and all the other facilities that might be useful for the production of breathable air so as to cut
off the enemy's avenues of replenishment and force them into submission, and such systems could
only be found in large enough sizes to be able to support a military force for any significant length of
time in the greater colonies and certain strategic locations, making them the clear targets for the fast
and decisive blow that Roman Winter called for. General Cardoso had even carried out a number of
exercises and wargames to confirm that the plan could be done, and many of his officers were
familiar enough with the basic premise of it all as to know how to carry it all out in a timely manner
and even how to adapt to a number of unforeseen contingencies such as the Eurasian Union and the
African Confederation forming an alliance and defeating the Transatlantic Organization on the
homeworld, as well as the chance that some Atlanticist soldiers would refuse to fight against the
Eurasian Union because of how well loved its leader was amongst Augments, many of whom
believed that Khan was the only reason that they had been able to have their modifications in the first
place. Such a plan was easily modified into taking the situation at the start of the crisis into account,
even the different starting positions that came with having some Eurasian and African colonies on
their side and not all of the TAO's own were able to be accounted, albeit with more difficulty than
some of the other issues with the conflict such as the lack of supply shipments from Earth.

But there was one thing that had not been taken into account for the creation of Case Roman Winter:
General Cardoso and his newborn Martian Independence Front were on a timer...and it was ticking.
Although the Martian Independence Front was too short lived to produce a standardized flag, it was not uncommon for the various colonies and militias to make their own symbols of varying success. This one, a banner belonging to a small militia group from the Utopia Planitia region, was one of the twenty eight different forms of flag, banner and crest to be made during the Secessionist Crisis: featuring two versions of the Martian astrological symbol turned upside down to symbolize a warrior with his sword low and advancing behind his shield, placed next to one another to create a highly stylized form of the letter M, beneath which are an I and an F, making the initials of the movement.

Earth was not only stronger than Mars, it was an overwhelming titan that not even the combined strength of all the colonies through the entire solar system could even come close to matching even a tenth of, and every second spent on Mars was another second that their advantage had to come into play - Earth's fleets had been forced to turn back a week into their journey the outbreak of war in order to pick up troops and additional supplies, as well as to allow civilian transports that had been appropriated for the mission to be equipped with the modules necessary to repurpose them into troop transports, whilst Mars itself was at the most elliptical phase of its orbit and further from Earth than is normal for most of the Martian year. This had given the MIF precious time, time that was desperately needed if they were to be able to go on the offensive, and it was here that the altered form of Case Roman Winter, retitled as Mamurallia: just as the ancient Roman festival celebrated the triumph of the Mars of the new over the old, so too did General Cardoso’s plan focus on removing the old order, and it was through a massive southern offensive from the Planum Boreum region intended on capturing all the colonies with major starports, large scale oxygen production capabilities, significant production centers and weapon storage sites, a small but comprehensive list that planned to bypass less important settlements in order to save time and resources for the conflicts that would decide the fate of Mars...and it was obvious that it would do so. Leaving such colonies uncontrolled would give the superstates perfect landing locations when their fleets arrived, yet if none of them were available it would mean that the invasion force would have to land in a remote area far away from the cities in
order to do so unopposed and to minimize the risk of their craft during the landing phase, but at so
great a distance from any major settlement it would be all but impossible for them to resupply the
army for an offensive, leaving the superstates no choice but to make peace or bombard the Martian
colonies into submission, a prospect that all knew to be incredibly remote at best. And so, when
Mamurallia went into effect, it was the single largest offensive operation then conducted off of Earth,
a massive lightning assault that swept across the plains of the red planet with the utmost speed in the
ultimate demonstration of maneuver warfare - tanks, armoured personnel carriers, infantry fighting
vehicles and self propelled artillery pieces all dominated the battlefield alongside battalion strength
formations of vacuum infantry armed with the latest gyro-weapons and body armor, all whilst
interceptors and tactical bombers carried out their deadly dances in the skies above. Colony after
colony fell before the rapid advance, those still loyal to the TAO incapacitated by the deflection of
their central command and often crippled by sudden insurrections when faced with the prospect of
fighting against their from brothers-in-arms, whilst even the colonies that had prepared for such an
offensive found themselves overwhelmed by the sheer weight of numbers that the MIF could bring
to the field with the deflection of the Iberian Colony. Eight hundred miles of Arcadia Planitia fell
before the MIF's relentless advance, storming the Milankovic crater where the capital of the African
Confederations' presence on Mars was found, the Songo Mnara Colony, named for the ancient
Tanzanian city, before the men that comprised the armored spearhead of their general's offensive first
laid eyes upon what would be the greatest and most important of their targets.

Olympus Mons.

The site of the first human presence on Mars following the Eurasian Union's landing at its summit
decades before, the cavernous interior of the titanic volcano had long since become home to the
single largest colony on Mars, a settlement sustained by a veritable ocean of water saturated clay
from the time when Mars still had oceans and powered by a full size fusion reactor, with a pair of
fission backups in the event of emergency. But more than that, Olympus Mons was the capital of the
Union's Offworld Precinct, the complete amalgamation of all their offworld colonies under a single
entity as part of an extension of the Eurasian state itself, and the very soil that surrounded the
mountain was considered as core a part of the Eurasian nation as those on the banks of the Ganges
river or beneath the snowy Siberian steppes...and of all the sites in the solar system that could have
the honor, it was considered to be a site for the continuation of the Eurasian government in the event
of such a disaster on Earth as to destroy the Union's presence there, making it the location of a
powerful communications system that could be used to rally the Union, as well technological, culture
and genetic vaults, the latter of which also stored over a hundred thousand embryos in cold storage.
For all this, Olympus Mons had been made into a fortress city the likes of which mankind had never
seen before, utterly self sufficient in almost all aspects, including the production of ammunition, and
its defenses were immensely formidable: on the ground level there were but three entrances, all of
which were sealed by a series of blast doors intended to allow the colony to weather even a multi-
megaton nuclear strike, the mountain was wormed through with a complex network of bunkers and
even the slopes themselves were littered with concealed surface-to-air missile sites, remotely
controlled turrets, heavy weapon batteries and even a series of smoke generators so as to make it
almost impossible for any of the other defenses there to be designated for an airstrike by enemy
infantrymen, who themselves could be countered by the many thousands of shrapnel based
landmines that littered the plains around the colony. All this was manned by a force of similar size
and strength to that which had been stationed at the Iberian colony, a garrison comprised of some of
the Union's best vacuum infantry due to the facility's vital importance, and led by General-Major
Mas'ud Khoroushi, who hailed from the northeasternmost fringes of the Middle Eastern Precinct and
who had received his position directly on Khan's command, who said that the general was "like a
lighthouse in a storm. The waters might thrash and roll, but he stands calm and does his duty," and
was thus well suited for the task of defending a place far from reinforcement and the key to Eurasia's
survival should a calamity befall the Earth. On the homeworld, a strategy session of the top Eurasian,
Atlanticist and African generals agreed that so long as Olympus Mons stood, Earth's victory over the secessionists was all but assured, as the city had the production base necessary to sustain the counterattack on its own, and thus had to be held at all costs.

Time was on the defender's side, and if there was one thing that the General-Major knew, it was patience. He knew that he had no need to go on the offense, for everything would be reclaimed the moment the relief fleet arrived and that everything in the campaign hinged upon him holding the city. He knew that General Cardoso would have to come to him if he wanted to have any chance of winning the war, despite the immense strength of Khoroushi's position.

And so he did.

A platoon of Martian rebels advance under fire, accompanied by a pair of heavily modified cargo trains to provide supporting fire for the offensive. During the Secessionist Crisis, the lack of heavy industry on Mars forced rebel engineers and technicians to leap forward to weapons that did not need a sophisticated manufacturing base for support, resulting in the rise of the rugged and versatile LR1X, an experimental laser rifle intended to simplify logistical concerns by removing the need for some of Mars' limited factories to make ammunition - instead, the weapon could be charged by the very same electrical sockets used for household appliances, electrical vehicles, spacesuit batteries, as well as purpose built ports on most rebel vehicles.

Using the broad railways that had been constructed to allow the shipping of entire habitat modules from one colony to the next to rapidly redeploy his forces, Cardoso surrounded the great colony and occupied those neighbouring settlements that might have been able to come to its aid so as to remove any all threats to this flanks, before starting the work of a sapper and digging trenches, fox holes and gunpits to protect his artillery, all to protect his own forces from a possible counterattack from the colony within. He used captured reconnaissance drones to probe the defenses, trying to find a vulnerability that he might be able to exploit, but his Eurasian counterpart refused to fire missiles to bring them down, knowing that to do so would reveal the locations of his anti-air capabilities even if doing otherwise would allow the engineer-general to gather precious information about the shape of the defense complex, who swiftly determined the location of several bunkers. Operating from outside the range of the defender, who were entirely willing to make the enemy wait rather than spend some
of their own artillery shells, missiles and other munitions that were difficult to replace and would be needed for the siege ahead, General Cardoso continued his examinations, and knowing that it was impossible for the Eurasians to have hollowed out the entire mountain in so short a time span, attempted to find the precise location of the colony itself. But to do so, he would need a distraction, and that distraction came in the first assault on the colony: a minor push intended more to force Khoroushi into revealing his hand than to breach the defenses, it was no more than one hundred men supported by two armored platoons for a total of eight tanks, plus artillery support. Assuming that the attack was nothing more than an attempt to incite him into using his heavier weapons so that they could be marked and eliminated through counter battery fire, but knowing the risk of allowing the enemy forces to make a close inspection of his defense perimeter, Khoroushi activated his smoke generators, concealing the area that Cardoso's troops were attempting to scout...thus concealing his landmines from view, with devastating results, for there were not only anti-infantry mines in the red sands, but several layers of remotely controlled detonation belts able to be triggered at any time.

And he triggered them. Explosions ripped through the advancing column, critically damaging three MIF tanks beyond repair and immobilizing another by breaking a track, whilst no less than thirty men were killed in an instant and many more wounded or maimed by the shrapnel. Cardoso, who like all of the officers there had been unaware of the sheer scale of the fortifications present at Olympus Mons, immediately ordered a fallback, which occurred in good order and without further accostment by the defenders, but the distraction had been a success all the same: using the vibrations that the explosions had made to detect the subterranean complex, it had become clear that, although the colony was located in the titanic volcano's magma chamber and that only a miniscule percentage of the France-sized mountain had actually been excavated, colonized and fortified with active defenses, there were a series of subcomplexes further away from the main colony...and a network of tunnels that passed beneath Cardoso's own feet, away from the settlement. Gunned down by fire before they could return, it made it obvious to the general and to all the MIF that the defenses of Olympus Mons were made to resist an invasion an order of magnitude above that which the secessionists could bring, Cardoso realized that he could order all the MIF's troops in a single wave of assault and likely breach only the first line of defense in exchange for taking so many casualties as to end the war in an hour.

A new plan was necessary, and that came with the discovery of the tunnels - what were they? Were they exhaust systems to vent the colony's waste heat? Unlikely, but if so, they could be sealed off as a means to force the colony into submission. Were they defense tunnels? Impossible, as the sheer length of the tunnel would mean that the defender would never reach their counterattack position quickly enough to make any real difference. They could not be power conduits or water pipes either, as the colony was self sufficient in both those areas, and that meant that there was only one possible explanation for what they were. Building a field operating base near the colony, Cardoso deliberately laid it out so that the field workshop that would be used to repair vehicles was instead placed directly over one of the subterranean routes, not far from a field hospital clearly marked with the red cross so as to ensure that Khoroushi would not take the risk of firing upon the location. Then, using machines and hand tools alike, his men dug down little by little, using the excavated rock to reinforce their defenses with simple earthworks before finding the reinforced concrete shell of the first tunnel.

Finally breaking through, they discovered none other than an abandoned railway track, which was a puzzle in its own right, as they shared a gauge with the surface level tracks and would have thus been utterly redundant for most uses...except for moving items in secret from one settlement to the next. Whatever the use, however, Cardoso knew that this would be the key to taking the colony and so sent teams into the tunnels, all of whom had to return before finding the exit when their supplies began running low. Growing more daring and more intrigued as to what it was that he might have found, he replicated the defender's trick of using smoke to conceal their defenses by using a powerful smoke generator equipped to an armored train to conceal the work of his camp whilst at the same
time carrying out an reconnaissance-by-fire mission that saw his artillery pound possible locations of
the mountain’s defense batteries for three hours straight, aiming to force Khoroushi into returning fire
and thus reveal the location of his defenses, but the Eurasian general once again replied with the use
of smoke to render it all but impossible for the MIF to confirm whether or not they were landing hits.
But this was exactly what Cardoso wanted, as the smoke concealed the defender's own means of
being able to see whatever it was that was going on in the secessionist camp, and in that moment,
Cardoso hastily sent one of his armored trains, loaded with one thousand and two hundred men, into
the tunnels, having collapsed part of the tunnel so as to make a slope for it to descend. Travelling at
full speed in the darkness beneath the Martian surface, it would take the fusion powered train three
days to reach its destination, and its destination was none other than a thin steel cap that had been
placed over the end of the tunnel to seal it off for future work and to make sure that any failure in the
casing of the incomplete tunnels wouldn't risk poisoning the atmosphere of the Olympus Mons
colony.

A seal that would never have been able to resist the force of an up armored cargo train striking it at
one hundred and seventy miles per hour. Striking the barrier before it like a medieval battering ram,
the train smashed through the protective cover and rolled to a halt in a massive and subterranean train
station, disgorging the troops within into the unfinished heart of the tunnel network where empty
shops waited for their shelves to be filled and where empty homes awaited families. Alarms
screeched throughout the colony at the sudden breach and at the dropping atmospheric pressure,
automatic systems swiftly sealing off the section in order to prevent losing any more oxygen, MIF
troops quickly coming under fire as fast response teams stormed the station followed by all the
strength that the Eurasian VJs could muster as they deployed en masse to crush the invasion, but the
urban environment that was the colony's lower level was easy to defend and hard to attack through,
the two sides never more than thirty feet from the other and resulting in a frantic and bloody battle
where weapons ranged from gyrorifles and early laser weapons to superalloy bayonets and diamond-
edged khukuris and clenched fists. But whilst the Eurasians were forced to try and minimize damage
to the colony and its vital systems, the secessionists were not in anyway hindered and used grenades
and explosives with impunity, aiming to cripple the power network even as they were slowly but
surely driven back towards the breach. But as battle raged far beneath his feet, children cowering
under their beds at the noise of gunfire echoing through the floors, whatever tolerance Kouroushi
might have had for the MIF presence outside the colony, whatever certainty that came from being
within an impregnable position, all of it failed in an instant as he unleashed the full might of his
defense network upon the rebels at the exact moment they began to press the attack. Concealed
bunker doors rolled open and allowed their heavy batteries to emerge and pound the attacker with
unrelenting fury, every shell as loud as thunder when it struck, and MIF aircraft dove in to bomb
them only to be met with returning fire as missile sites launched and reloaded and launched and
reloaded as swiftly as their systems could keep up. Infantry rushed the defense line on foot and inside
and behind their vehicles, caught in a downpour of rocket propelled bullets and saved only from
certain death by the constant fluctuations in the colony's power grid that came from the smart grid of
Olympus Mons attempting over and over to reroute power to make up for the damage to the lower
levels in an attempt to keep everything running. But bunkers little different than those that had
guarded the shores of the Normandy beaches over a century before in the Second World War had no
need for electrical energy, and their gunners made the MIF pay a toll in blood for every meter. Even
the colony's own air units joined the battle after the first day, emerging from hangers that had been
built into the walls of the extinct volcano's caldera to carry out precision strikes, forcing the Martians
back through the hell that was the Siege of Olympus Mons, yet underground the battle was even
more deadly than it was on the surface, for the MIF forces had no path of retreat, their train unable to
turn about in the incomplete station. Cornered and with their supplies and morale low after almost a
week of nonstop fighting and with the Eurasian forces readying themselves for the final push, having
brought armored support and infantry fighting vehicles through the colonial elevator system, more
and more troops began throwing down their weapons and raising their arms in surrender, making the
collapse of their position all the swifter, yet some few remained in the fight, a mere three hundred, a quarter of the number that had gone into the tunnels, and they made a single desperate push to try and break out of the tightening Eurasian noose so as to reach what they had identified as a target of the utmost importance.

Rushing the Eurasian forces all at once in a suicidal charge towards the main elevator, a charge that would cost many men their lives, a hundred more falling in a span of an hour. Immediately Kouroushi ordered the elevator system shutdown to prevent them from breaking out to the other levels, but the elevator shaft was not a means of spreading the attack to other less defended areas, but the target. Prying open the elevator shaft, an anti-tank missile was fired directly into the concrete encasement that protected the primary energy conduit that was the main artery for the colony's electrical system, to which the reactor itself was connected and from which branched every other electrical line. The moment the missile struck the concrete there was an instantaneous blackout, the smart grid rapidly attempting to route power from the damage line through the peripherals and into the upper levels that way, but only the most vital systems could be powered in such a system and with little excess, with only the life support, the genetics vault and Khoroushi's command center being powered and a handful of the defense system. This was crippling for the automatic defenses and would directly lead to a change in doctrine that would move away from such of automatic weaponry, allowing Cadoro's men to storm the slopes and destroy the inactive weapons platforms before they could be brought online again, but his forces had already taken heavy casualties in the offensive and lost much of their armored support to mines and to direct fire, making it difficult for them to be able to press the attack...

...and the result was perhaps the worst possible outcome for the Martian Independence Front: a stalemate.

With the forces that he had dispatched through the tunnel system either dead, captured or missing after trying to flee through the tunnel network on foot, the Eurasian VIs had secured the train and collapsed the first fifty meters of the tunnel on their side with blasting charges before sealing off the exit entirely with another plate four times as thick as the one before. All that made it impossible for another, larger attempt at storming the colony from below, and although the colony had been wounded by their attack, it was not fatally so - life had become difficult for those who lived within the Olympus Mons colony, where even electrical power had been needed to become a rationed commodity, but not so much as to render the settlement unsustainable or to force it into submission. Indeed, the very attack by the MIF on the settlement had galvanized their resistance and encouraged the defenders onwards, many of whom were fighting to protect their families as well as their nation and who knew they had no avenue of retreat should the MIF take the city, leading to around the clock efforts on restoring power to more and more systems. But whilst the colony was slowly recovering from the damage that had been inflicted, even if they couldn't go outside to repair their weapon systems, Cardoso's forces were in a dire situation: several hundred of his best troops were dead and many more wounded, but whilst the defenders had a fully equipped hospital to tend to their injured and even growth vats able to grow new organs and limbs for those who had need of them, allowing them to recover the majority of their wounded given time, the MIF's nearest medical facilities were hours away by train and hours were often the difference between a soldier being injured-but-recoverable and a fatality. Further, most of the supplies and ammunition that they had brought with them had been spent on the battlefield, leaving the MIF force in need of resupply for any further attempts on the fortress-colony, especially oxygen as the realities of Case Roman Winter became apparent in how they affected all without discrimination for the attacker or the defender, and such supplies could only come by train, trains that now found themselves under attack by Eurasian airstrikes, but even more crippling were the loss of those supplies that could not so easily be replaced: there were few facilities on Mars designed and equipped to produce ammunition, leaving such stocks a slowly rising trickle, yet it was the loss of his vehicular support that was the greatest loss of all, as
true tanks and armored personnel carriers were irreplaceable by Martian hands and essential for suppressing the defenders in their pillboxes and other fortifications.

But that was not the end of the siege, for Cadoro would try for months to break the defenses, getting closer sometimes than he had even on the first major assault whenever his sappers managed to breach a bunker with their charges, even trying to convince the defenders to join the MIF in revolt rather than stay loyal to the homeworld, but every time the stubborn defenders would repulse his attacks and reject his offers, knowing that every minute they spent fighting was one more minute for their allies to come closer. And after almost four months of fighting on the slopes of Olympus Mons, the fighters of the MIF looked to the sky one early dawn and saw a particularly bright line of stars moving through the dark sky, bright enough to be seen even as the rising sun crested over the red hills.

Raising binoculars to the sky, what they saw was no rare dance of stars, but an armada led by the three great flagships of Earth, the EUWS Warsaw, the TASS Resolute and the ACS Haile Selassie, all having come about to carry out their orbital insertion burn.

The MIF had ran out of time.
making up for their lack in proper targeting equipment through a brutal rate of fire, though woefully outmatched by purpose built Earthmade armored units and the various shoulder fired anti-tank launchers that the peacekeeping force was equipped with.

Launching one final attempt to take the city and perhaps buy some more time by forcing the incoming relief forces to land elsewhere, Cardoso's men pushed forward with the desperation of men who knew that they were on the brink of disaster, fighting like demons to take the city, even using their armored vehicles to push the wrecks of destroyed or immobilized tanks towards the defender as pieces of cover for the softer forces to use, but already informed of the arrival of their reinforcements and with much of their power grid already restored, the defenders stood resolute, battered but unbroken, and rose to their bunkers and trenches for one last time. In total over half a million rounds of small arms ammunition had been spent, along with the destruction of forty four tanks, fifty one armored personnel carriers and twenty nine infantry fighting vehicles, twenty aircraft...and one thousand seven hundred and seventy three men, nine hundred and twenty one of which had left their lives upon the red slopes and plains, but that number would rise another seven hundred in that final desperate push as the MIF secessionists tried to make their desperately needed breakthrough only to be scythed down in the killing fields that were the interlocking firing arcs of Khoroushi's bunkers, the lost armor rendering it enormously difficult for them to be able to destroy the hardened positions.

Calling his enemies "courageous madmen" and "brave fools" for charging his lines when the battle was already lost, Khoroushi extended an offer to negotiate Cardoso's surrender, yet the defiant general refused and led the last wave of the assault in person from his personal armored command vehicle, an attack that would finally overwhelm the defenses of the city's third defense sector and bring his assault engineers all the way to the blast doors themselves, where they worked frantically to try and force the door to open, even to just force it ajar enough for a few men to pass at a time would be considered good enough, yet its electrical locking systems were as fortified as the six foot thick door itself...and as the first wave of Earth troops began entering the atmosphere, having emerged from cryogenic suspension and equipped themselves for planetfall, Khoroushi cut all power to the door, forcing its bolts to drop and rendering it completely inoperable without an engineer's access from the inside. Trapped between the arriving force of eight thousand VIs and the defenders readying themselves to come out and meet him on the battlefield directly, it was an unwinnable position, but for a time, Cardoso was willing to make a last stand of it, a final heroic battle that would forever enshrine the cause of which the MIF had fought for, yet with the Terran capital ships preparing to bombard his forces from orbit with a missile barrage and with his troops tired and broken hearted at the realization of their defeat, Khoroushi offered him one last chance to surrender.

Finally, Cardoso accepted. His forces, numbering a total of 5,600 at the start of the offensive and a combination of some of the best troops that the superstates of Earth had stationed on Mars had been reduced to a mere 2,628, low on supplies and courage alike. Their armored support had been all but destroyed and their aircraft downed for a lack of spare parts and pilots, whilst even their armored trains, the mightiest of the weapons that the MIF possessed, were low on suitable ammunition and now vulnerable to orbital fire due to their linear paths. With 2,972 of his best soldiers either captured, missing, wounded or dead, there was no longer any doubt - the war was over, and Mars had lost. Coming down in overwhelming strength after receiving the surrender of General Cardoso's command, his men were disarmed as they were marched into the settlement they had fought so hard to seize as prisoners of war, stripped of the flags and standards that had been made for their independence movement and placed under the heaviest of guard and many of whom would later go to the Mercurian Precinctual Republic in a trickle of but a few dozen at a time as part of an agreement between the governments of Earth and the most independent of all its colonies. Sweeping northwards in a reverse of Cardoso's southern offensive, the relief force found disorganized and demoralized militias and reserve units guarding those settlements that had already been taken, many of which laid down their weapons without incident as news spread of the general's capitulation, but
in the Planum Boreum, the heart of the insurrection, there were the final embers of resistance, men and women who genuinely believed in the cause of Martian independence and who were unwilling to lower their weapons as their brothers-in-arms had, who armed themselves with improvised vehicles and whatever weaponry they could find. But against the purpose built weapons that the vacuum infantrymen of Earth had at their disposal, against fully trained riflemen, not even the most creative of designs could make a significant impact, and the Iberian colony, home of the rebellion, fell three months after planetfall, made all the slower in its taking by those few MIF rebels who had sabotage the railway networks of Mars in a futile attempt to deny the Earthers access to fresh supplies...and though there was the fear of further resistance and a protected insurgency amongst the loyalist commanderies of the war, the Martian colonies fell in line once more in but a matter of months, with all discontent seeming to melt away with the military presence of the homeworld in their streets. Many of the rebel governors and traitor officers would be taken back to the homeworld for trial, a number of them would be imprisoned without the possibility of parole for their treasons and for fighting against their home nations and taking the lives of their countrymen, but the rapid collapse of MIF support amongst the population would prevent anything further by making the superstates confident of their position, allowing many men to be pardoned of their actions, albeit prohibited of any further military service.

All but General Cardoso. The arch-rebel himself was brought back to the homeworld under the highest guard, and in the first time since the end of the Second World War, placed in a trial conducted by an international military tribunal. Accused of treason by the Transatlantic Organization and of the crimes of inciting sedition against the nation and of firing against his own countrymen, accused of inciting mutiny amongst Eurasian forces by the Union and the destruction of strategic national property with the intent to terrorize the Olympus Mons settlers and similar charges by the African Confederation, his motives and those of his entire command were placed under the closest scrutiny. When it became apparent that the entire war was out of the fear that the Martian settlers had of being abandoned by Earth, that the death of thousands was simply the result of little more than a desperate desire for attention and a fear of neglect rather than any real oppression or hostility by the powers of the homeworld, the many justices of his home nation showed him no favor, and sentenced him to death, a sentence that the other superstates agreed with and found just for the severity of his crimes.

On the noon of the twenty second of August, 2057, at exactly 12:00 PM, General Demétrio Cardoso was executed by firing squad. His last known words were the motto of his military academy spoken in the creole that was common amongst the settlers of the Iberian colony: "It is sweet and honorable to die for the fatherland."

And though his body would be buried on Earth in a secluded section of a military cemetery in his homeland, unmarked on any map, not all of him would be entombed there. His family, having had possession of his body for a time so as to make funeral arrangements, ensured that his heart would be sent back to Mars and buried in its rocky surface, so that a piece of it might be forever free.

But just as the war lead to a change in how Earth treated its colonies, it also led to a new form of military doctrine to replace that of the Augmentation War, a doctrine that would become the foundation of all mankind's major military operations in the new age of regular interplanetary travel. LANS Battle, or Land, Air, Naval, Space Battle, which stated that the most important nature of warfare in the modern age was to recognize that battles on land, in the air, at sea and now in space were not separate events that shared only a connection of being in the same conflict, but a single titanic battlespace where every unit and order were interconnected for the prosecution of that campaign - generals of the ground and the air and admirals of the sea and the stars were all fighting the same war and the same battles, only different aspects of it, and LANS proclaimed that the best way to fight a war was to unify these four theatres into a total unified force that was the idea of
combined arms warfare made new again. Orbital craft could provide instantaneous surveillance of enemy positions, aircraft could neutralize them, the navy could isolate them and all could support the ground army in taking them with the least amount of losses. The mightiest fusionship, the fastest jet and the largest warship couldn't hold territory on their own, and so as it had been since the dawn of civilization warfare was still dependent upon the lowly infantryman and his weapons in order to secure that which was being fought over, but just as how combined arms doctrine called for a combination of infantry and armor to win battles, so too did this new doctrine call for all branches of the armed forces to be combined into an unstoppable, all-aspect assault. The way in which such ideas were to be implemented would fuel debates and military exercises for years to come, but the result would be the way of war of the twenty first century - where a battalion commander could call for orbital bombardment and have it arrive in moments, where the navy would carry surface-to-orbit missiles for the task of firing against enemy capital ships beyond the clouds, where the air force would use single-stage-to-orbit shuttles to destroy targets half the world away and ensure that nothing was out of range by skipping off the atmosphere like a stone skimming the surface of a pond, all of which would ensure that warfare would never be the same again.

****

Olympus Mons, 2055...

Corporal Jingyi Lu breathed slowly and moved with soft steps, keeping his finger besides the trigger as he rounded the pockmarked corner and looked down the hall through the iron sights of his gyrorifle, hearing the howling cracks of gunfire a level beneath his feet even in the thin Martian atmosphere that had flooded the lower levels of his home colony. The room was thrice as long as it was wide, empty but for the conveyor belts that dominated the left wall as a place where passengers would have been able to pick up their luggage and the bits of fallen of masonry that were the sign of urban warfare. He instinctively checked his corners, weapon raised and at the ready as he illuminated them with the flashlight affixed to his weapon's side before letting out a sigh as his nerves relaxed and let him lower it, raising his left hand and gesturing forwards with two fingers he could barely recognize as his through the thick grey materials of his vacsuit.

"Clear," he whispered, mindful of the risk of being overheard by the secessionists, whether they were a floor beneath his feet or in the next room ahead or looping around from behind as they had the chance to do in the concrete labyrinth that lurked beneath the colony. "No mines nor hostiles that I can see."

"Watch your footing," Sergeant Saqqaf said as he cautiously lead the rest of the platoon forward with eyes lowered towards the bare and unfinished floor, Jingyi knowing without even needing to see the face behind the reflective visor that he was uneasy; their original commander, Lieutenant Angeliki Spiros, had her suit blown open by an antipersonnel mine just two days before, bleeding out so fast that even an operating room wouldn't have been able to save her if she had simply appeared there out of thin air. "The sesh love their traps, and are clever enough to know how to hide them."

"Clever enough to not put their charges in a loadbearing part of the colony at least," Specialist Min-Su Yi murmured as she lowered her shotgun and emerged from cover, the small woman utterly indistinguishable from the rest of their unit within the thick suits of vacuum infantry but for the triangular BD on her sleeve and back that marked her as an explosives expert. "At least we won't have to worry about being buried under a thousand tons of rock."

"A small blessing, but one I am glad for," the sergeant said with a sigh before raising his voice as loud as he dared, his Middle Eastern accent coming through the radio at last. "Watch for unusual lights, wires or anything that looks out of place. They were through here an hour or two ago, enough time to have left a few surprises. Be careful. Min, go first."
The explosive specialist nodded, and she slowly passed the corporal by with steps as careful as his own had been, raising the weapon to her shoulder as she used its light to check the ground ahead of them, slowly panning from one section to the next.

"I don't see any signs of a pressure sensor or anything that could trip a bomb, just rubble," she said with a hint of relief before turning her attentions to the ceiling, just to be certain the secessionists hadn't placed a shrapnel bomb on the roof. "Nothing up there, either. I think we got lucky this time."

"Then let's hope we are lucky for the next four days," Saqqaf said with what was surely a smile. "I have a comfy bed waiting for me."

There were low murmurs of amusement at that, but Jingyi stayed quiet. It was command's decision to rotate men through the tunnels a battalion at a time, changing them every two weeks to make sure that every soldier who saw combat had a chance to have a respite from it and a chance to rest. It kept their troops fresh whilst ensuring that the Secessionists never had a chance to rest or consolidate their position, forcing them to sleep in their suits and eat liquid rations through meal straws. It wasn't a game of cat and mouse in the tunnels that were to have been the colony's train station, the hub of the whole network, it was a battle of endurance to see which side ran out of stamina first...and it was a battle that the Eurasian Union was winning, hour by hour and day by day. The secessionists were slowly losing ground and losing men with it, and the more men they lost the more time the survivors needed to be on the front lines to stop them from being pushed all the way back to their train and out of the colony entirely, that everyone knew, but Jingyi couldn't laugh in these tunnels, not like the others could. His father had been a soldier and all his sons were soldiers too, and four sons had gone to Mars and now only two of them were alive, he and his littlest brother, Shui, a squad level machine gunner of the battalion due to go down in the rotation after the next. He was even eager to, to have a chance to fight for himself like Jingyi and avenge the others, despite the risk of it all, despite the risk of having his air tank pierced like Wei or being stabbed in the chest like Yijun or the half a million other ways there was to die in the tunnels.

Or maybe it will be me this time, he thought grimly as he looked ahead in complete silence. Another brother for Shui to mourn. Another brother to be sent back to Earth when this is over and done.

For a moment, he thought he saw movement in the doorway on the other side of the room and tensed, ready to shout and shoot.

But it was a dancing of the shadows. Nothing more.

He sighed again. He hated this place. He hated fighting in something so familiar, something that could trick the mind into seeing things that weren't there, people that weren't there, sounds and sights and feelings that weren't there, but it was the sight of the things that were there that he hated the most, the sight of dead friends slumped against the walls, the sight of blown through stores he had visited, the sight of tattered flags and dying gardens and shattered fountains. He would rather be in the bunkers, far away from a place that he knew all too well, but they were on a separate set of rotations from the men who went into the tunnels. They were a dangerous posting, forever under attack, but they were thus a predictable one. He envied them. In the tunnels danger could be on the other side of a wall a foot away and he wouldn't know, just as he wouldn't know if it was a hundred feet away, or further.

"It's better to be too relaxed than too tense, you know," spoke Private Tú Van, their designated machine gunner holding the massive gyroweapon over his shoulder with one arm as he tapped the corporal in the side and spoke quietly with his radio off so as to not be overheard by the others. "Too
relaxed and you're not paying attention to your surroundings. Too tense and you start shooting at shadows...and you nearly shot a shadow."

"I never knew you were a philosopher, private," he answered, lowering his weapon again, calm but aware. "Have you thought about writing self-help books?"

The private laughed. "No, sir."

"We should keep moving," the sergeant said at last, turning back towards his comrades in arms. "The secessionists will be, and who knows what they're up to so far from the main part of the fight. Jingyi, Min, on the front. Roza, in the rear."

"Understood," he acknowledged as the Korean woman came to his side, carefully stepping over the broken concrete and jagged rebar. "Be careful. The edges are sharp enough to pierce our vacsuits."

They climbed over and around the grey ruins that dominated the middle of the room, staying ever vigilant of their surroundings and any part of the debris that might have been tampered with and just as careful of the warped pieces of metal that had been blown free of the conveyor machines on the left wall by grenades or ripped off for use as cover, all of which made the exposed mechanisms within the perfect hiding place for a bomb or other nightmarish surprises that might be lurking in the dark. The TAO made use of fully automatic revolver shotguns for urban warfare, ones that could be modified with the use of a different propellant mix to be still somewhat combat effective in a low pressure environment, and more than a hundred of them had fallen into secessionist hands when their colonies rebelled...meaning that the MIF rebels invading his home had not only one of the more dangerous small arms ever designed by man, but one that could be affixed to a rotary drone and flown around the battlefield or tied to a little wire that would pull the trigger and empty the whole magazine when pressed down against the ground. Those were some of the real dangers beneath the Mons, he knew: every soldier knew how to recognize the traps that they might expect to see, little antipersonnel mines or wire trips and all, but no one could ever be prepared for the improvised traps, those things that a desperate soldier might make by putting a shotgun over a door frame and wiring the trigger to the handle or by hollowing out a chair leg and filling it with plastic explosive and a detonator wired together out of a TV remote. Some of the older colonists from the South East Asian Precinct who had been born right after the end of the war said it was like the stories that their grandparents used to tell them about the Vietnam War, how desperation could make any man or woman become lethally inventive and how their ancestors had dug spiked pits and concealed tunnels to counter their enemy's superior equipment and industry so as to wear out their will to fight. It felt like the secessionists were trying the same thing, but this time it was the other way around, with ones defending their home fighting with superior industry and equipment against a stubborn foe that were trying everything they could think of in their aggression to wear down the defender...even if it seemed as though they were wearing themselves down instead, little by little.

Yet they still had enough fight left in them to make the Eurasian VIIs cautious about even crossing a darkly lit room far away from the main fighting. And that was why Jingyi and his platoon were there in the darkness rather than in the train station and locomotive servicing station area where the others were - to find out why the rebels would send a group so far away from the main battle zone and to deal with them if they were found. But the muffled noise of shooting and shouting and explosions and screaming far beneath his feet and the suffocating darkness outside his torch's cone of light made them all uneasy, even if they hid it well and hid it better than he could. Passing through the doorway first and with his weapon raised and held in a tight grip, he saw another familiar sight: a three floor plaza, one above him and one below, all unfinished with incomplete sections of the tiled floor and wires dangling from panels in the walls and from the ceiling, a place that was as much a market for the colonists of Olympus Mons themselves as it was a place for travellers to buy all the things they
might need to continue their journey in comfort as they wait for the next train to arrive. Here and there he saw refrigerated crates, filled with the stock that would have filled the first shelves before power to the section had been cut off and before their internal batteries had failed. The room was long and terribly dark, but he couldn't see any movement, not even that of a small drone watching in wait or hear the sound of footsteps or anything else, and with tentative movements he signaled for the rest to follow.

"Clear as far as I can tell," he said honestly, sweeping the lower levels with his flashlight. "I don't see anything in here, but there is a lot of cover to hide behind."

He lowered his voice, turning towards the platoon and raising his weapon towards the ceiling. "If I was a rebel looking to ambush someone, this is where I would do it."

"Sweep the area, but keep your eyes open, everyone," Sergeant Saqqah said, his words an agreement with those of the corporal. "You see something move that isn't one of us, shoot it. If it's one of them it breaks their ambush, if it's a shadow it's only a single wasted bullet we can replace later."

Then the sergeant took a flare round from his belt and rotated the round in its casing three times, then slotted it into the underslung launcher of his rifle before crouching down. "SF going out. Let's get some light in here."

Saqqaf raised the weapon against his shoulder and fired upwards towards the center ceiling of the plaza, the dimly lit round bursting to bright life as it struck the roof and began a slow descent by parachute, the scatter flare spitting out groups of softly burning sub flares as it floated down, lighting all three levels and turning the darkness into long, daggerly shadows.

"That gives us eight minutes of light," the sergeant said as he rose to his feet. "Clear the area before it burns out, else we won't have enough for the rest of the patrol. I don't want to check these rooms in the dark."

"Sergeant...?" Min said, drawing their superior's attentions before pointing with the tip of weapon towards a pool of dark red on the other side of a refrigerator unit on the far side of the second floor, pressed against the railing, glittering like a crimson ruby in the light of the sinking flare. It was still liquid, and in the Martian atmosphere, that meant it was fresh.

The sergeant placed a finger to his visor as though he were covering his lips, then raised five fingers on his right hand, closed it, raised another five, pointed to Tú Van and then pointed to the right side of the plaza. Jingyi nodded in silent understanding and the platoon split, ten on the left and ten on the right, creeping around a single step at a time...and pressing himself against the column at the end, he flicked the safety off at last. Weapon raised, he rounded the corner ready to fire and saw only Saqqaf down the hall, the sergeant starting to laugh as he crouched down towards nothing more than a leaking bottle that had rolled free of its cooler.

"It's a bottle of fruit juice!" the sergeant laughed, lifting the bottle from the ground to reveal a small metal disk beneath that clicked as the weight of the bottle was taken from it. "Summer fruits flav-"

Jingyi shouted a word and leapt for cover behind the column and railings with the rest of the unit as wordless cries were silenced by a deafening bang and a plume of smoke as the refrigerator unit exploded with the force of half a dozen pounds of plastic explosive. He landed on his rifle, placing his hands over his head as shards of steel screamed through the air and lodged themselves in the walls all around, then he felt a sick feeling in the core of his stomach, the frantic shouting of the
liquid of the inner ear telling him he was still moving, and he bolted to his feet and lurched forward as half the level began to collapse, catching an exposed piece of rebar in his hand as he fell before fumbling for his knife, a diamond edged khukuri, driving it deep into the concrete of the intact floor like a climbing pick, hoisting himself up to safety with burning muscles as smoke filled his vision and the thundering noises of collapsing masonry deafened out the radio within his helmet and filled his ears with a stinging ring. A hand clutched his wrist tight, helping to pull him back to his feet as he sheathed the blade once more, and he looked to see the name written upon their breast pocket. Tú Van. Behind him were six of the nine on his side, Min on the ground and quickly slapping a sealing patch onto a tear in the thick grey cloth of left elbow and rubbing it furiously to help it stick, and the others were there too, covered in dust but alive, but he could only see the small piece of cloth smouldering on the railing, a piece of rank insignia bearing the three stripes of a sergeant above the Flower of Earth symbol that was the Union's flag, twisting into black char as what little oxygen there was in the room was consumed by the blaze.

Then Tú Van clipped him round the helm with the back of his hand, and the corporal finally snapped back from his daze.

"This is TACCOM to Corporal Lu," came the surprised and voice of an operator a dozen floors above in the colony command center. "What the hell just happened down there? Seismo is reading a major blast in your area and...Jesus Christ, medical said half the platoon just flatlined. Is this accurate, corporal?"

"A bomb was hidden in a refrigerator crate," he said quickly and with a pained groan as he leaned against the railing, feeling the dull ache of bruises starting to form and barely able to hear himself over the ringing in his ears. "Saqqaf is gone and so is...only myself, Van, Yi, Niemczyk, Ivanov and Gadhavi made it out. I can't see anyone else."

"We're still getting a reading on Private Voronin's sensors," another voice said through the radio, a trained physician in the command center. "Her heart rate is elevated and blood pressure below normal, but stable. They must've been hit by the shrapnel. Can you see her?"

He looked down, into the pit, and saw the mangled bodies of men and women crushed by the fallen concrete or impaled on its steel ribs or simply blown limb from limb by the blast that they had been much closer towards, their helmets shattered to reveal the agonized faces beneath. He swallowed. If Roza was still alive, then she was buried in the middle of it all, but if there was anything to be thankful about fighting in an unbreathable atmosphere, it meant that being buried and cut off from air was not the death sentence it was on Earth, as every trooper carried their own air supply.

"She must be trapped under the rubble," he said. "We'll get her out of there, TACCOM."

"Understood," said the officer on the other end of the radio. "We'll have a medical team waiting for them. Once you arrive at the transition point, come on home. We'll assign a different unit to the mission and send them down with more EoD gear."

"Understood," he said coldly and quietly.

"...and don't worry," their tactical command operator said at last, his voice as pained as Jiangyi's should be. "We'll make them pay for every last one. I promise you that. TACCOM over and out."

"Let's get down there and get her out," Jiangyi sighed...

...and then he heard footsteps. He turned, and in the back of a barely lit garden store he saw a figure,
a vacsuit standing in the shadows of the storage room door, watching. Instantly he raised his gyrorofile and fired a shot, the tiny rocket uttering a quiet pop as it shot down the barrel and howled its way to a supersonic crack, but by then they were gone, and his feet carried him after them, the Augment soldier turning off his radio with a flick of a switch on his wrist as he charged after them. He didn't care what they might say or do when the rest of the platoon found him, how he might be punished for his charge and leaving them behind, there had to be vengeance. Vengeance for Saqqaf, vengeance for Roza, vengeance for all those that the secessionists had killed in their attack, vengeance for his brothers.

"Get back here, wángbadàn!" he roared in fury as he scrambled through the wilted and frozen plants and into the back of the store. "Don't you run from me!"

The rebel wormed and weaved his way through the shelves and crates of the backroom, throwing open a door and heading out into the service tunnels, and he fired into the darkness, once, twice, thrice, and then the whole magazine, revelling in the sound of screaming rockets before locking the weapon to his waist and running after, khukuri drawn. The tunnels were darker than the plaza had been, utterly devoid of all the light but that which the dim bulb of his helmet could provide, pipes of water and air on the walls alongside dead electrical conduits sheathed in black rubber, but the tight confines only served to carry the noise, and he heard the crack of a bullet reaching its maximum speed and then a pained shout down the tunnel in a wider service section, part of the colony's infrastructural backbone. He slowed to a stride to catch his breath in the orange emergency lights, walking forward to see on the ground that there was no body...but a shadow, knife in hand.

Jiangyi's eyes widened in realization. It had been a trap from the start.

"Go on," he taunted coldly, turning to face the Martian secessionist in his red and orange camouflage coating, the rebel still stood in the shadows and unharmed from his volley but for the grazed cloth where a gyroround had skimmed the suit and torn its outermost layer. "Get it over with."

"If you're so eager," came the answer through the glass of his opponent's helm.

The Martian thrust the bayonet forward with the strength and speed that only Augment an could put behind the strike, but Jiangyi sidestepped him and caught his attacker's forearm beneath his shoulder, bringing his left arm down to lock the two together as he slammed his visor into their theirs and tore his blade from its sheath, the rebel raising an armored boot to the VI's chest and driving him back across the room, Jiangyi's lifesupport equipment striking the concrete with a bang and a thud.

"We could have made this quick, but now...melee?" the MIF fighter asked, amused, the two fighters circling one another and seeing only an enemy bathed in orange light. "I'm a level four in knife combat."

"Good thing that I am a level five," Jiangyi answered, feeling the familiar weight and balance of the diamond edged blade in his hand. "You never should have come here."

"I could say the same thing to you, Earther," the rebel snapped. "I was born on this planet."

"And you'll die on it."

"Gladly," the Martian answered, charging him with all his strength and speed. "But so will you!"

Bayonet struck khukuri with such speed and force that chips of metal flew through the air, sticking themselves to their suits as the two dueled with deadly speed, all of Jiangyi's attentions on the fight,
all on the movement of his opponent's blades to the left and to the right and upwards and below, parry after parry after dodge after feint after thrust after slash, the two warriors locked in a dance that any unmodified man would have seen as almost a blur of rapid but ineffectual strikes, neither able to gain the advantage. Kicking the rebel away as Jiangyi panted for breath, worn from the long sprint, the Martian swung for the VI's leg only for his blade to strike a super alloy plate beneath the cloth and roll off harmlessly, allowing the Eurasian trooper to catch the bayonet from beneath with a slash of his own and drive it upwards and around, flipping the blade in his hand for a deep and cutting slash across the Martian's chest, hacking through the thick cloth of his vacsuit all the way through to the armor plates beneath in a cut from one side of the chest to the other. The VI spun on his heels and shoved the rebel forward with a push of his empty hand on their extended shoulder before swinging again on his back strike, cutting deep into the life support pack and damaging the air tank within, a puncture whose hiss could be heard even in his own helmet.

The rebel shouted wordlessly, throwing himself forward in a frenzied spin, forced into an attack that would be victory or death by his toxic air, and he threw all his weight and all his strength into a single thrust aimed precisely at the dead center of Jiangyi's torso, at the join line between the two plates, at the sternum beneath and the beating heart beneath that, just as Jiangyi thrust his own weapon through the gap between his foe's arms, towards the base of his helmet. The khukuri ripped through the cloth, through the padding beneath, through the middle of the Martian's neck and vertebrae and into brain and spinal cord, steaming crimson pouring out of the opening and coating his gloves.

Then the Eurasian trooper felt a piercing cold inside him, and he looked down to see a bayonet buried deep inside his chest. The rebel's limp body crashed to the ground, and his own legs gave way beneath him a second after, falling atop of him, and with weak movements he reached to his wrist and flicked on the radio.

"I..." he panted with a burning chest, every breath agony and his words coming through clenched teeth. "I won."

He thought he heard a woman's voice before the darkness came.
Brotherhood

There had been many things that had been expected by all the peoples of the twenty first century, things that had been deemed to be all but guaranteed to occur, but the most important of them all was almost certainly the rise of the augmented generations as their unmodified forebears continued to age and retire, ushering in a transition of power that saw the new generations of the post war world take control of the ships of state in a process that would forever change the world's political structures. For many years since the end of the war and the coming of age of the first entirely modified generation of men and women, the nations of the world had been coming increasingly under the control of this new force - in the democracies of the world, low level governmental positions found themselves increasingly filled by Augmented individuals voted into office by Augmented individuals, and even the unmodified members of the higher echelons of power found themselves battling for the attentions of what was a rapidly growing block of motivated voters, trying their best to communicate their message to a people who often had trouble understanding them thanks to the greatest generation gap that there had ever been. Yet as the years went on and the transitioning years of the early twenty first century gave way to the golden ones of its mid, those unmodified humans who had been starting their political careers at the climax of the Augmentation War and whose actions had helped to rebuild the world were finally ending them as they began to enter old age, clearing the stage for younger Augmented people who now had the experience needed to properly manage their nations. In some states this process occurred even earlier thanks to political splintering that saw many historic parties lose a small amount of themselves that mimicked the original in every way and form but for having an individual born after the war in control rather than one born before it, making them better able to communicate their ideals and beliefs to their fellows and giving them a decisive advantage in elections, as was the case of the Socialist Labour Party of the United Kingdom that originally started as but a small schism group of a few dozen individuals only to eventually absorb the original Labour Party years later, whilst in others it manifested in the complete destruction of the existing political order, as in the United States where the "big tent parties" of the Democrats and Republicans effectively ripped themselves apart due to the different groups within being no longer able to reconcile their differences with one another, leaving a dozen disparate bands that formed temporary electoral alliances with one another to secure majorities. Some would even take up the banner of Khan Noonien Singh's own ideology in the form of endorsing the adoption of precinctualism, such as the New America Party that recognized and respected the existing Constitution, but believed that the document had become obsolete due to the way that the country had developed and favored the creation of a new constitution that would enshrine the equality of the states in law by making it mandatory for them to have equal population to one another and thus removing all need for the Electoral College - though often successful in a fair number of elections, they themselves would be kept out of power by the simple fact that they would tear down the political system to replace it with another and that such things made it "difficult" to find anyone willing to form a coalition with them.
One of many proposals by the New America Party for new state boundaries intended to ensure that all states within the union had the most equal number of population possible in order to ensure that all individuals had the most fair and equal representation possible; although the names of the states themselves are simply placeholders and it is officially stated by the party that the name of the states themselves would be decided by votes within each state, the borders themselves are accurate to the plan and would often be criticized by opponents for putting interstate boundaries in the middle of major cities such as Los Angeles and New York, which they claimed could lead to law enforcement issues whereby a criminal could strike a policeman and flee across the border and outside of their jurisdiction before they could be brought to justice...which would then force a lengthy interstate rendition process in order to acquire a warrant.

But regardless of how the change took place, the outcome was always the same - the Augments were taking up the reins of power, little by little with every year that passed as the unmodified generations before them entered their twilight years and began to retire or die off. Enthusiastic young men and women became town councillors, town councillors became mayors, mayors became governors and governors became presidents, gradually replacing the prewar generation, and though some were fearful that the new generation might lash out towards their forebears when they were helpless as vengeance for fighting against the Augment cause in the past, such fears would never come to pass, as war or no, the immensely strong emotional bond that was between a child and its parents had only become all the stronger in the Augments, and the aging generations would find themselves looked after in the most charitable manner that their descendents could afford, with many living lives extended well past the natural human life expectancy by the use of vat grown organs to replace those that began to fail, with some even attempting to transplant genetically modified tissues into their bodies to prolong their lives even longer, with many taking the time that they had been given to tour the solar system and see all the works that those they had once feared had worked so hard to create. Yet it was as early as 2036 that Augment controlled political organizations began to rise to power in the nations that had once been the heart of the United Nations coalition, with those that had fought with all their strength to bring an end to genetic modification technology, and no better was this shown than in the election of John Grissom in the United States of America, the first Augment president and the first to be elected leader of any of the Transatlantic Organization’s member states.
Although the years of war had started to become a fading memory in the eyes of the public and soothed over by the reconstruction efforts that came in the wake of Sanvu, relations with the Eurasian Union amicable cool at best, with there being little lost love between what had then been the young Transatlantic Organization and its Eurasian counterpart, and it was from such uneasy relations that some thought war might come again.

But there was a major issue that the unmodified generation that comprised its administration failed to realize, and one that would dramatically change international diplomacy as the Augments rose to power across the world.

At the start of the 2036 electoral season, John Grissom was one of many Augment politicians entering the highest arenas of American politics at the time, but he had been the governor of his home state of Michigan for some time by then and was the most experienced, but in those years of governorship he had helped to secure Detroit's restoration as a leisure city following the slow, withering death of Las Vegas, having personally met with casino proprietors, hotel chain owners and the like in order to see what their concerns and requirements were so as to help bring them to his city by making use of the city's temperate climate, resilient transportation network and cheap land to incentivize those who were quickly selling off their assets elsewhere to bring their investment to the state...and Grissom would succeed beyond all measure, the leisure industry bringing thousands of jobs to Detroit and resuscitating the dying city into one the nation could look upon with pride as one of the nation's first true Century Cities. Massive amounts of land that had fallen into the state's hands following bankruptcies, defaults and just through simple property abandonment laws was auctioned off at high prices to the developers who flooded to the city in droves in their bids to find ground for their hotels and restaurants and nightclubs, providing the funds needed to rebuild state infrastructure and to subsidize the gambling industry with the aim of bringing more investments to the state, and though it took sometime for the city to shake off the stain of its past, of how its name became synonymous with urban decay, Detroit would ultimately become what was known as the "Playground of the Americas" with the rise of the Transatlantic Organization. Raising his sights towards the national level with the encouragement of the many people who his programs and plans had lifted out of the slums and given meaningful work again, Grissom came out of the left field in the midst of what was simply the disintegration of the American political establishment. The Democratic and Republican parties, longtime mainstays of the government and the only parties to be elected to the office of President since Millard Fillmore in the mid-nineteenth century, were finally falling apart after nearly two hundred years of existence - though some would say that the increasingly Augmented groups that comprised them were the cause, their emotional strength making them more committed to their causes and thus less willing to compromise, others would instead point towards the electoral reforms that came in the wake of the Augmentation War as a result of the mixing of the nation's peoples through conscription as the sword that struck the killing blow and others still would say that is was the result of a combination of the both and that the voter base was tired of voting for the same two, similar parties over and over. Whatever the cause, the giants of the past were dying, and in their wake came numerous new groups rising from the embers: the Social Democratic Party, the Liberal Democratic Party, the Rockefeller Republican Party, the American Conservative Party, the State Power Party, the Federalist Party, the Christian-Mormon Alliance, all were but the start of one of the greatest political transformations in American history that saw the great battle between the two titans over the uncertain swing states transform into an all out free-for-all, a chaotic brawl where a single petitioner in the right place at the right time could swing a county. So extreme was the situation of the dozens and even hundreds of parties, some ranging from local township size entities to those that were state sized fragments of their parent, that the polls and media couldn't even begin to guess who would prevail, the disorder of the fall of the Democrats and the Republicans so recent that new major parties had yet to emerge from the struggle and find their footing, but some placed their bets on Mike Willinger, the aging Republican governor of Tennessee and one of the last few politicians of the prewar order and certainly the last Republican with the skill and charisma to hold
It was fertile ground for someone new and willing to reach forward into the chaos and try to make something of it, and that was exactly what John Grissom did. Starting his presidential campaign to much celebration in his home state, the former Democrat styled his new movement as the "United Front," with its symbol as a triangle of bricks, the left blue and the right red and the one above purple, which would become the party's color so as to symbolize its centrist nature.

The birth of a true centrist party filled a gap that had existed in the political system for some time and gave him access to a number of possible allies on both sides of the spectrum - and thus access to the bulk of the electorate's interests - rather than being forced to cater towards one extreme or the other, which could have easily cost him the fiercely competitive election. More than that was how it made him seem truly distinct from many of the other candidates who were, in some ways, the true heirs of the Democrat and Republican parties thanks to each holding a piece of the whole's original ideology and support base, but perhaps the greatest advantage Grissom had was that he was a known character, the experience and fame of being the Governor of Michigan working in his advantage and strengthening his position enough that other, smaller centrist organizations were willing to combine their efforts and join the United Front. This was John Grissom's main strategy for the first months of the season, and it was one that was desperately needed, as the polls revealed that the various parties were all splitting the same groups into a dozen different parties...and even with the electoral reforms that the United States had undergone after the Augmentation War, the system still operated on a first-past-the-post system where the individual with the most votes won, even if they represented a distinct minority of the total votes cast. By combining the small single digit percentages of the centrist voter base together, the United Front began to live up to its name, making the political center into a formidable block able to compete with the sundered remnants of the left and right wings, but the rules had changed; simply winning the election and achieving the majority of votes for any single candidate would not be enough to form a government, no, it had to be able to count upon the support of a majority of the Electoral College or risk having its victory taken away, and it needed enough influence to be able to form a coalition able to maintain control of the government and carry out its agenda, else their success would be meaningless. By the time this phase of the campaign was done it was already one fifth of the way towards the end of the electoral season, and from there came the next stage in his plan in the creation of an alliance that could unite the center-left and the center-right, all of which would require months of negotiations, meetings and compromises between the different blocks of the United Front. But for Mike Willinger, things were looking up as well, and the old Republican was doing well to rile up the voter base in his favor and in his attempts to reunite the
elephant, bringing the American Conservative Party and the State Power Party beneath his banner, constructing his own electoral alliance out of the three who would work together via strategic voting in order to try and secure their majority. Willinger was a by the book politician, a member of the old guard, however, and knew that one of the most important things in an election was to provide a clear distinction between one candidate by taking up opposite positions in order to show the electorate that there were real differences between the two and to thus draw in those who might have been more ambivalent about the elections due to the belief that the candidates were too similar whilst at the same time providing a clear, natural magnet towards which those who disagreed with his opponent's positions could go towards.

It was a textbook maneuver, and one he used well.

Recognizing that Grissom was the most dangerous and likely adversary due to his experience, connections and political viewpoint, Willinger built a counter party; where Grissom argued for a stronger federal government so as to be able to better coordinate the nationwide apparatuses of healthcare, law enforcement and the utilities, Willinger countered for increased devolution of power towards the states so that they could see to the implementation of federal schemes in their own unique ways tailored to each and every region according to local needs. Where Grissom stated that the corporations had grown too strong and were no longer afraid of the government and were thus more willing to test it ever more on worker's rights, Willinger said that reducing regulations on American business would allow them to work with a freer hand and raise their profit margins and thus allow them to expand and take on more employees, thus reducing unemployment. Where Grissom called for increased ties with the Transatlantic Organization in order to reap the benefits of their economic ties to the block and how it would give the American worker access to a market the likes of which had never before been imagined, Willinger claimed that the United States had been a superpower since the end of the Second World War without such foreign collections and that transferring power out of the nation to any authority, even to one such as the Atlantic Council, was to go against the very principles upon which the nation was first founded. There were even battles of character, with Willinger saying that the Governor of Michigan had lost his moral fiber with the transformation of Detroit into the heir of Las Vegas, questioning his integrity by attempting to link him towards organized crime, whilst he himself was targeted in reply as an old man out of touch with the general population and unrealizing of the issues that the nation faced in the present day. But John Grissom knew one thing. Willinger had gained much of his political experience battling unmodified politicians, and was moving according to a playbook about a different political atmosphere. Both had built formidable electoral coalitions, but Grissom knew the people in a way that Willinger never could, and began to use the Republican's own strategy against him. He endorsed the space agency as being a cornerstone vital to the nation's future and economy health, laying out plans to ensure that the nation's presence in the solar system would be expanded dramatically during his terms in office and that closer integration with the rest of the TAO would allow for the United States to establish colonies on Luna, Mars and beyond and usher in an age of economic prosperity. This was an incredibly difficult position to counter, as the rise of fusion power and the need for fuel had made it obvious to all that the future of the nations of Earth was in space, and so Willinger couldn't counter the point - he had to agree, else he would look exactly like the out of touch old man that people were afraid he might be, but if he did he would appear as though he was toeing the line of another politician and thus appear to be weak willed. Then Grissom took him on the right flank by endorsing the idea of a strong national military, not just as a guarantee of peace but as a means to stimulate the economy through its requirements for equipment and as a large scale employer that allowed men and women from disadvantaged areas with little economic activity to have a stable and respectable career, which again couldn't be countered from Willinger's side because many of the people who supported him similarly supported a strong national military as a source of national pride, and all this would result in the lead that Willinger had over Grissom for much of the electoral cycle shrink, point by point, bringing the two to an almost equal footing as the game began to settle down
and the chaos subsided.

Grissom still had his ace up his sleeve, however, one thing that came from an understanding of Augments that someone who wasn't one could never truly understand, and he saved it for the last of the debates. For much of the final part of the electoral season, there was the genuine belief that either of the two could win and that whoever won would be able to take up the pieces of the other's electoral coalition in order to strengthen their control of the government, and the debates reflected such things - the masses believed that Grissom was much more charismatic than his opponent and that he had a better feel for the mood of the crowd and for where their heart lay, but that Willinger was the more experienced and traditional bet, and for Mike this was perfect - he knew that the undecideds would usually go with those who supported the status quo on election day in order to avoid the risks that came with an unknown and so he believed he would win the election so long as he made himself stay both distinct from Grissom and appear to be the more traditional candidate. Everything came to a head in the final debate, however, when John Grissom brought up the topic of foreign policy, particularly with the Eurasian Union, and explained in depth his plan for a warm and reconciliatory approach towards the superstate and towards Khan Noonien Singh, saying that there is nothing to be gained and everything to be lost by taking a hostile stance towards their cousins across the ocean. Willinger, seeing a chance to strike a serious blow against John Grissom's campaign and to differentiate the two once more attacked this position with all the strength that he could muster, claiming that it was senseless appeasement, plain and simple, and John Grissom simply stayed quiet and watched as his opponent claimed that Khan was little more than a two bit tyrant pretending to be otherwise and that he would take a harder, firmer and outright confrontational stance against the Union and its leader.

John Grissom simply looked to the camera and nodded slowly when the tirade was done, and though Mike Willinger walked away from the podium believing that he had just won the election, brushing aside the worries and complaints of his coalition members as nothing but frayed nerves brought about by the stresses of keeping up with the electoral trail, and when the voting took place a week later, Mike Willinger watched the results come in with a warm smile...one that soon turned to an expression of utter horror, for to say that he did badly in the election would be an understatement.
John Grissom had done the unthinkable and carried out a fifty state clear sweep, with over seventy percent of the popular vote behind his United Front thanks to the almost unanimous support of the Augment voter base, and the cause was simple: he understood what Mike Willinger couldn’t, and that was that all Augments were genuinely fond of Khan Noonien Singh for being the one to give
them their augmentations in the first place, viewing him as what could only be described as the founding father of their kind and the guardian of genetic engineering - one of the few factors that united the rising Augment generation, as universal as their immense range of emotions. To attack him then was to be seen to attack the science that had created all the world's Augments by extension, that had brought the world a bounty of food beyond anything that had ever come before, and this would have been known to him had he looked not at the polls towards the election, but at those that asked the new generations what they thought about the Augmentation War, where the results were overwhelmingly in favor of the belief that the United Nations and its coalition had been in the wrong, that genetic engineering was not the evil that they had claimed it to be and that there should never have been a war in the first place. Even Mike Willinger's home state and his own coalition members had turned against him, with the State Power Party being the first to break off before being followed by the Christian-Mormon Alliance and the American Conservative Party as his New Republicans fell apart, its heart torn out by its own leader, and moments after phoning his opponent to give them his congratulations on a campaign well fought, he gave his official concession speech and at the same time announced his retirement from politics, saying for all to hear that he felt as though he now needed to make room for newer, younger talent. With that he stepped out of the limelight, and no unmodified individual would ever run for the office of President of the United States of America again, the unmodified population aging that little bit more with every day that passed and becoming an ever shrinking minority in the face of a swiftly swelling Augment voter block, which would be revealed in later years to not be so nearly united when both candidates were genetically modified individuals. But with the inauguration of President Grissom, whose election owed no small percentage of votes to his plans of warming relations with the Eurasian Union and furthering their connections to the Transatlantic Organization, there was then the task of carrying out such things, and though the latter was a simple matter of scheduling a number of meetings and ordering the nation's representatives on the Atlantic Council to take a more proactive role, the former was considered to be less certain, as there was little idea of how Khan Noonien Singh would react to their overtures or even how the rest of the Transatlantic Organization might react to one of its most important members trying to do so in the first place. Relations between the two superstates were warm thanks to Sanvu, but little more than that, but there was no real direction for where such warmth could go next, or any plan whatsoever for that matter, as there were no historical precedents to be referred to for when a pair of superstates interacted with one another, and the unmodified leaders who led the Transatlantic Organization alongside him advised caution, looking back to the Cold War of their past for an idea of what might come when two mighty but different blocks interacted with one another. This meant that the diplomatic arm of the government's first task was in drawing up a means of approaching the Union and in building up mutual interests...

...which made the invitation written in Khan's own hand that John Grissom received to tour the Eurasian Union at his side all the more surprising. For many years, Khan rarely ever met with leaders who were not Augments themselves and certainly not those who were outside the union, always sending one of his most trusted diplomats in his stead, but the rise of an Augment leader outside of the Union and in a nation that had once been the most dangerous of his enemies had changed that policy, and so when President Grissom embarked on his first official visit to a foreign power only three months after his inauguration, he did so with the entirety of the Transatlantic Organization watching with the utmost attention, hungry to know what had brought about this change: was this a show of force hidden behind a veil of courtesy? Was Khan feeling threatened? Was this about to be the start of war between leviathans? Was this the reveal of a plot to put a puppet in the heart of the TAO? Or did Khan genuinely desire friendship with the Transatlantic Organization?

Upon his arrival in New Delhi, the wartime capital of Khan's domains and now the beating heart of the Central Asian Precinct and the closest thing that the Eurasian Union had to a central capital, the roaring adulation of the crowds for him, a greeting like that given to a long lost son who had finally come home again, made it clear. The Eurasian Union had no hostile attentions towards the United
States or the Transatlantic Organization, no, they viewed them as a friend, grateful for their aid in recovering from the damages of the world's first hypercane and delighted to see them embracing the genetic sciences at last, and to them, relations between their countries were already excellent - having an Augment elected as leader of the United States was but an added bonus to what they saw as an age of peace and prosperity. Things became even more clear when the two finally met each other not long later that day for dinner, where things were initially somewhat tense between the two but which swiftly softened as the initial greeting subsided and as matters turned towards the elections and the things that Grissom would be taken to see as the Eurasian Union's guest of honor, from laboratories where those scientists who fled the anti-augmentation purges in the west had fled to continue their research to cultural sites that few outside the Union had visited since the end of the Augmentation War to battlefields where many thousands of men on both sides had lost their lives, the two leaders resolving to ensure that such things never happened again. Khan even explained to him why he chose not to meet with unmodified leaders in the nations of the Transatlantic Organization, and the answer was that he simply desired a fresh start with those who had been on the other side of the war, that the prejudices that had resulted in the war themselves were still there, and so the best way to ensure that they didn't take his hospitality as a sign of a devious plot was to simply never extend the invitation in the first place...which led the newly elected president to realize that the very caution his unmodified counterparts on the Atlantic Council had urged was the one thing holding the two superstates away from one another. He would spend over a week there, accompanying Khan Noonien Singh around the Union and seeing the lives of its many diverse peoples and how they lived in peace and in that time the two became fast friends, the two agreeing on many things and most of all on the matter of how their respective countries should interact with one another as friends, even if some few still refused to believe in Khan's desires for a peaceful future, trapped in the past and clinging to old ideals and beliefs even though the world was moving on..and as an augment himself, John Grissom could see that he was truly sincere in that belief, understanding that he already had that which he wanted most in the love of his people and their acceptance of his ideals and beliefs.
Khan Noonien Singh waves towards cheering crowds from the upper balcony of a new three floor gene-garden in Bangkok that he had given President Grissom the privilege of opening. Although the Eurasian Union was not a democratic nation, Khan placed great stock in the opinions of the masses and what their issues and complaints were, something that would be mimicked in the government that he designed and which would only serve to ingratiate himself to the loving and loyal public all the more.

Returning to his homeland with this message of peace, many on the Atlantic Council doubted his words, some believing that perhaps the newly elected president had been under Khan's sway from the very beginning as a sleeper agent in the heart of the Transatlantic Organization or had been coopted in his visit as though he was a common spy, yet such suspicions were not shared by the general population, who had followed the president's tour through the Union with great interest that had led to a marked increase in the number of tourists travelling between the two states...and such suspicions would not remain amongst the members of the Atlantic Council for long either, as the inauguration of President John Grissom was a sign of the changing times, that the first post-war generation had truly come of age and were now ready to take up the mantle of their predecessors and become leaders in their own right. Many of the unmodified members of the Atlantic Council would be replaced by genetically modified men and women, either losing their seats in the elections or simply retiring and allowing someone younger to take their place, and the result was not merely reconciliation between the world's most powerful superstates, as such had already been brought about by the reconstruction work that had came in the wake of Sanvu, but in what was but a few
words away from outright alliance between what were the greatest two of mankind's nations, an
international brotherhood that saw the risk of war between the colossal states become recognized by
the population at large as a thing of the past, an impossibility that could only be speculated at by a
few fiction writers who styled themselves as portraying a "near-future" conflict that was all too often
stirred up in their stories by unrealistic conflicts and situations between the two and which almost
always overlooked the sheer magnitude of how intertwined the Eurasian Union and the Transatlantic
Organization became: by 2060, cans of American corn, bags of Colombian coffee and fresh
Caribbean fruits were all imports that could be found on the shelves of Eurasian stores, just as fine
Polish sausage, sacks of Cambodian rice and bottles of the best Chinese wines from Ningxia could
be found on those of the Transatlantic Organization, helping to make those large communities of
expatriates feel more at home as many thousands of people migrated from one state to the other,
drawn by the opportunities that they presented. In the Eurasian Union, natural speakers of the
English language who had honed their skills through years of higher education were prized by high
ranking diplomats, wealthy businessmen and prestigious universities as tutors, whilst it was never
hard to find a lawyer who was a son or daughter of the Eurasian nation in any major city of the
Transatlantic Organization, ready to interpret and explain the nation's legal code and structure to any
who had need of such knowledge, alongside the army of engineers, scientists and doctors who had
gone from one to the other in search of new experiences and new peoples and brought their
knowledge with them. Even more common were the tourists, those many millions who made the
journey from one superstate to the other each year, whether they be Eurasian families heading to the
famous theme parks of Disney and Lego lands in the Transatlantic Organization, with many
preferring the original locations more than the ones that had been built in their homeland and
claiming that they were more authentic an experience, or those from the TAO who came to the
Union to visit the ancient wonders of the land such as the Great Wall of China or the Terracotta
Army or the Forbidden Palace or the thousand other sites of splendour and beauty. Such cooperation
and friendship extended well beyond the Earth's atmosphere as well, as was shown when an
Eurasian patrol ship protected a TAO interplanetary freighter from an attack by a corporate corsair
but sustained a breach to its primary fusion chamber, which would have rendered the ship adrift but
for its maneuvering thrusters were it not for the TAO vessel coming about and towing the ship to the
nearest friendly port for repairs, and shown again in the Secessionist Crisis where TAO and Eurasian
troops fought side by side to break the Siege of Olympus Mons and again on the northwards thrust
that took the war to the pole.

But that was not to say that the two superstates ignored one another's presence, for they truly didn't,
but instead of battling for supremacy by arms, they did so through friendly competition: at the
Olympics where the superstates fielded armies of competitors and where the power of the Augment
body was on display for all to see, at the Grand Prix where national teams put so much stress on their
vehicles that they were simply replaced when the race was finished due to being so heavily worn
down, the World Cup of 2042 where the Eurasian Union's precincts came in as separate teams to
match the numbers of the Transatlantic Organization's own and where the Miracle of the Pitch took
place in the finals when the East European Precinct's onslaught through all competition - even that of
their own countrymen - was finally brought to a halt by the Dutch team at 3-1, but more than
anywhere else, the greatest competition of all was in the scientific and engineering arenas. With
many thinking of the era as being the Renaissance or the Victorian age come again, there was an
enormous emphasis on the scientific prowess of a nation, which simultaneously demonstrated the
strength of its educational system and the prowess of its industry, and such competition was heavily
encouraged by the superstates themselves who so often benefited from the sparks of the clashing
ambitions of their best scientists, engineers and inventors, for whom fame, wealth and glory were but
a World's Fair away. It was common knowledge of the critical role that technology had played in the
battles of the Augmentation War and in its ultimate climax in the release of the Ascension Flu and the
mass modification of all mankind, but even before then it was well known of the benefits that a
technological advantage gave to economic competitiveness, and yet it was neither for a military
advantage or an economic one that drove this competition forward, but a battle of prestige between
titans to demonstrate their superiority through feats of technological capability rather than in shows of
force, sometimes compared to children trying to see who was the best at their games...and yet for all
the seeming innocence of it all, for all the benefits that it brought the world, it was an anvil that wore
out many hammers. The race between the superstates had placed immense pressure upon those who
aspired for the fame and glory that came with success, even more so on those who wished to become
the latest recipient of the Nobel Prize, leading some brave and daring few to tread forward into
unknown grounds all the quicker so as to be the first to lay claim to the discoveries that laid in wait
beyond the horizon, with their nation's watching with bated breath to see what might come of their
research. Such pressures would cost Dr. Susumu Oshiro his life, the Japanese scientist so desperate
to bring his quantum translocation device to a fully operational status before the Eurasians could do
the same so as to dare to test it upon himself on the greatest distance yet with tragic results. But if the
scientific field was where the true war for prestige between the superpowers was raging, the one
place where they might truly see one another as competitors rather than as brothers and sisters, then
the greatest challenge of all challenges was in the terraformation of Venus, whose technological
challenges were the Space Race of the mid-twenty first century, massive barriers that demanded
nothing less than absolute mastery of the materials sciences, chemistry, geoengineering, meteorology
and astrophysics. It was a cooperative project between superstates, for not even the titans of Earth
could hope to terraform a world all by themselves, but that only served to make the competition all
the fierce, as they now all had a shared goal upon which to focus their efforts and attentions, where
their progress could be directly compared against one another at all points, even if the final result was
to be for the benefit of all mankind.

And yet, even with the race to make the biggest contributions to the terraformation of Venus, the
superstates had never forgotten how to work together, how to combine their efforts for greater
results...and how to recognize when there was a situation to which none of them were suited on their
own. The Secessionist Crisis, although relatively short lived and easily dealt with, had highlighted
potential issues with the colonies not having a true means to be able to voice their concerns to the
nations of Earth, something that had cost many men and women their lives on the red world in the
name of freedom, whilst the rise of the Mercurian Precinctual Republic had revealed that Earth was
willing to reason with the rest of the solar system whilst at the same time showing that its grip was
not entirely absolute. It was these things, the recognition that there needed to be an open arena for the
colonies to communicate with Earth and to raise whatever concerns or proposals that they might
have, a place where the voices and views of all mankind could be applied to the resolution of issues
that affected all of humanity that would give rise to a new organization.

It was to be called the Solar League.

Two flags of the Solar League, both created in the early years of its existence whilst the organization
was still within its first two years of existence, with the left flag being that of the organization on the
day of its founding, referring to its predecessor in the form of the League of Nations, carefully
mimicking its pentagonal shape and layered stars, only with new meaning: each side of the pentagon
referred to one of Earth's five continents whilst the black star represented the uncharted and uncontrolled nature of space and the white star humanity's expanding control. After a few years, however, this flag would be replaced by the one on the right, an original design that placed the astrological symbol of the Sun at its center, surrounded by nine stars, one for each of the planets and with a larger star for Earth as befitting its status as the homeworld of all mankind.

Although its name conjured up images of being an heir to the United Nations - despite the fact that the word "league" was deliberately chosen to avoid reference to that failed organization, as it had become somewhat tainted by the bloody battles of the Augmentation War - and yet it was both more and less than the organization that had died in 1996: it could not draft legislation or international law on its own, only refine that which was proposed to it, and yet it was to be the parent of the international legal courts whose responsibilities now spanned a solar system and who needed to coordinate between asteroids a hundred thousand miles apart from one another, a place where colonial settlers could speak of the misdeeds of their corporate employees freely and without fear of repercussion so that the superstates might learn of it and act, a place where disputes over the rights of the colonies could be settled without bloodshed and where colonial claims could be drafted so that the superstates could avoid coming into conflict with one another over confused borders. It was an incredibly loose organization in comparison to its predecessors, deliberately so to avoid repeating the failings of the United Nations, more akin to the League of Nations in its roles and responsibilities, and yet it played the seemingly vital role of ensuring that the colonies never need to feel abandoned or neglected by Earth, with the hope that such things would ensure that there would never be another revolt of such kind again. One of the League's first acts would be the one that would creation and unanimous passing of the Civilian Shipping Safety Act in 2057, which set in stone the system-wide protection of civilian merchantmen as noncombatants and as protected entities under the law, rendering all attacks on them by corporate corsairs as acts of piracy and creating a unified legal approach to all corporate corsairs, marking the end of the golden days of such in the outer system once and for all, whilst also including provisions to help ensure the safe working conditions of freighter captains and crewmen by providing a maximum amount of hours that they can spend in low gravity conditions a year, the mandatory incorporation of radiation sensors into space suits and all ship sections no matter the size, fit-for-service inspections on the craft themselves once every two years in order to ensure that the ship was operating in a safe manner, the mandatory placement of at least three months of emergency supplies upon every ship and, lastly, the official recognition of distress signals in law, meaning that answering them and either performing rescue operations or relaying the message onto the nearest patrol ship was enshrined in law, and to do otherwise would be to break the law. Many of these sections, such as that covering the stocking of emergency provisions, were already a de-facto standard amongst ship operators anyway, with many often doing double what the law suggested by storing rations that the superstates had released from their stockpiles and tanks of purified water, and many made modifications to their ships when necessary to add blocks of sensors that could detect ionizing radiation and which could be bought in bulk at any serious trading port for less than a hot meal.

Yet now they were a law that was genuinely enforced, one that would mark the beginning of a new era: the proactive expansion of Earth's government and law beyond its atmosphere and throughout the entire solar system.

****
In many ways, the twenty first century was a battleground of beliefs and ideas, a time where the instantaneous communication that the Internet offered allowed a small few people scattered across the world to organize with one another and give birth to renewed movements, a time of secessionists and loyalists, a time of superstates and corporations, a time of one generation giving way to another. It was a time of battles brought about by a war for humanity's future, and one of the first casualties of this war was the age old prosthetic limb. It had been a matter of standard medical practice for years and even centuries for missing or deformed limbs to be replaced by artificial prosthesis intended to bring back even a small portion of the lost functionality, with tales and records of such surgeries and replacement limbs dating as far back to the Second Punic War where Pliny the Elder wrote of a Roman general who had lost an arm only to have it replaced by an iron hand suitable to hold his shield so that he might return to battle, and there were stories and even physical evidence of such replacements going back long into the prehistoric era. The idea of cybernetic prosthesis had been around for much less a period of time, but had swiftly entered the public imagination through science fiction media and spawned an entire genre of such works in the form of a "cyberpunk" setting, tales that often featured artificial limbs that not only replaced lost limb function but enhanced it, allowing for greater strength, agility and incredible abilities well beyond the scope of what the human body could allow, with some works of fiction going further as to describe a battle between three forms of human enhancement: through the use of cybernetic limbs and artificial intelligences, through biological transformations brought about by genetic engineering and the implantation of artificial organs and the pharmaceutical path that called for the use of stimulants and other such medicines to enhance the abilities of an unmodified human being to unprecedented heights. But by far, the most popular of them all was the idea of human cybernetics, of a melding of man and machine, and for many years progress in such a field of technology had been steadily increasing, with the simple limbs of the early twentieth century growing more complex and motorized to allow for an ever increasing level of function and dexterity...and yet the early twenty first century was nothing but a death sentence for the entire prosthetics industry, from those businesses that machined replacement joints for the elderly to those that created artificial legs with silicone covers for wounded veterans, all of which found themselves under assault by biotechnology on all fronts. As the first post war generation of augmented individuals began growing into adulthood, the first portents of doom for the industry were already becoming apparent - all Augments, no matter where they came from in the world, hadn't any of the genetic diseases that might have plagued their forebears, including those which might have caused them to be blind or deaf from birth, and in general had a much stronger regenerative ability that combined with the progress of the surgical sciences to allow them to recover completely from accidents that might very well have permanently disabled an unmodified human, as was well demonstrated by their ability to recover from spinal injuries with but a minor loss of sensory perception in the affected limbs. This was already a major blow, but one that was exacerbated by a series of ongoing struggles that had long plagued all forms of complex prosthesis since the dawn of the technology that had made them possible - the miniaturization of the components necessary to provide a level of strength and agility comparable to that of the natural limb and the storage of sufficient energy to allow the prosthetic to function for enough time that the user would be able to live a normal and comfortable life. Both of these challenges, however, paled in comparison to the greatest of them all: the development of a device able to convert neural impulses to and from the binary that the electronics within the prosthetic used, which would theoretically open the door to the natural movement of artificial limbs and make it possible for the user to feel the surface of an object as though they were holding it with living, organic hands.
All of these things were deemed necessary for future artificial limbs and comprised a map for scientists, engineers and technicians to work towards...yet biological limbs had no such issues. It was a race between the two for technological supremacy, a battle of flesh against steel, yet it was one that saw nature making advances that not even the most complex cyber prosthesis could hope to match. While artificial limbs required an extremely precise process of machining and design work in order to make an exact fit for the user, taking many hundreds of manhours for a single arm or leg, biological limbs could be easily created through the use of a simple 3D printer to create the scaffold necessary for the organ's proper function before taking a sample of the recipient's cells and inciting them to differentiate and grow to recreate the entire organ, a process that would eventually complete itself without any further input by the doctors monitoring the procedure so long as the supply of necessary nutrients continued without interruption, only taking a few hours a week to inspect the sample to ensure that it wasn't developing any anomalies or teratomas, a form of cancer that occurred in one in every thousand vat grown organs due to the stress of such rapid replication where the cells would differentiate themselves wildly out of control and start creating clumps of hair and skin and even teeth, all of which could be easily detected during the growth process and cause the organ to be rejected long before the patient is endangered. Temporarily fitted prosthesis that were not integrated directly into the bone and thus allowed to be removed at certain times of the day often resulted in chafing against the skin and the user abandoning them for that small bit of extra comfort in their day to day lives, whilst those that were permanently affixed into the bone itself could cause dangerous infections, whereas organic replacements once fully integrated into the body would be as comfortable and as healthy as the original limb. Where metallic limbs of even the most basic construction suffered from a wide variety of technical issues such as the expansion and contraction of tissues affecting their fit and would eventually require replacement after several years of daily use, a vat grown replacement limb would have no such issues but the occasional bout of xenomelia, a brief neural issue that was the opposite of that of a phantom limb and where the mind briefly "forgets" that the limb has been replaced after its loss, an issue that can often be treated simply by massaging the back of the affected hand or foot. All these were but a handful of the reasons that biological limbs were simply driving their mechanical counterparts out of the marketplace the way the Baird television had given way to the cathode ray tube, with a growing number of doctors and nurses, augmented and otherwise, saying that the use of artificial limbs was a dead field of study, one made utterly obsolete by the technological advances of the present, comparing it to the practice of using whiskey to "anesthetize" patients before a surgical procedure. Such feelings were reflected more and more amongst the businessmen and women of the world as well, who increasingly came to view the field of mechanical augmentation as unworthy of their interests, and there it was that the killing blow for human cybernetics was struck - not in the transhuman battlefields of the future that many works of fiction had predicted for so many years and not in a competition that saw one lose to the other with grace and dignity intact, but in the boardroom where trends showed that mechanical limbs were losing ground amongst the disabled and that there was simply no way to make them competitive in a reasonable timespan and that they were simply going to be wiped out by the life sciences before they were able to turn the tide.

And just like that, mechanical prostheses began to fade away as the businesses that manufactured them transitioned over to the biological sciences and created growth vats of their own, with the last one being made in the autumn of 2039, for a French veteran who had lost his left arm from the elbow down and who refused to have anything to do with biotechnology or Augment doctors, the field finally dying after a long decay that had come from an unsolvable issue that had plagued it since its inception and long before the creation of anything that could surpass human ability...and yet some few would remain in the field and cater to an extremely specific and limited clientele, for whilst outmatched in the field of prosthetic limbs by the genetic industries, there were some things that not even the greatest of biologists could create, things that nature was simply incapable of doing, and in there came a renewed purpose. Tiny data vaults as thin as the surface of a fingernail and not much larger were able to be filled with many terabytes of data through the means of holographic storage,
simple and innocent enough devices on their own, but if they were properly contained within a medical grade titanium shell they could be used to record many hours of high quality footage before being embedded directly into the user's own body and concealed from the suspicious by the living flesh all around. Such methods were what the secret agent of the twenty first century used to conceal their findings from prying eyes, corporate spies able to copy hundreds of their rival's blueprints and financial records and schedules onto their drives before using disposable injectors to insert the archive beneath their skin as they made their escape, almost impossible to detect but by the most advanced of the world's sensors.
A model of the last artificial arm ever produced, the prosthetic above used dozens of pneumatic artificial muscles able to expand and contract on command tethered to the fingers and palm through dozens of small cables that acted like artificial ligaments, providing a range of movement and
dexterity similar to that of organic tissue, if perhaps a fraction slower and in more delicate a manner due to the vulnerability of the materials to wear. Powered by a small enzymatic biofuel power cell and equipped with a rudimentary neural interface, it made it possible for the wearer to be able to control it by active thought and feel the surface of whatever the fingertips touched, as demonstrated above with the delicate grip of a lightbulb. Considered a technological masterpiece far ahead of anything that had come before, it would be the final sendoff for mechanical limbs.

Yet whilst the failure of the prosthesis industry to adapt to the changing times affected but a small few, there was an area where the failure of technology to advance would have an impact that would be seen across the world in the form of the Great Computer Crash of 2053, a failure that was the result of a lack of progress made a thousand times greater by the atmosphere of the Second Renaissance, its peoples ever determined to see forward progress in all things. Since the development of the transistor in 1947, the power of the computer had gone upwards at a pace that had only grown all the swifter as time had gone onwards, with Henry Starling's invention of the isograted chip, the backbone of all modern computing, making it possible for every home to have a cheap and powerful computer and clearing the path for the rise of the Internet, which itself would bring the immense wealth of human knowledge to the fingertips of the masses in the form of the greatest too of education and learning that had ever been devised by man and which meant that people on the opposite side of the world were but a few keystrokes away. It was without a doubt one of the greatest technological innovations of the twentieth century and one that would change the lives of all in a way that was almost an equal to that of widespread genetic augmentation, and yet for many years the greatest computer scientists and engineers had claimed that the benefits of the Internet would pale in comparison to that of the birth of the first artificial intelligence, a synthetic mind that they claimed would possess a means of processing information a thousand times greater than any human or Augment, a digital god whose presence would forever alter the course of human history and either usher in a golden age where the machine would use its power for greatness and aid the humans who would be closer to pets than equals or the darkest age in history if it decided that it had no need for its creators. Like fusion energy, it had been something that all the great computer corporations had been working towards for a long time, claiming that even the smallest steps on the road towards a true, strong artificial intelligence would give massive benefits to human society, with some amongst such groups as the International believing that the rise of artificial intelligence would usher in the age of communism, as an AI would have no need for greed, material gain or anything of the sort that might hamper a human leader, thus making it the perfect ruler, a benevolent dictator who could see a thousand years into the future through the limitless power of its projections and calculations. It was something shown in fiction as something capable of both good and evil, with some few theorizing that first artificial intelligence to be born would have such immense power as to be able to go through the wealth of data that was the Internet with such terrifying speed as to know all that was knowable about every single human being on Earth thanks to the existence of military and financial systems as well as medical and governmental records that would allowing it to easily locate those who were opposed to its existence in the days before its rise and then eliminate them, but more than that, they looked to its apotheosis as the opening of the gateway of technological transcension brought about by the AI improving upon itself, recursively and forever and bringing forth an age of instantaneous technological progress: the singularity. All this were the promises of those who believed that artificial intelligence was forever but a few years away, that the computers available at the time simply lacked the power necessary to give it life, that the right technique had yet to be developed, that there was still but one missing piece of the puzzle, that they needed enough power to equal the human brain, to surpass it and a dozen others, that progress was coming but slowly - all these were the things that such men and women said to explain the lack of progress that was being made, and all these excuses were accepted for a time. Fusion power had taken many years to show the first hints of progress and even more to become a commercially viable form of power
generation, yet alone the backbone of the world's energy infrastructure, and so many were willing to wait, to give more investments into the field and reap the rewards that came in the form of the self-driving car that could drive them to and from their homes without them ever needing to touch the steering wheel and with no chance of an accident, the smarthouses that could forever maintain their exact temperature and light level to the precise amount that their resident desired and their alliance with the automatic drones that were entirely able to fly to the shops and bring them their groceries according to what was in the fridge or not...

...and yet despite the investments of billions of dollars that came from both businessmen interested in the potential that smarter computers might bring and the research grants of the superstates seeking another way to demonstrate their technological prowess, nothing came of it. Artificial intelligence had been boasted of as being something surely soon to arrive since well into the nineteen fifties, and yet fifty years later it still seemed as far away as it had been fifty years before and as it would be another fifty years ahead in 2050, where the masses began to realize that the dream of the singularity was exactly that, a dream, forever out of reach of the masses. A century of work had made much progress in the development of smart computer systems, but they were expert systems that could respond to situations that they were programmed to account for, so whilst a self driving car was able to navigate through the streets with immense ease, it couldn't account for the random situations that came on the race track, a situation that was well outside the context of what the machine was designed to do and where not even the best self-driving car even come close to matching even a new and inexperienced racing car driver. Expert systems that understood musical theory well enough to be able to make compositions of their own that were pleasant to the ear and which could be performed by any orchestra did not understand why such music was made, only how to make it, and there lay the revelation that wounded an industry and killed a dream: despite all the progress that had been made in learning computers and all the investments and time and effort that had been poured into the work, no one had been successful in making a machine that could truly think for itself and put meaning into the actions that it did. The computers never looked to their creators and asked if they had a soul or what their purpose in life was, they simply never asked, always the worker and never the thinker, never able to do anything more than that which it was programmed to do, never able to aspire for something more, their purpose only what humanity made it to be and no matter what the engineers of the world did, they couldn't give life to a machine. Something was missing, something that they couldn't determine, a spark that would transform raw processing power into intellect and turn software into a mind, yet none could determine what that missing spark was - how could they, when humans had been puzzling from the moment they had first looked up to the stars and dreamt of what might be of what it was that had given man himself thought? Time and time again they would try with different methods, even going so far as to attempt to emulate the human brain in order to see if there was some unique function hidden within that would give their creations what they could not, and yet each and every time they were met with failure as even the most powerful of the world's supercomputers failed to give rise to sentience, simply becoming immensely powerful and swift databases that could give an answer to whatever it was that the user asked for so long as the data was within and nothing more, devoid of any imagination or ingenuity or emotion or any of the things that made a human a human. Some men and women of faith would look to these repeated errors as ultimate proof of what they had preached so many times before, that there was something more to men and women than met the eye, an immortal soul that could not be replicated by human hands no matter how ingenious they might have become and that only the divine could give life. More than a few accepted this reasoning, with Pope Celestine VI (the first ever genetically modified Pope, having taken up the mantle upon the death of his predecessor, Paul VIII, in 2052) using the inverse of the reasoning he used to show the Catholic Church's support of genetic modification technologies; if God didn't want Mankind to possess a technology or an invention then it wouldn't have been invented at all, so surely the failure of even the world's best and brightest to create artificial intelligence was surely proof that Man was not meant to have such an ability. More than that, the lack of results in the form of the failure to develop even weak artificial intelligence was
finally stressing the patience of even the superstates who were entirely able to simply pour funds into such uncertain forms of technology due to their sheer economic size, and when they finally dropped their support of the project in the wake of a growing number of the foremost minds in the fields finally stating publically that artificial intelligence of any form was surely impossible, the investors lost faith and abandoned the field, pulling out their investments and selling their stocks.

Artificial intelligence was dead before it was ever born, its failure did far more than simply end an idea, much more, for on the third day of February, 2053, the computer market went into freefall. It was Black Monday, the start of the Great Computer Crash of 2053 where many millionaires and billionaires would lose all that they had in but a few hours of firestorm trading, and it was caused by a loss of confidence in the industry and a belief that the public had been lied to by the industry that had promised time and time again that they stood on the cusp of a new era. Computing giants who could trace their lineage back to the tabulation machines of the Interwar period and who were decades old by the founding of Chronowerx began to collapse under their own weight after years of over inflated stock prices brought about by the misguided belief of marketeers that they were more valuable than they truly were, and even those businesses that had thrived in the post war era and built their fortunes in the construction of the Internet backbone found themselves struggling to stay afloat. Men and women threw themselves from the top of the New York Stock Exchange after losing every last cent they had of what had been millions, one of Eurasia's richest entrepreneurs hacked the engine limiters of his hypercar before taking it onto the continental motorways with three bottles of gin in the passenger seat and took it to transonic speeds before being killed in such a catastrophic accident as for man and vehicle both to be scattered over twenty miles of straight road with no piece bigger than one's palm, whilst the wealthiest investor in the entire solar system, Alice Page - whose wealth brought her close to being the world's first trillionaire and whose fortune was built entirely from the technology corporation that had been handed from father to daughter years before and which had acquired so many of Chronowerx Industries' precious patents - simply deflated the hydrogen balloon that held her Venusian villa afloat in the atmosphere and sat in her living room to be swallowed whole by the depths beneath whilst drinking a Chateau Picard and listening to Antonín Dvořák's Slavonic Dances Op. 46 No. 7 in C minor as the habitat began to disintegrate. It was the biggest market crash since the first Black Monday in 1987 and was kept from becoming the second Depression only by the intervention of the superstates themselves, as the failure of the computing industry to push forward had brought down the telecoms sector with them, with AtlantiCom, the largest internet service provider inside the Transatlantic Organization, saved from complete collapse only by a massive government bailout and the support of the banks that were horrified at the risk of such a collapse spreading any further, whilst the Eurasian Union stepped into the stock exchange and simply bought up everything that they could get their hands on, nationalizing their failing tech industries in the crudest manner in order to keep them and the hundreds of thousands that they employed afloat whilst at the same time stopping many of their investors from losing everything they had by giving them fair prices for their stocks...a trade that would ultimately earn the state a profit six years later when it auctioned off what it had bought for ten times the price before giving the proceeds back to the population. But by the time that the markets had stabilized again with the passing of the worst of the Great Computer Crash of 2053, the damage had been done - although the effects of the collapse had been contained in the tech sector of the economy and prevented from spreading further only thanks to direct government intervention, there was little left of the tech sector, with many of those businesses that had once been the titans of the computing industry now reduced to shadows of their former glory, slowly working to pick up the pieces.

And yet, like a forest fire making way for new growth, the Great Computer Crash had cleared the way for new competitors in the market bringing forth novel solutions that would have previously never been able to compete against the entrenched enterprises of the pre-crash market, allowing companies like the small Japanese electronics company Yoshimitsu Computer Systems who had previously manufactured little more than calculators and the automatic navigational systems of self-
driving cars to rise to the foreground in what had finally become a level playing field, emerging as a market leader thanks to their invention of quick write holographic storage drives able to store ten times the data of the largest hard drive and do so at a much greater speed, making them far superior to their predecessors in every application, from mobile phones and personal computers to floating habitats and fusion ships. Even though Moore’s law and its promise of doubling the number of transistors upon an integrated chip with every iteration was starting to crumble, there was thought to still be many more years of life left before a new technology would need to be found to keep up with humanity’s growing demands for more and more processing power, but it was not the slowing progress of computer science in the wake of the Great Computer Crash that was the greatest change, and nor was it the rise of new businesses to take the place of those that had been lost, no, it was the public revelation that a machine would never be able to match human intellect. It was entirely known that there might come a day when a computer would have superior processing power than the human brain, but without a thinking mind to go with it the raw power was useless, simply a clay to be shaped by human hands into whatever was willed of it, as much a tool as a blowtorch or drill and just as meaningless without a human to command it...and such feelings bled into other areas as well. Artificial intelligence was not only impossible to human science, but increasingly undesired by the population who saw the attempts by those past few to teach machines to make music and write stories as simply missing the point entirely, for what was a song or a story without the trials and tribulations of its creator in their struggles to make their their dreams a reality? Without the many hours of hard work that was necessary for them to perfect their art and to create that which was heard and read? Without the emotion that they had poured into its every note and every word? Such questions had an answer that was unique to the one that had been asked, but almost universally amongst all mankind was the belief that the work of a machine was less for not being the work of a thinking being, no matter how sweet the song they sang might seem, and so the idea of creative machines drowned in a sea of indifference. But this feeling of meaningless extended to far more than just artistic productions, but to everyday items as well, with polls and surveys revealing that the average Augment consumer was happier to buy something that had been made by another Augment due to the understanding that they were providing them with meaningful employment than to buy something that had been produced by a machine, as well as being more confident in the quality of the item and thus willing to pay more: one example of this came in the form of a simple pair of washing machines, which despite coming from different companies both famed for their reliability and quality and were practically identical in both function and form, only that one was made by a mostly human work crew and the other by an almost entirely automatic assembly line and cost nearly fifty ASC less than its counterpart.

Yet it was the more expensive, human made machine that sold five times as many units as the one that had been assembled by robotic means and whose users were more satisfied with its performance.
A painting of the American folk hero John Henry, a "steel driver" who had the job of hammering steel drills into boulders in order to create holes for blasting charges. Competing in a race against a steam hammer in order to see which could drill the most boulders possible in the least amount of time, he would die as the victor after nearly two days of nonstop hammering and become a cultural icon of human dignity and ability in the face of mechanization.

Seeing genuine evidence of the power of human labor and the effect of a man made item on the marketplace, the corporations of the world began taking serious interest in the possibility of - in what was considered by many to be a delicious irony - replacing their factory machines with human workers as the average Augment machinist proved themselves to be more productive than the machines that had driven their grandparents out of the workforce in the automatization boom of the late twentieth century. This was something that could only truly be found in the consumer goods industry, particularly in the production of furniture and everyday items such as household appliances and vehicles, as steel foundries, chemical refineries and pharmaceutical plants had all benefited so greatly from the process of automation as for it to be impossible for anyone, even an Augment, to be able to turn the tables and take back the workplace, yet in those places where it occurred the power of a genetically modified body became as apparent as it did on the grounds of a military base or on the sports pitch: the same strength that allowed an Augment to wield a larger weapon and carry more body armor allowed them to safely operate larger and more powerful tools than their unmodified predecessors, whilst their agile hands and quick reactions allowed them to keep pace with the rapid pace of the modern workshop and even having the benefit of being able to learn better and more efficient means of work that no machine could ever do, meaning that whereas even the best machine
would eventually wear out and result in deteriorating productivity and production haltges for increasing amounts of maintenance or need a costly replacement, an Augment worker grew more productive as time went on and could easily take on a junior worker as an assistant as they approached retirement age in order to pass on their experience. A work crew of augmented carpenters, for example, could not only match the speed of the machines designed solely for the task of doing such a thing, but could do so with less workplace accidents than an almost entirely mechanized workplace for the simple reason that they could communicate with one another and notice when things were either out of place or malfunctioning and report such issues to their supervisors in a way that even the best sensors couldn't, and this was demonstrated in 2055 when an Augment carpenter of twenty years experience defeated a computer operated band saw in cutting out the pieces of a dining room chair from pine timber by nearly twelve seconds, a veritable lifetime on the factory floor. But the greatest gain of all was that the quality of the final product improved as time went on, with the Augment producing more and more beautiful work with every year as they gained experience, and although many production chains such as those of refrigerators and ovens didn't benefit from such a thing, the manufacturing of furniture did, and so it was the only industry to almost entirely undergo the process of deautomatization and revert to massive numbers of trained professionals able to create dining room tables and chairs that were as beautiful a work of art as they were functional, and there lay the new standard of industry - whilst the great majority of goods that left Earth's manufacturies were still created by machines and were readily affordable for all, there was always some human talent involved in the process at some point, whether as a designer or as a quality control inspector or in a thousand different ways, whilst furniture that was made by human hands could always be found alongside, their price revealing the quality and every piece bearing its maker's signature beneath as one of the greatest status symbols of the modern age.

But just as human beings once again made inroads into industry, so too did they find them short lived in a place that many had always expected them to be able to find a home: the battlefield. During the years of fighting in the Augmentation War, both sides had experimented with the possibility of military robotics in their quest to find a decisive advantage over the other, and both had fielded unmanned aerial vehicles for the purpose of reconnaissance and long term observation in what could be an important area, as a drone could stay in position over an area for much longer than that of a human crew who would naturally require rest and nourishment, making them well suited for deployment in "quiet" areas of the front that might be used for offensive maneuvers or to monitor potential buildups without risking the life of a pilot to enemy air defenses, as well as acting as explosive disposal machines able to detonate enemy explosive charges and landmines without endangering the operator or even serve in the opposite role by being packed with explosives and driven into fortified locations as a remote controlled bomb. All this had helped robotics and other remotely controlled machines become an invaluable service on the battlefield, but there had long been questions about what other applications could be found on the battlefield - there was a long list of possibilities that ranged from unmanned tanks and aircraft to outright robotic infantry able to usher in an age of unmanned warfare and create battlefields where there would not be a single human being present...and yet all of which were found to be lacking in the post war world as all the world's armies learnt from the practical experiences and lessons of the conflict, and there were many. Explosive disposal robots had proven able to save countless lives on the battlefield, but were readily countered through the use of magnetic mines similar to those that had been used in the Second World War against warships, which could attach themselves to the robot as it disarmed another device and be carried back to the operator and detonated, killing man and machine both, whilst drone aircraft simply lacked the speed to be able to evade ground based missile systems if they were detected and could even be brought down by rifle fire if they were flying low enough to be hit and all forms of military robotics were susceptible to having their radio signals jammed and thus being rendered completely inoperable. Without even a basic artificial intelligence to make it possible for command of the unit to be moved directly into the vehicle rather than having it remotely controlled from a distance, it was nigh impossible to make a viable military robot intended for direct combat, and there
was another and perhaps even problem in the fact that the mass augmentation of mankind had dramatically upgraded the capabilities of the average infantryman to the point that most forms of military robotics were simply no longer cost effective on the modern battleground. The unmanned tanks of the world were vulnerable to having their exposed cameras and sensors destroyed by dismounted infantry to blind the remote operator or simply outmaneuver the vehicle and sever the receiving antenna with pliers or - to the embarrassment of the Eurasian Union whilst testing such a machine in Indonesia - could strike a landmine that would break the tracks and immobilize the robot entirely even though a human crew would be able to dismount and conduct field repairs that would have them moving again in but a few hours at most, whilst unmanned fighters and bombers whose boast of being able to sustain much higher centrifugal forces than a human pilot couldn't outrun a radio jammer, the loss of signal rendering them easy prey for any fighter pilot's missiles or cannon. Robotic infantry were even more maligned than any other form of combat robot, as it was enormously difficult to actually create a robot capable of dealing with the rough terrain that an infantrymen could expect to fight in whilst at the same time proving agile enough to engage in a protracted gunbattle with enemy infantrymen, and never really developed any further than one tenth scale models that can be found in a number of military museums across the world.

But there was one field where military robotics was successful, highly so, and it came from the battlefields of the Augmentation War and would fight on the red slopes of Olympus Mons in the Secessionist Crisis. The sentry gun.

Considered the grandfather of all modern automatic weapons platforms, the American designed Close-in Weapons System was originally conceived as a point defense system for naval vessels in order to provide protection against anti-ship missiles, but would find use in the Augmentation War on land in the form of the C-RAM, or Counter-Rocket, Artillery and Mortar system. Equipped with the six barreled 20mm M61 Vulcan capable of firing six thousand rounds a minute and with an ammunition capacity of one and a half thousand per box, C-RAM trucks such as the one above would sometimes find themselves serving in the anti-infantry role where their massive rate of fire could be used to suppress entire infantry battalions at once and to rip through lightly armored vehicles and all forms of helicopter, which would inspire the CWIS/C-RAM gunner saying of "If it flies, it dies."
Whereas there was the inherent need for any other form of robotic weapon system to be able to move from one place to another, sentry guns were a static defense, designed to simply be installed in one place in order to protect supply depots and important areas and only moved when the entire area of operations had advanced or when they were at the risk of being overrun, which meant that they could be connected to their operator by an armored cable buried beneath the ground rather than through a wireless transmission, rendering them completely immune to the signal jamming that had made their more mobile brethren useless in any real combat situation. More, the immobile nature of a sentry gun allowed it to be heavily armored and the simple nature of the construction made it possible for the interior to be easily lined with an aluminum mesh, creating a grounded Faraday cage that could protect the electronics within from microwave radiation and aided by an undercoating of carbon paint, whilst a complex water cooling and autoloading system would keep the weapon firing for as long as was necessary or until the weapon either ran out ammunition or was destroyed. Many systems in later years even incorporated support for a specialized "pop up" system that kept the weapon itself safely underground beneath an armored blast door in order to conceal the weapon from enemy forces until the start of battle and to provide protection against enemy air strikes, artillery and armored vehicles, with the state of the art systems even having the ability to target and engage hostile forces without a human being involved whatsoever, recognizing friend from foe by a simple identification transponder that could be embedded in the uniform of a friendly trooper or simply set to fire at everything that moved. Such turrets were praised by many amongst the militaries of Earth as simplifying defense situations and allowing manpower to be focused on other areas and for being able to ensure that there was never a moment when the defenses of a military base or other such location was vulnerable - day or night and sun or storm, the defense turrets were ready to be brought online at a moment's notice and would need but a few seconds to emerge from their underground bunkers. Some particularly advanced systems, such as the Eurasian AGS-51 that had been deployed on and around Olympus Mons, even contained racks of different ammunition types that the onboard computer could switch between as needed according to what equipment was being fielded on the battlefield, ranging from traditional bullets to incendiaries, armour piercing tungsten sabots and high explosive rounds that would detonate after penetrating their target to devastating effect and even illumination rounds that could be fired if the surrounding area had insufficient lighting for the onboard targeting system to be able to accurately determine the number of enemies. Combined with heavier systems that carried fullsize tank cannons for engaging armored vehicles, landmines to slow the opponent's advance and manned bunkers to provide the tactical flexibility that only a human could bring, some claimed that they could be used to create a defensive wall that would require ten times the defender's number to break, modern day castles that were utterly impossible to breach with nothing but the heaviest assault.

Yet ultimately even they would find themselves struggling to meet the military's needs and expectations following the Siege of Olympus Mons that saw much of the colony's defense grid disabled by MIF sabotage during the battle, leading to a general loss of confidence in the capabilities of a primarily unmanned defensive line, but this was but a minor issue compared to what else had been seen in the fighting, only noticed in the days and weeks and months that followed the fighting, the garrison finally having a chance to review their footage...only for them to uncover what would be the start of one of the greatest controversies of the entire century when they saw that their turrets had been unable to differentiate the wounded, medics or retreating secessionists from active combatants despite the promises of the manufacturer, resulting in them automatically gunning down those that should have been protected under the Geneva Conventions and all the rules of war. So great was the scandal that it would culminate with the Sixth Geneva Convention that all but banned the use of unmanned and automatic weapon systems in warfare for this reason, highlighting how the act of removing a human being from combat had resulted in the deaths of nearly a hundred defenseless men and women who should have been ignored, resulting in all three of the superstates either
decommissioning their sentry turrets or reprogramming them to incorporate a human gunner to operate them remotely, resulting in bunkers and pillboxes once again becoming the predominant form of static defense on Earth and beyond, all to ensure that another massacre on the slopes of Olympus Mons never happened again.

But not all that robots did was enough to only see them fall from grace or left behind to rust as the tools of a bygone age, no, for there were some that not only found success, but thrived in their new role, and that role was in the home. Smarthouses, although not the self-aware machines that they were so often expected to be in so many works of science fiction from the mid twentieth century, were capable enough to be worth the upgrade over the "dumbhouses" of the past, being a master control system for the lighting, heating, ventilation, water and security, all of which became part of the central nervous system of the modern home. Every appliance could be interfaced directly into its systems to grant further functionality, allowing the house to learn the day to day routine of its occupants and begin to plan accordingly so that everything was ready at the exact moment it was needed to be ready, with coffee machines starting their brewing cycle before their owner had even made it out of bed so that it was ready to be poured the moment they arrived or even connecting to the family's self driving car in order to determine how long it would be before they returned from work and when it would be necessary to start warming the house up for their return. All this resulted not only in a comfier day to day life, one where there was never a need to worry about the fear of accidentally leaving one's oven on or anything of the sort, but in a more environmentally friendly way as well thanks to the self-optimizing nature of every smarthouse. More than that, however, was what happened when the house was connected to one of the many different forms of service robot that could be found at robotics dealerships across the globe - vacuum cleaners, floor sweepers and scrubbers, all could be slaved directly to the smarthouse's mainframe, allowing it to clean itself whilst the owner was away. Some more advanced cleaning bots could even fly, using the same principles as any quadcopter to be able to reach the counters and the tops of tall furniture, but there was one unit even more advanced than them, as expensive to buy as a new car, and it was the bipedal house service robot. No taller than four feet and deliberately designed to look humanoid but not human so as to avoid the distrust and unease that the problem of the uncanny valley so often brought to such creations, a house service robot was the servant of the modern age, a cleaner able to go around the house and clean every nook and cranny for its master before returning to its charging dock to await its next use or for whatever other task it might be given, such as mowing the garden or watering flowers or serving drinks or ironing clothes or anything else that might be required of it as a housekeeper, freeing its owners to focus on their hobbies or family or work rather than on menial tasks such as cleaning.
A photograph of the original ASIMO series robot from the early twenty first century. Originally
designed as a simple proof of concept and as a solution to the challenge of creating a walking,
bipedal robot able to self regulate its movements and maintain balance, advances in computing and
battery storage would allow what was originally a technological demonstrator to enter the home as
the ultimate in household luxury. Although the internal systems are far superior to those that were
incorporate in the first generation of ASIMO robots, the external design remains the same as a
homage to the original robot and because of its sleek, friendly and distinctive shape, though they can
now be found in over a thousand different colors worldwide, including chromatic vinyl paint,
shipping over two million units by 2060.

Although artificial intelligence seemed to be an impossibility and machines would never come to
dominate human lives as they had long been predicted to do, the presence of service robots to keep
both cities and homes clean, tidy and comfortable spaces would ensure that they would continue to
play a long awaited role in the everyday life of humanity. In this, all were happy to let them do so.
For the aging unmodified peoples of the world, it allowed them a chance to focus on completing their
dreams and touring the world that their children and grandchildren were building, and for the
Augments it allowed them a chance to focus on the things that were truly important, and that was
more than enough to ensure that although mankind itself had been changed through the power of
genetic engineering and although its creations were more limited than they might have first been
anticipated, robotics would always have a place at humanity's side for generations to come.
Part 3: 2030-2060: From Cradle to Nursery - Breaking the Barrier (B)

Breaking the Barrier

Even as mankind began to take its first tentative steps throughout the length and breadth of the solar system and began to reach for stars beyond their own, there was the clear understanding amongst the space programs and commands of the world that humanity would have need of some manner of faster than light travel if it was to ever truly be able to colonize the stars and forge an interstellar civilization. Although the use of sleeper ships rendered it possible for a human crew to make the journey from one star to the next and do so with but a reasonable requirement for consumable supplies, but the great distance that would need to be crossed to take them to their destination was so immense that there could be no rescue if they suffered from a malfunction, no relief if they encountered a challenge on the new world that they will prepared for and no salvation should they fail. They would be entirely on their own, cut off from the Earth in all things and only able to depend upon that little quantity of supplies that had been brought with them and their own abilities in order to survive, more, there could be no interstellar commerce without at the very least lightspeed travel to shorten the journey down to a more "manageable" eight year round trip between Earth and Alpha Centauri, the closest star to the solar system, which meant that there was no real economic reason to try and expand past the Kuiper Belt as it would take generations for even a single shipment of resources to arrive. Even more so, the fact that the crew would have to spend their entire journey in cryogenic suspension would mean that it would be impossible to communicate with them on their journey, leaving whether or not they ever made it to their destination a mystery until a signal could be sent back to Earth, a process that could take centuries for the colony ship to arrive and build up to the level that it would have the resources to send a transmission back to Earth to inform them that they had survived their journey and not simply been sent to their deaths amidst the cold, lonely dark. Indeed, the gulf of time that would separate the colonies from Earth would be so great as to ensure that it would be all but impossible for ideas to be shared amongst them, for solutions to problems that one world encountered before the others or for warnings to be sent, all of which would have no chance of arriving in a timely manner before the others had discovered it for themselves...and similarly, interstellar nationstates would never be possible, with every star system becoming its own unique nation and culture in its isolation. There was never the question of whether or not humanity would be able to spread across the stars, that was never in doubt and was calculated to be a certainty, as the technological base that the Earth controlled at present would allow for every last star in the Milky Way galaxy to be colonized in a "mere" eighty three million years or so thanks to the exponential rate of colonization that would occur as more and more colonized worlds became able to launch their own sleeper ships and continue the process of expansion, every star and every world home to a unique branch of the tree of life that began on Earth.

And yet, whilst that was certainly a romantic enough goal for some few to consider it worth the attempt, a clock was ticking. Its name was overpopulation.

It was an unintended side effect of the release of the Augmentation Flu, the result of many things acting together in unison to create the single greatest threat that the stability of human civilization had faced since the Great Mistake, but its chief cause came from the increased regenerative abilities of the Augments rendering them more resistant to age, which not only greatly delayed the years where the vast majority of a generation might have passed away, but nearly tripled the childbearing years of every human being born after the war...which meant that even though the Augments were having
children at the same rate proportionately as the unmodified generations who came before them, they ended up having far more - an average family of 2060 could be home to nearly a dozen children, all spaced apart at roughly the same amount of time as those of an family from a century before, all of whom would live to be able to have children of their own and who would have as many. Combined with the increased might of the emotions of Augmented individuals to create stronger and longer lasting relationships and the initial baby boom that created a larger than normal generation after the end of the Augmentation War and the world's demographics were not simply growing, they were exploding at a truly frightening pace made all the worse by the grim realization that death, no matter how tragic it seemed, was a vital necessity of keeping such growth in check. But death had long been seen as the oldest enemy of mankind, a disease that could be cured as though it were any other and one that had been pushed further and further back with the development of better medicine, healthier diets and all around superior living conditions, and though all these things had been celebrated and still were as some of the greatest achievements in the history of all mankind, and yet they had driven death so far into retreat that it was simply no longer able to regulate population growth as it once had, no longer able to maintain the balance of life and death that was necessary for sustainable living. Such a dramatic destabilization meant that even those nations that had undergone the demographic transitions of the past and who had achieved the stable population growth as was seen in the developed world in the last years of the twentieth century began to see a rapidly growing population growth on par with what they had experienced in the industrial age.

The result was that Earth was home to over fifteen billion inhabitants by 2060 alone, a number that was expected to double or even triple by 2100. Even with the immense technological progress that had come over the years of the twenty first century and even with the lasting impact of the Green Revolution to forever change how people lived their lives and to encourage all to strive for an environmentally friendly existence, there was no way it could be anything other than utterly unsustainable in the long term. Even with the development of vertical farming and the complete replacement of unmodified crops with genetically modified strains that could maximize productivity and minimize waste and the colonization and mining of the asteroid belt, there would simply not be enough resources to go around as a growing population demanded increases in the output of all economic sectors in order to provide for them, all of which required resources, and though the asteroid belt and the other planets were a nigh inexhaustible source of minerals to feed the economies of Earth, there was the very real limit that came in the form of the limited amount of arable land, forty percent of which was already in use. Further oceanic colonization projects intended to colonize the deep sea regions such as the almost entirely lifeless mid-Atlantic would be able to provide some relief and allow for massive aquatic farming projects that would be able to produce monumental quantities of seaweed, molluscs and fish to help reduce the burden on land based farming, but there was the clear challenge of producing a complex biosphere where there was none, and the question of what effect such a thing might have on the Earth's ecosystems as a whole...as well as the difficulty in introducing it to populations that had never eaten such foods before. With massive progress made in the field of vat growing organs, the development of cultured meats that were palatable for the masses had become dramatically easier and brought it once again back to the dining table as a cheaper, easier and ethical alternative to animal husbandry, as the extreme precision techniques required to create a suitable replacement organ able to be implanted into a human being without issue had translated into being able to make perfect copies of an animal's musculature, thus resulting in the taste being exactly the same. Even better was that the nature of its production leant itself well towards mass production, allowing it to outcompete the traditional meat industry and all but completely drive it from the market, allowing massive amounts of what would have otherwise been ranching land to be allowed to grow wild once more or converted into agricultural land if the soil and location was good enough to allow for a reasonable yield.
But despite all these methods to try and improve the Earth's food production even further, it simply wouldn't be possible to sustain the growth for any significant length of time past the end of the twenty first century. There would simply be too many people in too small a space and with too few resources, and although most predictions expected that the Venusian terraforming project would be complete by then, the massive transferral of people necessary to relieve the pressure building on the homeworld would never be quick enough to keep up with the pace - only a few hundred people could be transferred in a month when there would be the need to move ten times that amount in a single day if there was to be any real progress in transferring the masses, whilst the alternative idea of simply turning Venus into a single world dedicated entirely to the production of food would allow Earth to completely stop agricultural activities and cope with its population growth for centuries, even potentially making it possible for the surface to be abandoned entirely in favor of subterranean cities that would allow the world to heal from the damage that had been done by past generations, but the immediately terraformed world would take years to form the soil necessary for large scale agriculture, which was time that humanity simply didn't have before it would encounter the crisis that would come with overpopulation. The nightmare that was resource exhaustion would bring social unrest and instability in its wake, things that could tear down all the progress that had been achieved in the twenty first century due to the possibility of depleting the world's aquifers, exhausting its soils and simply from the lack of living space as even the Century Cities would find themselves overwhelmed by the sheer number of inhabitants whose traffic would bring their transportation systems to the breaking point and overwhelm their services. All this was simply lying in the background, a threat unnoticed by all but those who stood at the highest levels of the world's governments and to whom fell the burden of planning for the future, yet amongst all there was still the desire for further expansion, for a chance to go beyond the edge of their solar system and colonize the Earth-like planets of other stars, eager for the chance to see new worlds and all the wonders that they held and and even new civilizations, cultures that had developed in completely different ways than those of the Earth. And so Humanity not only wanted to expand further, it needed to if its civilizations were to survive the twenty second century, it needed habitable worlds that could be used to take the burden from the overstressed homeworld before calamity occurred and it needed worlds that could be specialized to provide that which was needed on the homeworld in sufficient quantity as to sate the demands for it.

All that meant that there was a need for a stardrive of some kind, something that could carry manned ships from one system to another in a timely manner and make interstellar civilization a reality...and yet just as the world faced the problem of overpopulation, so too did the hope for an engine able to propel mankind to the stars encounter a problem of its own. Relativity. \( E = mc^2 \). The very laws of physics stood in the path of mankind's survival, for amongst the first and most well known of the Universe's laws was that nothing could exceed the speed of light in a vacuum. It was as much a law and certainty of the universe as gravity or magnetism, and nothing that mankind had ever seen or witnessed since the dawn of modern physics had been able to prove otherwise.

And yet they had to try, as the fate of all the world's peoples hung in the balance.
Although it was well known to be impossible to exceed the speed of light in a vacuum, the same was not true in a medium such as water, which gives rise to the unusual phenomenon of Cherenkov radiation where a charged particle exceeds the speed of light in that medium.
Convening together in person for the first time in history, the leaders of all three superstates met in person in a meeting that the vast majority of the world knew nothing about, a meeting that took place beneath the Himalayas, beneath the greatest of the world's peaks in 2044. There information would be shared and an agreement forged with the backing of the entire world behind it, an agreement intended to encourage all who might have a theory on how to break the lightspeed barrier to step forth and a promise to share whatever findings they might discover with the other superstates, for whatever grudges might have existed in the past, whatever competitions, all of it paled before the task that they stood before now, a task that demanded a united effort if it was to be overcome.

The next day, the Faster-than-Light Demonstration Prize was announced, the greatest inducement prize contest ever conceived and one that would require the successful passing of a hundred steps before it could be won. The promised prize was one trillion ASC to whoever could demonstrate a working, faster than light engine suitable for human use, a prize that would be funded by each of the superstates equally, but more than that, there would be the everlasting glory of having been the one to have broken the greatest of nature's laws and which would create a legacy that would last for so long as the stars burnt in the night sky. At the same time as millions of individuals stepped forth with their ideas and suggestions and theories and designs, the space agencies of the world busied themselves with the task of constructing test chambers designed for experiments that no one had ever even considered before and in building those devices that seemed to be the most promising avenues of research and, primarily, attempting to improve sublight travel so as to push the crisis further away by reducing logistical strain. Resonant cavity thrusters, null-gravity engines and fold space drives would all be considered, deemed impossible and discarded, but from the uncounted number of submissions brought forth, two emerged as potentially viable ways for the lock upon the cage to be broken and for mankind to be truly freed of the confines of the natural world.

**Project Corridor**

An old idea that dated back to the early days of modern physics was the concept of the wormhole, a "tunnel" through which two points in spacetime could be connected and which was entirely consistent with modern physics, albeit hypothetical in nature, for despite constant scanning of the skies since the development of the first radio telescopes, no wormholes or things that appeared to be wormholes had ever been found. Many amongst the scientific community had begun to doubt the possibility, considering them but a theoretical concept that was not actually achievable in mature and which would require exotic energies and matters that simply didn't exist in the Solar System and which no one had even the first idea of how to produce. Yet one man, a theoretical physician from the heartland of the African Confederacy, Dr. Nwabudike Karume, believed that it was not only possible for wormholes to exist, but that they could be artificially constructed with the technology that they possessed at the time and in a quick and efficient manner, having constructed a theory on the precise nature of the universe whilst working alongside the researchers of the Copernicus Crater Collider as part of a scientific exchange with the Transatlantic Organization after their enormously sensitive instruments managed to detect extremely bizarre readings that came whilst the collider itself was powering up for an experiment and which simply couldn't be repeated. Whilst many of his fellow researchers discarded the results as a technical fluke brought around by a rare glitch or simply by random chance, as such things were known to occur fairly often on Luna due to the lack of a magnetic field to better shield their instruments from the Sun's energy, the African physicist had gone through the data and believed that it was not a calculation error or garbled information as his colleagues had believed, but rather an incredibly rare natural event that had never been witnessed before - a crack in the Universe mending itself. Dr. Karume's theory stated that the Universe as we knew it to be possessed an almost crystalline structure, with sufficiently massive objects such as stars,
black holes and gas giants able to create disruptions in the space-time continuum (as evidenced in the
doctor's theory by the effect of time dilation in the presence of a quantum singularity, for example)
which took the form of gravitational stresses that linked said objects together, similar to the branching
nature of a tree or, as he would use as a common source of demonstration, placing two balls on a
blanket and seeing how the creases between the two would connect them without the objects
themselves touching, which he likened to the interaction between the two bodies themselves. A
"crack" then would be little more than a brief balance in the gravitational stresses that would allow
the creation of a corridor between one location and the next along that line, and Dr. Karume believed
that the bizarre detections of the Copernicus Crater Collider were the result of the collapse of one of
these conduits - or more specifically, the collapse of a distortion that connected Jupiter and the Sun -
whilst Luna was in the dead center of the hypothetical pathway. According to the strange extremes
of his theory, it should be hypothetically possible for a ship to "push" through these cracks at a place
where they had been "pried open" and achieve instantaneous transportation from one place of
extreme gravity to the next, using an "artificial pseudo-wormhole" to provide instantaneous travel
from one place of extreme mass to the next.

Thus, if Dr. Karume's theory was correct, it would be easy to construct apertures able to open these
apertures and achieve interstellar travel, allowing a ship to go from the Sun to any neighbouring star
in but a few moments. Such possibilities swiftly drew the attentions of the superstates, with Dr.
Karume being brought aboard to head the project of constructing such an aperture as head of a team
of a hundred other scientists and an army of engineers, all of whom seemed uncertain as to the
possibilities of his plan or if his theory was correct, but whom were willing to try if it meant being
part of the team that constructed the world's first faster than light drive.

The only question was...how?
A diagram of a Lorentzian wormhole, similar in structure to those that should be present near all objects with significant mass if Dr. Karume's theory regarding the structure of the universe was correct.

Whilst it was relatively simple to design a ship capable of carrying human explorers to another star system and sustain them for the length of their journey, all of which could be done using tried and tested technology such as fusion reactors and habitat rings, few had even the first idea of how to open one of the lines that Dr. Karume described in his paper and theories and explanations. The ideas that he presented were so new that the debate of the scientific community had yet to settle down and come to a consensus as to whether or not it was actually possible, yet alone start on the path towards practical applications of it or even a basic idea of how to proceed, all of which served only to ensure that all attention was on Dr. Karume, who reveled in the attentions of those around him and became all the more certain that he was right because of it. Emboldened by their belief in his goal, he and his team developed a complex array of emitters, reflectors and projectors that he defined as the "focal array" of the aperture, the key part that would open the conduit and which would create the aperture for another craft to use, in this case, a small probe that would confirm that the passage was safe, predictable and stable, and production of both array and probe would proceed quickly thanks to the sheer amount of support coming from the superstates, whose combined resources meant that not even the immensely harsh conditions that came from being only a small distance outside the Sun's corona would delay the project for long. There, at the exact point that the doctor had theorized to be the stress line between Sol and Alpha Centauri, the aperture was constructed in a span of eight months, powered by no less than eight of the most powerful fusion reactors ever made connected to an immense energy storage bank that took twenty four hours to completely charge and yet whose power would be spent in a single moment, channeled through the "focal array" and directed at a spot that had taken some of the world's fastest supercomputers over six hours to find.
And on the day that everything was finally ready, when all the preparations had finally been made and when the capacitors were fully charged, the firing sequence began with the insertion of a single key. Were Earth not on the opposite side of the Solar System at the time, it might well have been possible to view the construction begin its task with a telescope and a powerful enough solar filter, for at the exact moment the system was ready, it fired eight beams that precisely struck a central array and reflected them all as one towards the dead center of the target.

Then there was an enormous flash like an explosion in the sky as the first artificial wormhole was born, the Sun's own mass tearing a hole in the fabric of the universe. Project Corridor was a success.

An image of the artificial wormhole as it appeared twelve seconds after its creation, demonstrating the strange effect of lensing around the subspace corridor in the center, the result of spacetime itself having been warped by the opening of the wormhole rather than due to its gravitational mass. This image, along with all others taken during the duration of Project Corridor would later be destroyed.
by having the very data drives themselves fired into the Sun, along with all other devices capable of storing digital media that had come in contact with them, including the researcher's own phones.

Before celebrations could take place however, there was the need to confirm that the portal had reached the intended destination in Alpha Centauri, and so the probe - a small unmanned fusion craft equipped with a wide variety of instruments both intended to take whatever readings were possible of its passage through the wormhole and to confirm that it was in the correct location - was sent forth as soon as the fissure appeared to be stable, ten seconds after it had formed and giving all who gazed towards it the view of distant stars and strange constellations none could name. Firing its tiny fusion torch, the probe charged through the gate at a tremendous pace, sending an unending stream of data back to the control center that watched with eager and hopeful eyes as the probe passed through the corridor to its destination, relaying a vast wealth of information that revealed more about the structure of the universe in but a few seconds than had been discovered since the dawn of mankind, filling its petabyte drives in the time it took to reach the other side, to that distant frontier where the first transmission was made as it scanned the space around it and relayed all that which it detected back through the wormhole on the back of a laser.

Three seconds later, the commander of the aperture station order the release of a one hundred megaton hydrogen warhead to collapse the wormhole and to destroy the probe.

No words were said, not even by Dr. Karume, as the work of nearly a year began to be systematically erased, for none outside the command center would ever know what it was that the probe detected, but it was surely something to be feared, as all information about the mission was immediately classified beyond top secret with all physical and digital records of the mission, its logs and blueprints erased and the operators sworn to secrecy on the threat of a penalty of indeterminate nature, whilst the aperture station itself was dismantled and the remains of its emitters destroyed by being carried into the sun a short time before Dr. Karume died in a mysterious automotive accident a week before shocking evidence would be uncovered that revealed that the theoretical physicist had been siphoning funds from the superstates and using said money to pay off his assistants with the goal of faking his experiment results with the goal of gaining even more funding, though the core of his theory, the concept of a sublayer beneath normal spacetime, would remain in the form of the general acceptance of the existence of subspace. All that would ever remain of the experiment itself, however, was a single slip of paper from the command room that had been haphazardly stuffed inside an aluminum drink can that had been sent back to the homeworld for recycling. On it was a single sentence, written in scratchy pen.

Paradoxes are for logic, not nature.

The Houdini

But whilst Dr. Karume was making swift progress towards the construction of his aperture array in a program that was primarily under the African Confederacy's banner, another form of faster than light travel was under development in the territories of the Transatlantic Organization, the only other one that had been considered to be potentially viable. This project came under the lead of Dr. Susumu
Oshiro, a Japanese physicist who had already proven his skills by personally calculating the best means to optimize the mighty fusion torches on the Atlantic class battleships that comprised the most powerful warships in the Transatlantic Organization's interplanetary fleet, his work ensuring that the TAO fielded the fastest ships in the solar system. But whilst he was well known among the scientific community for being an exceptional mathematician indeed, his true passion was in the study of energy to matter conversion, or more accurately, the conversion of *light* into matter as was theorized by Gregory Breit and John A. Wheeler in 1934. It was that field that would win him a Nobel Prize, for he successfully conducted an extremely difficult photon-photon collision, creating a pair of electrons and positrons exactly as the two scientists had once theorized by using a powerful laser to speed up electrons to just below the speed of light before firing them into a gold mesh in order to create a beam of light far more powerful than that which could be seen by visible light before firing another laser into a small gold can, a *hohlraum*, which would generate light similar to the light emitted by the Sun itself. By directing the beam from the first experiment through to the center of the can, the resulting photons would collide with one another and fuse into electrons and positrons, which were then able to be detected as they exited the container. Such a technique had been considered as a potential means for the mass production of antimatter for further scientific experiments, but in many cases the positron would collide with the electron in the instant after formation, creating dangerous amounts of gamma radiation, yet it would provide the Copernicus Crater Collider with many years of work in the creation of the anti-elements, serving as an immensely powerful atom smasher that would ultimately produce the first ever anti-lithium, anti-beryllium, anti-boron and ultimately anti-carbon as its crowning achievement, all of which were feathers worn proudly in the cap of Atlanticist science...though such work were merely "side projects" from the collider's true goals of searching for dark matter and determining the exact role that it played in the universe, why matter had defeated antimatter in the earliest instants of the universe and determining whether there were such a thing as supersymmetric particles or unknown fundamental forces such as gravity or the strong nuclear force, a focus on which by the CCC would allow the Eurasian Union to catch back up with the added bonus of accidentally creating an antimatter micro-singularity which almost immediately dissipated due to Hawking radiation.

But regardless of the works of the CCC and other colliders, Dr. Oshiro was convinced that if energy could be converted into matter and matter converted into energy, as is the case in nuclear fission and fusion, then surely the energy that was generated from the matter could be used to recreate that matter's exact size, shape and form, but a thousand miles away?

Unlike the plan of Dr. Karume, the idea of converting an object into energy and then rematerializing it at another location was relatively sound, since both sides of the conversion process had already been achieved - they simply needed to be combined into one so that what was dematerialized could be rematerialized in the exact state it was, as was necessary to ensure that a living individual could be transported from one location to the next without any issues but philosophical ones. With one of their best and brightest minds leading the way into what seemed to be not only a plausible technology but one easily within reach, the Transatlantic Organization filled the media with stories of the scientist's past and interviews with the members of his team, all in the certain belief that he would be the one to break the lightspeed barrier for the TAO in what would be the greatest technological achievement in human history. Where Dr. Karume effectively disappeared from history with the development of his corridor, the heads of the TAO's scientific community put their man on a higher and higher pedestal, and though such fame might very well have been stressing for the doctor and placing him under an immense pressure to deliver results before anyone else could, it gave him effectively unlimited resources with which to do as he pleased, and the first place for them to be spent was in the creation of one of the most important pieces of the technology: a scanner that was sufficiently capable as to
determine the precise location of the molecules that made up an object so that they could be
dematerialized and rematerialized exactly as they were, a necessity for any form of coordinated
teleportation device. It was the perfect first step in the development of his transporter, as the exact
functionality of the scanner would determine how the dematerialization process would work and
how it could be reversed to convert energy into matter, and so the Transatlantic Organization simply
threw everything it had at the problem, an army of engineers and scientists and technicians given the
task of finding a way to digitize all that there was about an object so that it could be reconstructed in
an instant. Although the challenge seemed to be immense, it was not nearly as impossible as it might
have seemed to the casual observer, as there had been a number of commercially available
"scanners" since the early 2040s that used a combination of spectroscopy and an integrated datavault
to analyze whatever was placed before them and determine exactly what it was in but a few short
seconds, being used in both the home to determine whether or not a piece of fruit was fully ripe or
whether something was on the verge of expiring to the military where infantrymen or commandos
could determine whether the plant in front of them was poisonous or not and diagnose things such as
dehydration or malnutrition with little training, even if it couldn't replace the invaluable experience of
a trained medic. Developing a scanner able to determine the complete composition of an object past
the surface - including living tissue and the placement of all its intricacies, not just the organs but the
hormones and enzymes and oxygenated blood and everything else that was essential for life - would
be an immense technical challenge, one that would require the combination of many forms of sensing
device and the development of a sufficiently smart algorithm as to be able to sort what was detected
into the correct category so that rematerialization could occur with safety, but whilst that occurred Dr.
Oshiro himself led the way on creating a means of dematerializing an object, coming up with the
concept of a "matter stream" that would see an object held in a specially designed "pattern buffer" for
but a few moments as the object passed through, creating a metaphor that was seen by much of the
TAO during a live interview where he compared the process of transportation, as he theorized it to
work, as being similar to moving water from one cup to another - though the first third of the water
might be in the second cup a moment after he starts to pour, another third is still in transit whilst the
last third is still inside the first cup.

Thus, an object in transport would only need a small amount of it to pass through the pattern buffer at
any one time, thus simplifying the need for energy storage but at the same time demanding that the
rate of rematerialization be accelerated, as anything longer than but a few seconds would be lethal for
any living creature, yet alone something as complex as a human being...but the sheer size of the
investment that the Transatlantic Organization was pouring into the pursuit of faster than light travel
was nothing short of extraordinary, greater even than their contributions to the terraformation of
Venus, allowed them to explore more than one avenue of research at the same time, to approach all
aspects of the problem at the same time. Whilst one team of researchers worked on creating a
practical molecular scanner, another worked on designing a data storage format that would simplify
the process of holding the information that it the scanner provided and in transferring it swiftly
enough to the rematerialization for the transfer to be able to continue without any unexpected delays
that might distort the process whilst another worked on the rematerialization system as part of a
multipronged approach to the program, all parts of a massive multipronged approach to the problem
before them. Thirty research centers across the length and breadth of the Organization worked on
different sections of the problem, connected by a purpose built network of fluorine glass fibreoptic
cables to ensure that messages and updates sent from one researcher to the next would not need to
compete with civilian traffic for bandwidth, and even specially written software was released to
allow everyday civilians around the world to contribute a fraction of their computer's power whilst it
was idle to the project so as to brute force a way through the problems that they encountered, not as a
haphazard force blundering its way towards a goal, but like a finely tuned machine, a real
demonstration of the technological strength of the Transatlantic Organization in the field of
computing where they had no equal. Under Dr. Oshiro's lead and with the full support of the Atlantic Council and the Atlantic Scientific Foundation, the full might of one of the world's superstates hammering away at a problem would soon give results with the construction of the world's first quantum translocation device, a machine the size of an apartment block and located not far from the old, abandoned location of Area 51, whose barracks and hangars had been refurbished to provide living quarters for those who were working on the progress and storage space for their equipment.

Powered directly from the Organization's main electrical grid, the activation of the machine for the first ever time dimmed lights across the entirety of Nevada state before the smartgrid activated secondary systems to compensate for the enormous energy drain, waking the titanic turbines of a modernized Hoover Dam for the task. It would take the supercomputer designed solely to manage this system two hours to calculate the transportation, with Dr. Oshiro leading the command of the first test and knowing well what had happened to his counterpart from the African Confederacy for his failure, even if he didn't know what that failure was, and at his side were six members of the AC and the ASF present to observe the experiment.

Finally, after so many hours of hard work, the first test was to be conducted on a single calcium atom.

A calcium atom identical to the one that had been used in the test, the element had been selected for its balanced structure, having an equal number of protons, neutrons and electrons, as well as for being more complex than other elements like hydrogen or helium.

It would be dematerialized in a process that took three seconds to complete, transferred two meters as raw energy and rematerialized over another three seconds.

What appeared at the end was a lithium atom alongside a hydrogen atom that had been made from the original atom's missing proton and electron.
It was a success beyond all measure, beyond all imagining. Even though it was technically a failure to transport the calcium atom due to an imaging error in the molecular scanner, they had managed to teleport it from one place to the next almost instantaneously, something that had never been done before and something that Dr. Oshiro said to be closer to sorcery than it was to science and something that would put him on the list of candidates for another Nobel Prize after Dr. Karume's fall from grace and his unfortunate demise. The media went wild with the anticipation of what such a teleporter could do, and even the military began to watch more closely, intrigued as to the possibilities of that which they saw before them, drafting an immense list of possible applications for the technology, for now that the concept was proven as a possibility there was but the task of increasing its power, efficiency and reliability so that larger and heavier objects could be moved over a greater and greater distance with a minimal risk of misidentification or categorization failures, but even if everything went well, it was clear that there would be new tests needed to improve the device and find its exact limits...but now there was no longer any doubt, for like the scientists of 1951 at Experimental Breeder Reactor I who had powered a mere four light bulbs with the electricity generated by their nuclear reactor, the idea had been proven sound. All there was now was to improve upon it. For failing to transfer the intended target the entire molecular scanner system would be removed, dismantled, redesigned and reassembled before being reinstalled and given the much harder task of transporting zinc-70, a complex atom of thirty protons and thirty four neutrons and an isotope that had been used by both the TAO and the Eurasian Union as a way to "salt" nuclear weapons so that the spread of fallout could be tracked for scientific and testing purposes more easily, as was demonstrated by the detonation of several ten megaton bombs on the surface of 5 Astraea all intended to discover the exact way radioactive material might settle on an asteroid without an atmosphere to influence the process. It was a far greater challenge than the first test, yet it completed without any incidents whatsoever, teleported twice the distance but over the exact same amount of time, another huge milestone for the project that was swiftly followed by the transportation of a single atom of weapon's grade plutonium, four times the weight of the zinc isotope that was, again, transported without incident over twenty meters in another, huge milestone for the project. With the heaviest and most complex atoms seemingly able to be transported from one place to the other with little chance of failure thanks to the reconstruction of the molecular scanner, it was clear that the path towards large scale experiments was growing ever shorter and that a practical quantum translocation "drive" able to teleport the ship across the stars, from one world to the next in the span of a single jump, was but a short while away. With fortune smiling upon him again and with the entire scientific community looking on with awe at his success, the Atlantic Council voted almost unanimously to raise his funding to a flat 0.1% of the annual budget, giving the doctor over a hundred billion Atlantic Standard Credits a year so that he could buy anything he needed to enhance the capabilities of his transporter, to license whatever technologies he needed and hire whoever he needed. They were growing more and more confident in his ability to deliver results, praising Dr. Oshiro in public as a miracle worker that not even the laws of nature could withstand for long, and more and more people began to look to him as the man who would give them the stars as atoms gave way to molecules, every test seeing the device improved in almost all areas as algorithms were streamlined, the process accelerated and the transporter's energy requirements decreased, a program of recursive improvement that brought the final product ever closer to reality.

Yet as the first millimeter scale tests began with a single cube of scientifically pure iron one millimeter around on all sides, certain philosophical questions began to be raised about the nature of the device: was the object that was was dematerialized and sent through the transporter the same as the object that rematerialized, or were they different? It was the ancient puzzle of the Ship of Theseus come again for the modern age and given a twist that would have even the ancient
philosophers of Greece baffled and uncertain - though the original paradox pondered about how much of a ship could be replaced over a journey for it to no longer be the same ship that set out but rather a new ship with pieces of the old or be a completely different ship entirely, there had been something of an answer in that the discoveries of modern medicine had revealed that the body replaced itself over time with new cells and new tissue and yet the person remained the same person they had always been, and this would have been functionally true as well for the transporter if not even more so as an individual would be effectively taken apart and put back together again...only now the paradox encountered the same problem that had been troubling those who had wished to create an artificial intelligence for years: what was consciousness? If a living breathing man or woman stepped onto the transporter pad to be moved from one room to another, would they simply see the flicker of lights for but a moment before their body was obliterated and their consciousness destroyed, leaving behind a duplicate that thought they were the original in the other place, or would they still be the same conscious individual now transferred from one location to the next? If people have souls, then what happened to theirs when they were transported - did they die and go onto the next life, leaving behind a soulless husk that was somehow still animate, or did it move from one body to the next?

It was a philosophical minefield, only that it was made all the worse by the fact that the transportation process was inherently destructive, for it wouldn't just break the individual down to their constituent atoms, it tore them apart into energy that was then reassembled at the destination. The object was effectively destroyed and recycled for the raw material to create an identical copy, and such knowledge meant that what was initially utter delight at what Dr. Oshiro was creating had become an anxious fear of what it might do, one that even the scientist himself couldn't seem to quell, but before there could be a manned test of the device there needed to be more successful transportations, far more, before he was willing to allow anyone to use it. All this meant that he stepped up the testing schedule in order to prove to the world that the capabilities of his creation was constantly improving, that it would eventually be safe for human use, and so what was supposed to be a gradual increase became much more rapid as downtime between tests was reduced to no more than an hour - the first one millimeter iron cube gave way to a five millimeter lead one and then a ten centimeter piece of sodium and then twenty milliliters of elemental mercury and then enough hydrogen to fill a weather balloon, all of which was done to show that the transporter could move more things than just atoms. From there, the items became more and more physically complex, not in their shape but in their very composition, a challenge that was an order of magnitude more complex than that of simply moving basic elements, and the first item to be moved this way was no more than a single grain of sand, plucked from the Mojave Desert. Though no larger than the head of a pin, it was an enormously complex thing for the transporter to handle, as rather than being uniformly comprised of one element or another but for the occasional impurity it was instead made of many dozens of different things in a random and unpredictable structure, and yet the transporter would take but two seconds to transport it fifty meters. From there, it was only upwards - segments of quartz, geodes and other gemstones were popular targets, followed later by larger and larger segments of superalloy till at last a girder wide enough to touch from one side of the transporter to the other was transported five kilometers away after nearly a hundred tests. From there there was but one more series of tests to be completed before the device would be ready for its last and most important test, the best ship designers in the organization already hard at work on the preliminary design phase of a craft that would be able to explore other solar systems for worlds suitable for colonization, a ship that would be named for the greatest of magicians in recognition of the feat that Dr. Oshiro had accomplished.

That test was biological life, living flesh that was more complicated than any gemstone or atom and
dependent upon an balance of a thousand different things for its proper functioning and where even the slightest error could have enormous consequences, from permanent disability to death or serious illnesses, and that was without taking into account the electrical charges of the nervous system and whose absence or presence could be the difference between perfect health and a heart attack. All this meant that the device had to be perfect if it was to ever be suitable for use by a human being, and that meant that no stone could be left unturned - before biological tests began, the entire quantum translocator device was rebuilt with all the lessons that had been learnt since its construction, reducing the massive machine down to a simple booth twenty meters in height and ten meters across, barely even a third of what the original had been, albeit one that still depended upon a powerful supercomputer in order to process the information that the molecular scanner outputted. The first test involving a living thing was nothing more than a simple dandelion ready to spread its seeds upon the wind, selected for its ruggedness and the simple fact that they reproduced through parthenogenesis, meaning that the vast majority of dandelions across the world were part of over a dozen genetically identical lines of clone, which had been exploited by genetic engineers to create biological herbicides able to completely wipe them out of an environment where they were an invasive species even before the founding of the Transatlantic Organization. Even still, it was a common enough plant to find and one that was easy to make more of and entirely comfortable with hydroponics, the perfect candidate to be the first living thing subjected to the transporter other than the occasional microbe that had slipped through the cleaning process and been taken alongside larger objects, and after a few tests with items that had been transported before to help calibrate the machine it was placed on the pad, plantpot and all...and dematerialized, sent sixty kilometers away to the summit of Mt. Irish where a team was waiting to receive it and with markers placed on the ground to determine exactly how close to the aiming point it had been.

It was perhaps slightly too accurate, as the dandelion had been planted in the ground itself by the transporter. Extracting it with a shovel, they brought the flower back to the Groom Lake facility where the transporter had been constructed, where another team of some of the TAO's best hydroponicists painstakingly removed each and every seed from the original flower and grew them under the exact same conditions. The reason being that if each plant was a clone of one another, they should grow to be exactly the same when exposed to the exact same conditions, meaning that any bizarre mutations that occurred were the result of genetics damage - thus, growing the seeds themselves was an economic and easy way of testing them all simultaneously.

Yet as the seeds began to grow into flowers, the original plant began to die for reasons that were not the result of a natural process, bending under the weight of its own flower. Something had gone wrong. Unable to be diagnosed by any botanist, the flower was not only dissected to try and reveal what had gone wrong, it was reduced to thousands upon thousands of microscope slides that each contained a single round segment of the flower, slices that were no more than a single cell thick. All testing would come to a complete halt for the one month that it would take to process them all, each and every one inspected in the utmost detail by man and machine alike, till at last the answer was revealed - the upper part of the plant had been rotated a mere three degrees from where it was before the transportation process. Thus, the flower's own capillaries and root section had been partially separated from one another, causing one small piece of the flower's stem to die and rot and spread its death to the remainder of the plant, but had it been a human being that had been transported the results would have surely been a slow and agonizing death brought about by a sudden rewiring of the spinal cord. As before whenever there was a failure, the entire machine was dismantled and searched only to reveal that a single solitary moth had somehow made its way into the molecular scanner and died, bridging a circuit and thus causing a sudden overvoltage that caused the scanner to malfunction, thus rendering twenty five billion credits worth of electrical components to be discarded.
as having potential damage. Once again the quantum translocator device was rebuilt, this time in a completely sealed environment in the Armstrong Colony before being shipped back to Earth and this time incorporating a primary and secondary backup to ensure that the machine could not crash in such a manner again...and this time, another dandelion was transported the very same distance only to appear on the surface rather than beneath it, perfectly fine just as the seeds of the first test were revealed to be perfectly healthy. With basic plants deemed safe for transport, a more complex one was brought to the transporter to bring about the next test in the form of a young but fruiting peach tree that had half its peaches removed before transport and the other half afterwards for a taste comparison to determine whether or not the transporter would be suitable for agricultural purposes and to determine if the internal structure of the fruit had been altered, the same chef making some of both batches into various foods...which despite tasting the same in the opinion's of almost the entire work team made the Atlantic Scientific Foundation raise a number of questions as to why the quantum translocation device was being used to bake pies. Any such concerns over the usage of the device, however, were swiftly banished by Dr. Oshiro himself as he had many times before, confidently stating that they were getting ever closer and closer to a human test, and though that stayed the concerns of the ASF, it only roused those of the general public all the more - the open nature of the project and the public awareness of it meant that everyone who kept up with current events knew about the failure of the dandelion's rematerialization process and how it was brought about by nothing more than a moth, and were concerned as to the possibilities of that very same thing happening to the people that used it in addition to the unending firestorm of philosophical debate that had grown so intense that the ASF had ruled out any manned testing of the device for the foreseeable future, yet they still authorized construction of the first ship to be equipped with a quantum translocation drive, just in case.

But that still allowed the device to go forward in its testing of other things. Plants gave way to jellyfish and jellyfish to insects and insects to fish and fish to the most important test of all - living human tissue. Although laboratory mice and rats had long been a staple of the medical industry to study various diseases, particularly cancer, the mouse had almost all but entirely disappeared from modern research centers with the advent of vat grown tissues that were capable of providing much more accurate information and which were a much more ethical choice. It was the last barrier before a full human being could be sent through, and it was to be done with an arm, a limb whose intended recipient was entirely willing to allow them to test it so long as there was the guarantee that they would replace it if something went wrong. Such a test was the most important of all, as all prior work would be utterly meaningless if the device couldn't be used to transport people from one place to the next, for even if there was a failure that could trace its origins back to a technical error rather than any fundamental failing in the technology, the very concept of the quantum translocation device would become poisonous, the risk of failure an ever present worry in the minds of those who would be expected to use it and something that could kill the project more than anything else ever could. For all this the machine was inspected again, not by any technicians or engineers but by Dr. Oshiro himself after the rest of the team had gone home for the evening, having memorized the design of his creation and grown certain of the location of every last component. When they returned the next morning they found him sealing the machine up again, telling all that he was certain that it would work, that he had carried out a number of diagnostics through each of the machine's various systems during the evening and found no errors, not even minor ones, that the test was ready to proceed as planned. Bringing forth a specially designed container able to sustain the living tissue of the arm off of a stored oxygen and nutrient tank and powered by a series of fuel cells, they placed it on the transporter pad and began powering up the device.

Two seconds after the start of the transportation process, it materialized in a hospital in London,
nearly eight thousand kilometers away and only a mere six millimeters from the aim zone, passing all
inspections and being attached to its recipient with no issues whatsoever. The quantum translocation
device was now ready to do what it had been designed to do: to transport a living, breathing human
being through space. All there was now was the need for a ship, and what better name for a ship
whose very existence was brought about to escape the shackles of nature than that of the greatest
escape artist and magician who ever lived?

The Houdini was born.

The Houdini as it looked prior to the fateful test that would claim the life of its designer and pilot.
Painstakingly constructed over several months in Earth orbit, the ship's shape required it to be
constructed with the use of a purpose built dry dock ring rather than in the upper platforms of the
various space elevator stations like traditional vessels. An extremely unique design by the standards
of the time, the ship's crew are contained in the habitat and command module on the ship's front
above the main communications and cargo module where experiments and supplies could be stored
for long voyages, whilst the rear of the ship, connected by a long neck and bound together with
explosive bolts to allow for swift decoupling in the event of an emergency, is where the main
engineering section of the ship is located alongside the auxiliary fusion propulsion and the most
important part of the ship, its iconic rings: replicating the molecular scanner of the original transporter
on a much larger scale, the rings effectively make the Houdini into a giant transporter pad and were
intended to make it possible for the ship to be able to instantaneously cross great distances.

Even though its frame had been undergoing construction for some time, there had always been a
certain reluctance amongst the leaders of the Transatlantic Organization to put any significant
investment into the ship in case the technology proved to be unworkable, but with living human
tissue safely transported from one place to the other there was no longer any such doubt. The
transporter was safe for human use, even if there were more than a few ethical questions to be
answered before it could become mainstream. But that was enough for the superstate to go forward
with the construction of what could be truly called a starship, a vessel that the media would follow with the utmost interest and one that was intended to be the first of an entire family of ships that more than a few expected to be the future of space travel, as revolutionary as the Eurasia itself or those first fusion ships that had made the Grand Tour. It had been considered for a time for the ship to carry several experimental technologies along with on its first voyages, to make it into a physical demonstration of the capabilities of Atlanticist science, yet Dr. Oshiro would personally object to such ideas and state his demand for tried and tested technology only, leaving the ship to be equipped with only things that had already seen long and uneventful service, albeit with the capacity to be equipped with such things as a prototype quantum computer designed explicitly for the task of running the transporter and a concept of an experimental, third generation fusion reactor. But more than anything else, all attentions were on the ship’s iconic rings, for whilst the original translocators had been massive and immobile machines, the entire length and breadth of the Houdini was a single, massive transporter array, designed to rematerialize itself in a specific order so as to ensure that the craft itself would never encounter the failure that might come from some vital part of the craft being dematerialized and thus rendering the whole impossible to be reassembled again. But more than that, the rings held the promise of interstellar travel as they would make it possible for the ship to be able to transport itself across ten thousand kilometers in an instant and do so again and again, inertialess movement that would render concerns about mass a thing of the past. A number of engineers had even looked to the work of Dr. Karume and his theories about the nature of subspace to consider the possibility of constructing a series of relays that could pass the matter stream from one to the next over an immense distance, perhaps even sixty to eighty thousand kilometers, which would allow a starship to go from Earth to the Moon in less than five seconds and from Earth to Mars in little more than twice that, or possibly combining what they knew of his aperture project with their own quantum translocation drive to tear a hole to another star system the size of a pinhead and beam the starship directly through the breach, making interstellar and possibly even intergalactic travel a simple process of constructing more and more relays, though such an idea as imaginative as that was turned down when they found no way to make Dr. Karume’s aperture program work and after being told by the ASF that all attempts to create an aperture had failed and that they should focus on the construction of the Houdini.

And focus on its construction they did.

Designed for one specific role the ship was relatively simple to construct in comparison to the mighty fusion warships that patrolled the space lanes and hunted down the last remaining corporate corsairs and anyone else who thought themselves lucky enough to be able to evade the arm of the law, allowing whole sections of the ship to be assembled in relatively little time, with the rings themselves taking nearly five times as long to build as the rest of the craft combined thanks to the immense precision required for the work. It lacked some of the more traditional design features found in regular warships, however, particularly in the form of a rotating habitat ring that would have been made all the more valuable by the fact that the ship would never be moving at any significant speed if all worked well, simply because there was the desire to make sure that the ship was entirely functional before such features were added, yet as with the idea of installing experimental systems, there was support for such a thing in the form that the ship was deliberately designed with a more modular structure than most, intended to allow the command module to be detached from the rear of the ship in the event of an emergency or to allow for the addition of more modules. There was even the idea of eventually refitting the ship with a colonization bay that would be ejected into the orbit of a target world and which would contain a complete space elevator, allowing it to become the upper platform of a space elevator to which future ships could dock and unload their settlers without needing to enter the atmosphere, which would greatly accelerate the pace of colonization and
especially so when combined with cryogenic suspension technologies that allowed settlers to effectively be boxed atop of one another like any other cargo, leading some to design colony ships that looked more akin to the containerships of the twentieth century than not. All this was planned for and accounted for as possible future applications of the technology and even the other superstates had grown all the more intrigued in the possibilities, using the agreement made beneath the Himalayas to gain access to the designs and begin experimenting with quantum translocation drives of their own, yet as the technology finally came of age and the ship neared completion, the concerns of the masses finally exploded into a storm of debate and argument and uncertainty. For so long had the TAO made its progress on the device known that every family in the organization had an opinion on the matter and how it worked and whether or not it was a simple teleportation device or part of a much greater question as the source of consciousness and mankind’s place in the universe, and it culminated with several major protests throughout the superstate, supported by many of those who worked aboard space freighters and coming from the serious concern that the transporter device was nothing more than a complex means of committing suicide. Religious debate intensified as the great faiths of the world stared down a puzzle the likes of which had never been considered by men of faith before, ultimately culminating in the official condemnation of the device by Pope Celestine VI after he emerged from his private chapel in the Papal Apartments following a three day fast and took no visitors so as to avoid breaking his contemplations, not because of it breaking the laws of physics or somehow being an affront to God, but because as far as he could see from the papers published by the scientists, its schematics and all the other information he had found the original person to enter the device was completely and irrecoverably destroyed by the process and that it was thus tantamount to committing suicide.

And more than a few agreed with him. Many of the engineers and technicians who had worked so hard to develop the quantum translocator and then took part in the construction of the Houdini were anxious about what it might do with a full human being and unwilling to test it for themselves, with not even the TAO’s best test pilots, men and women who had bravely stepped into the latest generation of single-stage-to-orbit shuttles and superalloy-framed hypersonic interceptors without complaint, being willing to step into the cabin of the Houdini, not even for millions of ASC, making it clear that they would resign rather than be part of its test. The project would have likely died there for a lack of a pilot and a lack of support amongst the population, but as so many times before, one man stepped forward to defend his ideas and to show the world that the impossible was possible, that the lightspeed barrier was just another thing to be overcome through the power of human ingenuity, and his words both soothed and scared a nation.

Dr. Sasume Oshiro would pilot the craft personally.

He was confident that there was no danger and that concerns over the morality of of the device were misplaced and came from a lack of understanding behind the core technology. Many of those who were so terrified of the dangers of the transporter technology pleaded for him to do otherwise, begging him not to throw his life away in order to prove that he was right, but the scientist countered such criticisms by saying that every great leap began with a single small step and that he would make that step if no one else was willing, adding that no one knew what consciousness was, whether or not it could be transferred from one place to another or one medium to another, thus simply going to bed at night could potentially be the end of one conscious entity and the start of another the morning after, yet no one was bothered by the idea of sleeping when they were tired. He said such things and a thousand others as well, unable to be swayed by no one, not even his family, so certain he was of
the safety of his creation, and though some tried to tell him that he had no need for the Faster-than-
Light Demonstration Prize, that the potential industrial applications of his molecular scanner and the
transporter itself could make him a fortune, he simply said it was not a matter of money that kept him
going forward. In that moment the world knew he couldn't be convinced otherwise, for it was the
prestige of breaking such a barrier and the thrill of overcoming such an immense challenge that drove
him onwards and onto the Houdini's bridge after a long television interview about his feelings and if
he genuinely believed that it would work, culminating with a quote that described an age.

"Big things have small beginnings."

A day later, certain of success, he boarded the Houdini in Martian orbit after the craft was towed to
its destination, surrounded by dozens of cameras as he strode down the walkway and watched by
billions on the homeworld and throughout the solar system. Giving the camera a wave and a smile
before sealing the hatch and making his way to the bridge and settling into the command chair to
which all the other controls had been slaved, an inefficient but working method of allowing him to
pilot the craft alone. Communicating with the mission controllers on the red planet, he confirmed the
target to be the Earth, millions of kilometers away, a course that was made up of dozens of smaller
jumps over the open space between the planets and what had been calculated to be a safe starting
distance based on the size of the Houdini's translocator and the capabilities demonstrated by earlier,
less advanced machines.

Raising his thumb to the cameras for one last time, he pressed the button to start the translocation
process that at the very same time sent a signal to a nearby lasercomm, his opponent in the race, to
ready itself for the exact moment that his transporter began dematerializing.

A second later the cameras cut out as the ship began to dematerialize with its lone passenger.

The laser beam shot forth at light speed...only to be defeated by something found in the detectors at
the Copernicus Crater Collider, something that they had never seen before and which had only been
theorized and something that would only be fully understood after the voyage. They reported the
event to the nations and peoples of the Earth, however, saying that it was surely Dr. Oshiro who had
casted it with his translocator, and a growing hope began to rise...would this be the moment? Would
this be the most important day in human history, the day that the faster than light barrier was finally
broken?

The laser beam crossed the interplanetary void as normal, reached the target goal in Earth's orbit and
passed through without incident half hour later, and yet there was still no sign of Dr. Sasume Oshiro.

There was no sign of Dr. Sasume Oshiro.
Anticipation turned to unease, and unease turned to fear as the minutes became hours and there was still no sign of the ship.

Until a TAO warship, the TASS *Courageous*, returning from Mercury after carrying out an agreed prisoner transfer and release with the Mercurian Precinctual Republic discovered something between Earth and Venus, a distorted wreck that was warped and ruined in a way that no weapon could ever do. Its transponder, distress beacon and emergency identifier were all inoperable, rendering the ship little more than space debris to the warship's scanners. Using an external camera on the ship's bow to see if the ship's appearance matched anything known to have been lost, they instead saw two rings at a crooked angle and fused together into one in a great V shape, the tunnel that connected it to the front folded in on itself and the command module looking, as one bridge officer said, "as if it had melted."

Immediately altering course and sending a message to the homeworld stating what they had found, the *Courageous* rushed towards the derelict craft under wartime emergency power under the authorization of the Atlantic Council itself, taking the ship's fusion torch to maximum power for the first time. It took but half an hour to cross the interplanetary void at such immense velocities, and yet the news still leaked to the public, leading to a panicked press conference that saw the representatives of the Transatlantic Organization saying to all that they had the situation under control, that Dr. Oshiro's craft had been located and that although his condition was unknown they were taking all appropriate precautions and would inform the public when they had more information. Already conjecture was racing, but such words only added fuel to a bonfire and made it into a raging inferno as the masses quickly deduced that something had gone wrong, wondering whether he was dead or alive or whether he had simply undershot or overshot the target or a hundred other things, but just as the debate for the future of the quantum translocator device began to reach its precipice and as the media filled with the speculation as to what had become of Dr. Oshiro, the *Courageous* launched a shuttle to carry a rescue team to the warped *Houdini*, a team of twenty four men and women chosen to investigate the failure and to rescue the scientist if it was at all possible. It seemed to be a simple enough mission even with the state of the ship's exterior, but it soon enough proved to be anything but as the shuttle found itself unable to dock with the Houdini, the universal connector that all human ships used rendered utterly incompatible by a transportation process that had put the circuitry on the outside and fused the airlock doors together into a single plate of steel, forcing them to latch onto the hull with magnetic clamps and blast through with breaching charges.

What they found within was as strange as it was disorienting, for it was not only the outside of the ship that had been deformed, but every part of its interior - ceilings had become floors, doors had become walls, lights had become glass plants and control panels had been fused with seat cushioning. More, the very internal layout of the ship had been completely rearranged, resulting in rooms and hallways being where there should be nothing and being as equally distorted as the rest of the ship, yet even more bizarre were those places where the quantum translocator had simply been unable to tell where one object ended and another began and so had simply fused them together, resulting in the prepacked meals in the ship's galley being fused seamlessly into their containers as though they had been welded together. Even the computers themselves had been utterly destroyed as the nanometer scale transistors were fused together, some made into single blocks of pure silicon and others restructured as to mirror the craft's original deck plan or structured like brain tissue, all useless, whilst the ship's black box recorder and the four different forms of data storage it used were all destroyed - the magnetic tape was fused together into a single featureless disk, whilst the hard, solid
and holographic drives were all beyond repair and had what little readable data stored within so utterly distorted as to be completely illegible. Even the ship's mighty fusion reactor had fallen victim to whatever had destroyed the Houdini, with one half of it being where it should have been and the other half three decks below alongside the other half of the engineering bay, one of the only places that had rematerialized properly. All this had to be done with manual exploration of the craft, as the schematics had been rendered useless as a reference, but after nearly an hour of exploration through the disrupted ship they finally discovered the bridge and gained entry...only to discover the remains of Dr. Sasume Oshiro fused with his space suit that was fused to the command chair that was fused to the bulkhead, so completely warped that it required a welding torch to remove him. Towing the ship back to the homeworld, not even the engineers who had built the Houdini were able to even imagine repairing the ship, taking a minute sample of the hull to reveal that the very alloy that comprised the ship's frame had been completely reorganized into what they would dub "translocatium" for its possession of an internal structure that would have been utterly impossible to make by human hands, but the greatest nightmare of all was in the autopsy of the man who had lost his life in the voyage, revealing that parts of bone had been replaced by superalloy and plastic, that brain tissue had been reshaped to mimic the patterns on one of the snack wafers in his pocket and that his tissue scaffolds and cells, all of them, were so immensely damaged as to simply slough off at the lightest touch, simply falling apart on contact...yet which were so ruined as to be unable to rot, bacteria unable to eat that which remained.

No one knew for sure what caused the disaster, for only Dr. Oshiro himself would have had the understanding of the technology necessary to be able to find the precise cause, leading to much conjecture and little certainty: some blamed the technology itself and claimed that it would have never been workable on a human scale due to the sheer complexity of the human brain when compared to any other creature, others pointed towards a technical failure that was the result of going beyond the Earth's magnetic field and that there was perhaps something unique about the homeworld that rendered it safe to transport there and nowhere else, others put the blame on the Sun, claiming that its immense mass had bent the ship whilst it was in transmission and distorted the matter stream, whilst some few claimed that the device and the technology were entirely able to do what he had dreamt of but that the rush to beat the other superstates to the technology and the breakneck pace of it all had ultimately resulted in tragedy. One of the engineers who had worked with Dr. Oshiro throughout the entire length of the project would even suggest that there was simply a maximum range on the transporter of a hundred thousand kilometers or so, which would render the drive unsuitable for space travel. But the sheer amount of public awareness about the nature of the quantum translocation device and the sheer magnitude of the failure in the eyes of the world's peoples resulted in a backlash against the technology so great that even the Eurasian Union was forced to abandon work on the field, yet alone the Transatlantic Organization that saw a full ban on quantum translocation technology within three weeks of the Houdini's first jump, brought about by the ethical questions behind the technology and the immense dangers that came with it, the image of Dr. Sasume Oshiro's lead casket being lowered into the ground in his homeland doing more to damn the technology than anything before then. Even the Houdini, ruined as it were, was brought down to Earth upon the request of the African Confederacy, where it was placed alongside the Museum of Mankind in a specially constructed cradle to hold its warped frame as the latest and greatest addition to the Hall of Defeats, scheduled tours leading small numbers of guests through the Escheresque interior.

****
A Dying Dream...

With the failure of both of the most expected faster than light methods to produce a means of faster than light travel that was both economical and safe, there was a growing certainty amongst the scientific community of the world that this had only served to prove what had been expected from the beginning - it was impossible to break the speed of light. It was a belief that was reflected in the eyes of the general public, in the growing acceptance of the idea that humanity would never be able to spread amongst the stars as people had always dreamed of doing, never able to explore the universe and peer beyond the veil of stars to see what was there waiting to be discovered on the other side of the nearest nebula or on the surface of a world orbiting another star. The greatest of mankind's scientists had given all of their effort to create a means of doing so only to come up empty handed, each and every time as humanity found a barrier that couldn't be overcome no matter how many engineering hours or trillions were thrown at it, something that not even the terraformation of Venus or the defeat of the MIF could compare to. It was tragic, so great a demoralization for the sons and daughters of Sol that it could be seen plainly in polls conducted after the failures and in the number of people diagnosed with nihilistic depression, but it was something that had to be accepted for civilization to move onwards, yet for the rulers of the world it was nothing short of a disaster: the future of all mankind had hinged upon the development of faster-than-light capabilities, yet all of humanity's resources had been thrown at the problem and came up short. Nothing they had developed was viable, nothing they had developed was safe for all to use, nothing they had developed would be able to send human colony ships soaring beyond the walls of the home system and to new frontiers. With the dream of forming interstellar nations able to relieve the needs of the homeworld beginning to come crashing down, there was the genuine fear amongst those who were informed and those who were the leaders of so many that this was to be the end of it all - the end of uncounted thousands of years of human history would come not from disaster or war, but from being the victim of its own success and expanding too far beyond its capabilities.

Yet the spirit of the age was one that demanded that people press forward against whatever barriers there were in the universe, and though faster than light travel was seeming to be an impossibility, some came up with alternative ideas over the months that followed the abandonment of efforts into FTL capability and the quiet fading away of the Faster-than-Light Demonstration Prize to something everyone know of but knew could never be claimed. New ideas had to be explored, new ways to increase production and living space, and gathering together the world's minds once more, a number of options were presented to extend the lifespan of civilization further: the construction of floating colonies in the atmospheres of the gas giants and orbital habitats throughout the solar system was considered as a reasonable means to increase the amount of living space, whilst terraforming Venus, Mars and Luna would certainly take time but could provide massive returns on investment, orbital greenhouses could relieve the strain on food production and even provide large quantities of vat-grown meat to put on the table. One particularly daring idea presented by a team of engineers was the possibility of starting construction on a ringworld and Dyson swarm, to transform human civilization into a Type II civilization on the Kardashev scale, where the immense power that being able to use the entirety of the Sun's energy would allow for the operation of vast automatic farms over massive swathes of a surface that would be equivalent to a hundred million Earths and able to support quadrillions of people. Such a project would require the planets themselves to be dismantled, a task that could be done in a "reasonable" timeframe through the use of self replicating Von Neumann machines that would result in a rapid acceleration as construction proceeded, rendering it theoretically possible to finish construction by 2600 or so if they started immediately and faced no
major technological hurdles. Such a project was seriously investigated by the Transatlantic Organization, who believed that even a small segment of the finished ringworld would be enough to sustain human civilization long enough for a future solution to the faster than light problem to be found, especially if combined with a partial Dyson swarm to provide energy for its inhabitants as the engineers suggested.

An artist's impression of a Niven ring, similar to that as described in the Ringworld series of novels.

A massive super project far ahead of the terraformation of Venus in scale and difficulty, the superstates briefly flirted with such an idea following the failures of both Dr. Karume's aperture and Dr. Oshiro's quantum translocation device, leading to a number of studies as to the feasibility of its construction and a number of plans that provided simple, albeit long term, plans for the construction process.

Such a technological construct, although grand in theory, was recognized to be beyond the technological capabilities of the time, however, as it would be heavily dependent on superior robotics than what any of the superstates could yet field, but was placed under consideration all the same for any other ideas that might come from it and which could help humanity out of its predicament. One extreme idea was to even consider the possibility of towing asteroids from the belt and even some of the dwarf moons of the gas giants into Earth orbit and hollowing them out to create massive, self-sustaining habitat complexes that could become homes of millions of people, but the main reaction came in the form of a greatly accelerated pace of ship construction and a larger emphasis by the superstates on the construction of "space buses" that were now beginning to feature cryogenic suspension so as to increase the amount of people that could be carried from Earth to the Luna colonies, which were quickly becoming the main target of colonization projects due to their proximity to the homeworld. Another particularly intriguing idea was to colonize Enceladus, the frozen moon of Saturn that was covered from pole to pole in oceans of water ice, which could be easily melted through the use of fusion energy and used to sustain a massive aquacultural and hydroponics project able to feed billions, and so viable was this idea that the superstates of Earth began work on designing settlements for the environment, constructing tunneling machinery and genetically engineering crops to be more suited for the cold environment so as to simplify logistical
concerns and spare a significant amount of energy that would have otherwise been needed to heat the hydroponics bays. But all this came with the rise of subsidies for those who were willing to live on other worlds or beneath the surfaces of moons and asteroids, allowing many of those who had always dreamed of having a chance to live off world but whom had failed the entrance exams necessary for corporate sponsorship by whatever meagre fraction to do so, opening the way for another great wave of colonization that would be fueled all the more so by the ever increasing number of ships able to carry them to their destination. On a clear night away from the major cities, they could be seen passing through the night sky with the naked eye and viewed in detail with a simple telescope, whilst the upper platforms of the space elevators themselves could be seen as a glittering crescent in the sky at sunrise, all signs that pointed towards the development of Earth's orbital space, for every year there seemed to be a few more stars in the night sky despite the lack of a faster than light engine to accelerate the pace of things. Such a transformation was even reflected in the works of fiction of the time, which began to shift from tales of galactic spanning empires to ones focused on a single star system, with every planet and every moon and every asteroid part of the tale and taking up the roles that the myriad worlds of older franchises once had. All this were the signs of acceptance that man would never travel faster than the speed of light.

And yet perhaps such a judgement was premature.

Although the various faster than light projects were ultimately one failure after another that culminated with the death of one of the world's most renowned minds...something good had still come of it all.

It came in the form of the strange discoveries of the Copernicus Crater Collider following the incident. It took them many months of hard work and intensive study to confirm an event that they simply could not replicate without another quantum translocator device of equivalent size to that of the Houdini, even then they were unsure of how to do so, but the detectors that had been deployed for a completely different experiment had instead managed to detect and continued to detect a number of events that would have been dismissed as a blip were it not for the timing of it as to coincide with the dematerialization of Dr. Oshiro's ship and the fact that other scientific outposts throughout the solar system had detected something at near enough the exact same time as the equipment at the CCC, yet none of them had the sensitivity necessary to properly determine what exactly had happened but the machines on Luna. Pooling the data that they had discovered with information provided by their Eurasian and African counterparts, they realized that they had each witnessed the same event a matter of microseconds apart, because of what they saw was right then Dr. Oshiro himself hadn't travelled faster than light, but something that he created had.

Tachyons.

Long theorized to exist as a form of particle forever travelling at faster-than-light speeds due to gaining speed as its energy decreases, tachyons were something whose very existence had long been a thing of doubt due to relativity and the fact that, before the test, none had ever been observed in the natural world. And how could they? Travelling at such an immense pace would mean that it would be difficult to detect them even if they were common in the universe, as they would pass by so
quickly that all traditional forms of detector would simply be unable to register that they had been there at all, with it only being the sheer scale of the CCC’s detector arrays, their immense complexity and the great number of tachyons released by the quantum dematerialization process that allowed it to be detected in the first place, and even then the brief fluctuation that was their passage resulted in much of the record being determined to be junk data by the automated systems that processed the information, leading the software to recommend deleting the data and inspecting or replacing the device itself due to a probable malfunction. Although they were beyond the capabilities of even the CCC to replicate - the physicists there having little idea of even where to start - without another quantum translocation device, the particle, now increasingly known as oshirons in honor of the scientist who had died in their creation, could be detected emanating from the hulk of the Houdini for some time, a process that one described as being similar to radioactive decay, but no machine devised by man, not even the molecular scanner that was used to dismantle the ship in the first place, could accurately determine their trajectory, speed or any information about them whatsoever other than that they were there before they were out of range. More, they seemed to phase through matter as though it wasn't there whatsoever, leading some to determine that they were a natural byproduct of the quantum translocation process, particles that were able to snap from one place to the next at lightspeed and simply ignore whatever barrier was placed between, whether it be a sheet of paper, a magnetic containment field or the Sun itself. Yet the detection of even a handful of oshirons had allowed for detectors to be calibrated for that task, raising the detection chances by a few small percentage points, but attaching them to a number of radio telescopes revealed that there were many such particles travelling through the universe, particularly from a number of stars in the local vicinity, which opened up a number of questions about the nature of the universe and modern physics that had never even been imagined before.

They were proof that something was faster than light, and if anything could go faster than light, then the light speed barrier was something that could be broken.

And in what was perhaps the greatest tragedy of the age, no one cared.

The world had seen thousands of proposed methods of faster than light travel step forward, many of them with some theoretical basis behind them and all of which had been fairly considered and resulted in a final two possibilities that had both failed, and for it, the world was tired. The superstates had spent vast fortunes on the creation of such technologies, fortunes that could have been spent on the construction of orbital habitats or more torchships, things that were guaranteed to give results in contrast to the uncertainties of another attempt at discovering faster than light travel, and even the general population were seemingly burnt out on the matter, having had their hopes raised again and again only to see them dashed each and every time to the point that they simply didn't care about the words that the scientists of the CCC told them, believing the idea of faster than light travel to be as dead as artificial intelligence, and so the excitement that came with the possibility of finally found a way of breaking through the barrier was defeated not by technical issues or the infeasibility of the idea, but by an indifference brought about by past failures that had many of the worlds greatest scientific organizations simply point to past failures as proof that breaking the speed of light was an impossibility and that the findings of those who worked at the Copernicus Crater Collider and at the other stations throughout the system were possibly some unique form of radiation that was a result of the quantum translocation device's failure, perhaps even the result of partially materialized atoms that were half present and half not and flickering from one state to the other or perhaps even the cause of the failure in the first place, before stating that faster than light travel was impossible as even if a
particle could exceed the barrier that was far from a guarantee that a human could do the same, as Dr. Oshiro's device had shown that complex items could be transported around the world with ease and do so time and time again, yet which still failed to safely move a single individual. The idea was dying, held onto by a small number of hopeful individuals who thought that they had never been closer to the breakthrough that would bring about interstellar travel, men and women looking through the many works that had been submitted in the early days of the Demonstration Prize for anything that might have been overlooked or ignored or which seemed similar between different devices and which could be a good place to start, yet they lacked any serious backers, the greatest devices assembled being made in people's garden sheds and workshops, made from cheap materials and with crude tools and without access to the immense amounts of power that might be required. They were looked down upon by the general scientific community, who regarded them as little better than those that had clung to the ideas of cold fusion and antigravity in the mid-twentieth century, mad ideas with little practical benefit, and even the population at large tended to regard them as eccentrics at best and crackpot conspiracists at worst.

All that meant that when one man, a young physicist from Bozeman Montana, stepped forward with a radical new idea that was based in sound theory with the expectation that he would be taken seriously by the world, he instead found that there was little interest in what had been his life's work. His name was Zefram Cochrane, and he had lived a life since his birth in 2017 that would have stood out little before he so utterly conquered the entrance examinations of the Montana State University that his future professors thought he had cheated. Grandchild of an engineer who had gone down with the Enterprise after it was struck by an antiship missile during the Augmentation War, Cochrane was a born mathematician who had been initially on track to become an accountant as he paved his way through the university with such ease as to have caught the eye of the head of the university's department of physics who told him flatly that he would be wasting his talents in anything other than a mathematics degree, and either out of a realization that such words were true, a desire for fame or simply because he was drunk at the time - as he so often was, according to friends and teachers alike, who would later use him as a textbook demonstration of the strange effects of a low amount of alcohol on problem solving skills, so much so that it would later be known informally as the "Cochrane Effect" - he made a transfer from the College of Business and Entrepreneurship to the Department of Physics, where his utter decimation of every challenge brought before him would lead to him setting a state record. Pushing towards a doctorate, he was working on a thesis regarding the nature of Dr. Oshiro's work and how it could be applied to create the ultimate materials analysis technique through the digitization of a sample taken, effectively creating a more precise form of spectral analysis, only to get perhaps a little too drunk and end up in a fistfight with a philosophies major on his way back from the bar over the Ship of Theseus problem before being arrested by the police and spending the rest of the night in lockup at a local precinct to keep him out of harm's way till he sobered up. Yet, in a choice that would forever alter the course of history, the drunken Cochrane examined a newspaper left inside as reading material, finding an article that covered the findings of the scientists of the CCC and the general history of the science of faster than light travel.

As it so often was with Cochrane, he saw something that others had not.

He saw that both Dr. Oshiro and Dr. Karume had uncovered two pieces of the same puzzle in two completely different ways. He saw that Dr. Karume had discovered subspace, a strange dimension beneath the normal one where regular physics no longer applied in the way that science expected them to, hence the bizarre information that had been detected at the CCC those years ago, whilst Dr.
Oshiro had inadvertently been using subspace to transport matter from one place to the other in the form of the energy stream that was wrapped inside the protective bubble of the confinement beam that was generated in order to prevent the information within from scattering. Combined together, this gave a reason why tachyons could travel so quick: they were somehow generating a bubble around themselves that allowed them to travel through subspace at speeds greater than the speed of light, but because they were a solid object rather than energy they were able to withstand the strange transformative effects of the quantum translocation device and because they generated the bubble themselves they were able to travel freely without the constraints of an aperture or subspace corridor.

Ripping out the back page of the paper and using a pen to scribble down ideas, Cochrane returned to the university grounds the morning after, went to his room and started again, creating an entirely new paper that he dubbed a work of "subspace theory" that aimed to explain how the tachyon could move in the first place - they skipped across the surface of subspace, dipping deeper in the way a sewing needle might pierce cloth, explaining how it could travel through solid objects and how it could breach the lightspeed barrier. Combining the basic ideas of Karume and Oshiro together, he described the existence of a "subspace distortion field" around the tachyon that made it possible, and although he was still uncertain of the exact cause, he went into detail about the possible geometry of it, which in line with Karume's own papers meant that it would be possible in theory to construct a coil similar in nature to that which had been used in the aperture but far less powerful that would warp subspace beneath the vessel enough to create an engine capable of faster than light speed through a means not too dissimilar to that of the catamarans of Earth's oceans. Although Cochrane expected to need to defend his thesis from all comers, it was instead welcomed with a fair amount of acceptance amongst the scientific community thanks to the fast support of the scientists of the Copernicus Crater Collider who agreed with his findings and helped to bring it into the acceptance of the scientific community at large. Such rapid success could only have been good for Cochrane's scientific career, and indeed it was as it would see him swiftly receiving his doctorate along with the highest honors of the university where he would spend many years carrying out lectures on the topic of subspace theory in his own right, but such a quiet settling down and fading into the background would never have been something that any who had tasted such praise could ever hope to accept.

After four years of working on the plans in his spare time, he stepped forth into the desolated arena that was the Demonstration Prize. It was 2055, several years after the death of Dr. Oshiro, and he submitted his proposal for a true star engine to the Atlantic Scientific Foundation, ideas that included preliminary drafts of a spacecraft that would be able to exploit the concepts laid out in his theory to achieve warp travel.

The rejection was quick.
Citing the failed experiments and utter discrediting of Dr. Karume, the death of Dr. Oshiro and the many hundreds of other rejected ideas and failed concepts of so many who had stepped forth with their own ideas to achieve superluminal travel, the ASF reiterated its belief that faster-than-light travel was an impossibility, rejecting his application for funding and government support and thus rendering it impossible for Cochrane to construct his warp vessel, though recognizing his brilliance and giving him leeway to choose whatever project that he might have desired...something that some skeptics thought was little more than a way to keep the doctor busy and to ensure that he raised no trouble. But whatever the goal, Cochrane was too determined to be brushed off so easily and travelled to Arlington, Virginia in order to pitch his ideas directly to the National Science Foundation of the United States, still present as an entity independent of the ASF, albeit subordinate to it in many ways, only to be rejected again. So he refined his plans and presented them to the organizations again a year later, only to be rejected once more before taking his ideas to the private sector, knowing that the first corporation to construct a faster than light engine would be the first multi-trillion dollar business and that he would be able to make a fortune of his own in the process, yet the corporations themselves were unwilling to gamble so much money as to construct an entire starship on an idea that wasn't proven and which was in a field that had every attempt before it come up as a failure,
with even those businesses that were interested in the possibilities of the quantum translocation device as a means to simplify logistics had abandoned the field of research following the disastrous rematerialization of the Houdini and how it ruined even the metals that comprised the ship's structural frame. Every visit was a failure, one after another, year after year and revision after revision, much of the world's rich and powerful no longer believing that it was possible to construct an engine capable of travelling faster than light and those who did unwilling to invest in it without the serious possibility that it would payoff and those were absolutely certain lacking the means to fund it, the same story every time repeated throughout the length and breadth of the Transatlantic Organization and the private sector within it, with even an attempt to go directly to the operators of the CCC to try and use some small percent of their large budget over many fiscal years to construct the craft proving unworkable due to the need to spend such funds on expanded habitat modules and new support infrastructure in order to house and nourish new researchers coming onto the project.

After so many failures, so many rejections, he was almost entirely out of hope. But there was still one place he could go to, a place where there was a man who might be willing to help him build his dream...

The Himalayas, 2057.

Dr. Zefram Cochrane shivered as he brushed the snow and frost from his goggles and looked around the pale white landscape, his ears filled with the screech of the howling winds that flowed down from the mountain tops and brought with them a piercing chill that stabbed through all the layers of thick padding he had as though it were a razor sharp dagger. In the distance he saw Everest, towering over its lesser siblings of the Himalayas, coated with shining snow and patches of bare grey stone and the occasional tiny dots that had been the base camps for hopeful climbers in the days before the Augmentation War, camps that had fallen into disuse with the outbreak of fighting and been consumed by the white and left to fall into ruin, never to be used again in as great a number as before the war.

"Are you alright, doctor?" came the husky voice of his guide, an Eurasian trooper dressed in the rippling colors of mountaineering camouflage, white poncho fluttering in the winds like a cloak and revealing the hefty battle rifle beneath, slung to the soldier's body and as much for their protection as it was part of their duties in.

"Never better," the physicist answered as he slogged forward through the snow, boots sinking past his toes with every step as he felt the sway of the pack upon his back as its weight shifted. "How the hell do you handle being out here all day?"

"You get used to it after a while," the soldier answered, moving through the thick snow with deft ease that made Cochrane's movements look clumsy, looking towards the scientist with a face concealed beneath a woolen ski mask but for the eyes. "This is good weather for this time of year."
"If this is good weather, then what's it like when it's bad?"

"When it's bad we wouldn't even be thinking about making this journey," the soldier answered, raising his voice as the winds picked up. "You wouldn't even be able to see me from where you're standing!"

"I can barely do that now!" he shouted through the winds, wiping the ice from his goggles again before raising them onto his head, wincing as the cold rushed against his eyes and forced them to narrow. "How much further?"

"Still another fifteen minutes," came the reply, the soldier grabbing Cochrane's shoulder to keep sight of him in the brilliant white snow. "It might be a good idea for us to start heading back, make the attempt tomorrow!"

"I've been trying to get support for nearly six years now," Cochrane shouted back. "Like hell am I going to turn back now!"

"Alright," the Eurasian answered as he patted his shoulder in affirmation. "But if this gets worse, we'll have to get a transport out of here!"

Cochrane slapped the soldier's hand twice in understanding, then lowered his goggles again and started moving forward into the winds, one long step at a time, pressing himself forward. It was a struggle, but he would be damned if he refused to face one now - the TAO, the ASF, the corporates, they had all turned him away without so much as a good reason why other than that they thought faster-than-light travel was impossible, even though his paper had decisively proven that oshirons could do such a thing and that his idea was cheaper than either Karume's or Oshiro's had ever been. It had been one long struggle just to get them to take him and his ideas seriously, some saying that he was too young to know what he was talking about and others saying that he was mad, but this was his last best chance to find the support he needed to build his warp ship, to give mankind faster than light capability, to finish that which he started, and the pressure of the wind blowing against his body as though to try and drive him away from his goal was nothing compared to the disappointment of one rejection after the next, over and over again. Not even a blizzard in the midst of December would be as great a challenge as that, even on the slopes of Everest where such a storm would have been a death sentence, but every storm had its limit, even here in the Himalayas, and after a few minutes of walking, the fierce gusts began to settle down as if to reward him for his determination, the storm spending the last of its strength to reveal a place that looked as though it belonged on another world, for he raised his goggles to see a garden of ice and snow, rolling across the jagged mountains like a great blanket of frost, shining silver-gold in the strengthening sunlight, so striking that he stopped dead in his tracks, looking all around with awed eyes as he took in the magnificent sight.
It was beautiful.

"Well, doctor, I see you've realized why he makes his home here and nowhere else," the Eurasian laughed, raising his own goggles onto his helmet to reveal the dark blue eyes beneath before raising a thickly gloved hand and pointing towards a small building resting on the slopes of the greatest of the world's mountains, a home as white as the land around it and three floors in height and with a great balcony instead of a roof. "There it is."

"Small home for a man who controls half the world," Cochrane said, joking and yet respectful of the man who was so surely one of the greatest heroes the world had ever known. "You'd think he would have a palace."

"Eurasia is the only palace he needs," the trooper answered, the admiration clear in his voice before he turned towards the scientist with military precision. "I am only allowed to escort you this far. You'll have to go the rest of the way from this point on your own."

"How come?"

"He'll tell you when you get there," the soldier said...before adding as an afterthought. "If you get there."

"Thanks for the encouragement," Cochrane muttered with a sigh.

"Anytime," the trooper said cheerfully before turning away and heading back the way they had came, back to the guardpost that served to protect the command center beneath his feet and to guide those who had come to speak with the ruler of the Eurasian Union to where he might be found.

Alone, Cochrane looked towards the house and started his way towards it, the valley silent but for the sound of the snow packing beneath his boots, yet the further he walked, the more uneasy he felt - what if he turned him down as all the others had done? What if he had come at a bad time? What if he failed to convince him that he was confident in the capabilities of his invention? How could he explain that all the others had rejected his plans? That even his own nation and the corporations had turned him away when he made his proposals? What if he offended him somehow?

He was hesitant, now, and he looked towards the house again with an anxious feeling rising in the pit of his stomach. So much could go wrong.
Yet if he succeeded...so much could go right that he could barely begin to imagine it all. The man whom he depended upon for his project was the father of augmentation technology, the man who had changed mankind itself and brought about a world free of genetic illnesses that had once limited so many people from being able to live their lives to their full potential and who held the loyalty of all those who had been born since the release of the Ascension Flu into the world's atmosphere. To have the backing of such a man was to have the complete support of the first of the world's superstates and to have his ideas accepted by all the peoples of the world as something worth examining, to have vindication for all those who had doubted him and his abilities. He would have everything he needed to construct his warp ship and to give the world faster than-light-travel, and though he was more interested in the glory of it and in proving the skeptics wrong now than he had been in the profits at the start, the reward that would come with fulfilling the requirements of the Faster-than-Light Demonstration Prize was certainly more than worth the time that he had invested in perfecting his designs and plans and enough to motivate even the most ascetic of men.

And so he pressed on, the house growing closer one footstep at a time, as his doubts and reservations did. Yet he went on. He had to convince him, for there was no one else in the world who would listen and give him what he needed, years of travelling around the world had done that and shown that this was his best chance, his last chance, for the African Confederacy surely wouldn't wish risking the recreation of Dr. Karume's failures and no one would want to pick up an idea that had been rejected by the greatest Augment to have ever lived. He had to do it, he had to push on, else it would never be done, yet every meter brought more doubt to his mind, doubts that became harder and harder to dismiss or ignore, slowly winning the war that was raging within.

Then his foot felt something solid beneath the soles of his boots, something firm and solid rather than snow. He was there, stood on the porch of one of the most powerful men in the world. He looked around, as if to try and find anything that might help him in the challenges ahead, anything that could give a clue as to the personality of the man within, eyes finding little more than an utterly seamless exterior that he couldn't even begin to guess the material of, unmarred by all the might that the Himalayan weather could muster, yet before him was a simple door not too dissimilar from those that might be found in any of the Century Cities and the like. Tentatively he reached for the handle, pressing down, concerned he might feel the resistance of a lock till he felt and heard the soft click and felt the door give as he stepped forward and entered what felt as though he had gone to yet another world, a place completely different from the glassy surface of the outside world of the Himalayas in wintertime and more like that of any of the great cities that dominated the Eurasian Union or the Transatlantic Organization or the African Confederacy, and yet different in a way that took but a glance to see and notice.

Unlike the cities that were smooth and sleek and curved, everything within the room was perfectly geometric, from the sectioned cubes that were the chairs to the exactly cuboid glass coffee table in the midst of the room, to the exactly cylindrical lampshade that surrounded an exactly spherical lightbulb. Even the sculptures that adorned the chairside tables were geometric, smooth and sleek forms made from triangles and squares and hexagons and all the other shapes that he could imagine, interlocked together to create pastel colored works of art that added to the room's beauty as much as they were a part of its carefully prepared order, for that was what the room was: order. It was strong, firm, inviolable, even the very air itself seemed certain of its place in the world and responsibilities, as if the very laws of physics had been sculpted into shapes and placed to adorn a place of machine precision...and yet, that only made the presence of a thing of chaos where there should be something
of order all the more strange, for upon the wall to the right of the entrance and placed in the position of honor that meant that any who were sat in the room would look upon it was a thing of mismatched colors and mismatched shapes, a loving child's gift to a beloved father.

"Ah," came a voice from ahead, soft and aged but strong and certain, the director of the world's largest and most populous nation entering the room through a doorway on the far side with a regal demeanor. "You must be Dr. Zefram Cochrane."

"I am," the physicist answered as he closed the door behind him. "You knew I was coming?"

"Please, sit," came the answer. "We have much to discuss."

Without any hesitation and without thinking, the warp engineer walked to the nearest chair and sat, the man sitting opposite and glancing at a carefully produced booklet that Cochrane hadn't noticed he had before dropping it onto the table, the paper sliding across the table to Cochrane's side to reveal that it was his.

"Your ideas are very intriguing."

"Thank you," Cochrane said with the utmost respect. "I have been working on them for a long time."

"Indeed you have," came the answer, and then he seemed to smile as he settled back into his chair. "But where are my manners? I am Khan Noonien Singh, Director of the Eurasian Union. I assume you are here in need of my help, doctor?"

"I am," Cochrane said honestly. "You have read my paper?"

"I make it a point to ensure that my administrators and myself remain up-to-date on technical matters," Khan answered. "More than a few believe that your ideas hold some merit, more than most of the proposals for certain, but they remain unconvinced. Too many failures and too few results for them to consider it a wise choice without further evidence."

"But tell me," the director said, changing the topic. "Why is it that you come here last?"
"If you know enough about me to know that I was coming here and that I visited a lot of other places first, then you know that I have been struggling to find anyone interested at all," Cochrane reasoned. "I thought for a while that you might not be interested as well."

"Then you are sorely mistaken," came the answer, soft spoken with not even a single hint of the steel beneath, the iron will that had forever changed the world. "Nothing could please me more than to see our people spread to the stars. To do that in a reasonable timeframe, perhaps even to do it at all, requires a form of faster-than-light. Few have spent more in search of such pursuits than the Union. It was our fusion reactors that powered Dr. Karume's aperture, and our alloys that made the Houdini's rings."

"And yet both times saw our investments lost for no gain," he finished. "What guarantee do you have that the same shall not occur with your warp drive?"

"I cannot guarantee anything," Cochrane admitted. "Not more than any the others did. But it is based in theory, sound theory that the scientists at the CCC confirmed as plausible and which works in line with the laws of physics as we know them."

"A specific model of physics as interpreted by a man who was discredited," Khan countered. "And yet you do have evidence in the form of the tachyon particle, something that many amongst the academic community still question the existence of, even with repeated recordings."

"Some of them think of it as some form of translocation radiation," Cochrane acknowledged. "But I and many others think that they are wrong and that they are so blinded by the notion that breaking the speed of light is impossible that they are ignoring evidence to the contrary without giving it a fair chance."

"And what is it that makes you believe that I will do what they did not?" Khan asked from across the table, voice firm and solid. "That I will not look at the evidence and concepts that you have brought with you and that I have in my own possession, find it wanting and turn you down, as all the others had?"

"I was hopeful on the way here," he answered honestly. "You've helped other inventors in need of help to get themselves off the ground before, even just regular people who were desperate for help that they couldn't get elsewhere. But at this point, I doubt there is any way that I could ever hope to construct this warp ship without help from someone. The price for each of the warp coils alone is - "

"One hundred and twenty five thousand Atlantic Standard Credits, by your estimation in your paper," Khan nodded knowingly. "Cheaper than the components for either of the two main projects,
but still too much for a professor on his own to be able to construct the craft in a reasonable amount of time, especially since you claim to require twelve of them for each nacelle and that there might well be unanticipated issues in regards to the power supply."

"That is a risk," Cochrane answered, feeling more and more uneasy as the conversation went on and as Khan demonstrated his knowledge of his plans. "But that's only a small issue. Even a reactor like the one on Dr. Karume's aperture station would be three, maybe four times the power requirement of the ship."

"And yet that would dramatically increase the cost of constructing your warp ship by almost tenfold, would it not?"

"It would."

"Then why do believe that your plan is good enough to be used as the basis of a much larger project, when you haven't yet determined the exact price of the craft, or even a narrow area of which it might fall into? "

"I do it because I don't think there is a way that I can get closer to a final product without at least some form of support to help me carry out the experiments that need to be done to find the final price of the ship," he said truthfully, showing strength before Khan for the first time since he had sat in the chair. "I know there are a few faults in the plans that leave a few questions about how to proceed and how much time and money it might take to finish the ship, but the rewards that would come from the completion of a working faster-than-light engine are so great that to let a little unexpected expenditure or a few months of time stand in the way would be one of the greatest mistakes ever made in all of history."

"The warp engine would make it possible for people to not just travel around the solar system, but to travel from here to Alpha Centauri and beyond in just a few months when it would take years even with the fastest fusion engines that have ever been built," he continued, growing more confident. "It would put hundreds of worlds right at our fingertips, even thousands. We would make more progress in the ten years after its development than we have since we invented fire. It would be a second Ascension Flu....it would change everything."

"If it works," Khan answered.

"If it works," Cochrane sighed. "If it doesn't, then we're stuck here."
"I must admit, doctor, that this has been a most interesting conversation," Khan said at last, hands resting on the arms of his seat. "You have travelled all the way here to tell me yourself that your own invention has the serious risk of being either another dangerous failure like that which took the life of Dr. Oshiro, something that doesn't work like Dr. Karume, unable to be powered by the technology that he have today or simply too expensive for practical use."

Cochrane looked to the ground in defeat, then. It was hopeless. He had tried his best -

"You will need to pack what belongings you might find necessary for your work," Khan began again. "Such experimental work is best done away from the homeworld. An asteroid would do, and the Union has many of them. Have you ever travelled by fusion torch before?"

"...you mean you accept?" Cochrane asked, stunned by the director's words. "After all you've said?"

"Of course," Khan answered knowingly and with a smile. "My mind was made up the moment you entered. You shall have your funding, doctor, and all the resources you might desire to construct your warpship."

"But you yourself said that there was little chance of this succeeding?"

"It would not be the first time I faced grim odds, doctor," Khan acknowledged with understanding. "I have faced them often enough to know how often things can be decided by the smallest thing, how the entire world can be balanced on a knife edge and tipped by a speck of dust, a virus even. Neither you nor I would be here were that not so. The fact that you are willing to stand here before me proves that you are certain that your device will work and that you have no doubts that you will fight against every challenge you might find."

"...that's why you keep your residence here, isn't it?" Cochrane asked with growing realization. "You do it to make sure that only those who are truly in need will come here. That they are willing to commit themselves all the way."

"What better way to know that those who come to me do so out of desperation and a genuine need for my aid and not out of a desire for personal gain or greed?" Khan returned before nodding. "There are no monsters here in the Himalayas, doctor, nor any true danger. My men patrol this land often enough that they would find anyone in need of help before they could be truly harmed by the experience, and the weather is predictable enough that those who take their assistance will go through storm and sleet and snow before they reach my door under calm skies, no matter how much they might speak of how dangerous it is here."
"The challenge, then, is for them to overcome their own demons, to make sure that they are certain that this is the right course of action for them." he concluded. "You stood your ground when confronted with the failures of every other man and woman who tried to do what you want to do and even in the face of the risk of your own failures. That requires courage, and a great leap such as this will have need of it."

"And in recognition of that, as of this moment you have my backing," Khan said at last. "The resources of the Eurasian Union are at your disposal: I will personally review your requests for funding, personnel and resources as and when they are made, so rest assured, you will get whatever it is that you need. But the sooner you begin, the better."

"Is anyone else going to know of this?"

"The Atlanticists and the Africans made their projects clear for the whole world to know and shared their findings with us freely," Khan said. "There is no reason for us not to do the same. I am a man of my word."

Then the director rose from his seat. "By the time you reach the guardpost again, they will have received word to provide an escort for you back to your apartment so that you might pack before being flown to Baikonur, where a space plane shall take you to one of our ships in orbit. From there, anywhere suitable will do."

"Thank you," Cochrane said, genuinely grateful as he extended a hand, Khan shaking with a firm but fair grip. "I won't let you down."

"I hope so. Goodbye, doctor," Khan said before letting go and returning to the door from whence he came, leaving Cochrane to start back towards the entrance, grinning widely.

But before he could touch the handle and open the door, before he could step outside again, Khan spoke again, catching his attentions in an instant, the director's expression softening for the first time since the start of their meeting. "Oh, and one last thing. Consider it a personal favor if you will."

"Yes?"

"Give it a memorable name," Khan said at last. "Obyekt 2057 has a poor ring to it."
"Gladly," Cochrane smiled, Khan giving him an approving nod before heading inside just as Cochrane stepped out into the snow, a smile on his face and determination in his heart.

Even with the support of the greatest of the world's leaders, there was much work to be done.

...Reborn

...and with the support of none other than Khan Noonien Singh himself, there were few resources that the Eurasian Union was unwilling to put at his disposal, giving Cochrane not only the minimum amount of funding that he might require, but a truly lavish budget even by the standards of the superstates, a dedicated research facility in the asteroid belt where security and medical care would be provided by some of the best vacuum infantrymen and physicians in the Union, all alongside an engineering and scientific team comprised of men and women hand picked by Cochrane himself for their expertise in engineering, computing and physics. Such an immediate outburst of the highest level of support and the personal backing of Khan himself was nothing short of an eye opener for much of the world, and none more so than for the Atlantic Scientific Foundation of the TAO, who quickly sent a letter bearing the chairman's own signature to the last residence of Dr. Cochrane before his journey into the Himalayas, inviting him to return to his homeland and give a seminar on his warp theories as preparation for a serious commitment by the organization to his ideas. Yet the letter reached an empty apartment, for the scientist was already well on the way away from Earth aboard the EUWS Semarang, the sixteenth of the Warsaw-class battleships, having been on a shuttle less than forty eight hours after his meeting, resulting in a deep and thorough investigation into the policies and procedures of the ASF in order to ascertain why it turned away the young physicist away even after determining that his theories were somewhat credible and certainly enough to prompt a more serious investigation. More, with the personal support of the patriarch of augment kind and in yet another demonstration of how anything that had his support or condemnation was taken more seriously by the masses and either liked or disliked in turn, the work of Zefram Cochrane began to breakthrough the barrier of certainty in the absolute nature of the laws of physics, rekindling the belief that there could yet be a way for man to travel faster than light. Such things could not do anything other than help his cause, and once again, the world readied itself for the possibilities that might come from the development of a star engine, more and more of the world's scientists taking his theories seriously and placing them under the closest scrutiny, not out of a desire to try and stop him, but to try and prevent disaster from claiming yet another brilliant mind.

But whilst the world began to wake to the possibilities once more, smouldering embers relighting their kindling into a weak but growing flame, Dr. Cochrane arrived at a small, remote research facility in the asteroid belt at 87 Sylvia, a site that had first been constructed to answer the numerous questions that remained about the composition and the formation of such asteroids, but whose immensely porous nature made it well suited for the rapid expansion necessary for the construction of a much larger facility able to support all the necessary workshops, laboratories, quarters and life support equipment necessary to support the work team as the project developed. Bringing with them a team of experienced builders and excavators from the Eurasian settlements on Luna, the combination of heavy machinery, blasting charges and raw human strength would make quick work of the asteroid's rock, allowing them to cut their way deep into its surface and turn dark and gasping caverns into bright and comfortable habitats, all whilst more ships began to be sent from the
homeworld - massive colony development freighters brought state of the art machinery and equipment to accelerate the process alongside vast quantities of water, air and food, whilst troop transports designed to ferry Eurasian VIs to the surface of Mars carried nearly three hundred new colonists to the settlement, increasing its population tenfold. All this occurred as the new project's leader went over the list of everything that might be needed, constructing a plan with his newly assigned lieutenants so as to divide each part of the project equally: the first goal was to construct a scale prototype of a warp coil, and so the task was split into several, with one group working on the best shape and structure to maximize the warp field generated and minimize the energy consumption, another on the material composition in order to create an alloy well suited for the utterly unique task required of it, a third on constructing a sensor able to detect the warp effect that would be generated by the device and a fourth on developing an ideal housing to to connect the potentially dangerous coils to the rest of the craft. These were all different parts of the same problem, yet they would have been impossible to put together without Cochrane himself keeping a tight grip on the project and forcing through compromise - one particularly gratuitous example of this came when the team designing the coils clashed against the team designing the casing, as the former were experimenting with the idea of an oblate spheroid to be mounted in the center of the ship, which would in theory allow one to reduce the number of coils to a single one and remove all need for external mounting points, but the latter answered that such a method would make it almost impossible to construct a proper mounting and that they wouldn't even know how to begin in attaching it to the power supply, or how to contain whatever harmful radiation might be released.

Yet in time, such problems would slowly be overcome as Cochrane's papers began to be converted into a concrete plan, but theory, simulation and debate could only take one so far: a live test was needed. Constructing a one one hundredth scale model of a square warp coil forged from beryllium bronze, reusing some of the concepts first developed for Dr. Karume's aperture and carefully replicating the detectors that had been created for that project to detect space warps - after being told that his work was "a little" more successful than they might have been lead to believe and that some minor amounts of disturbance had been detected and nothing more - before constructing a special chamber where the device could be tested, a vacuum lined with walls of lead to minimize the interference of background radiation upon their sensitive instruments. Applying a low level of power produced little discernible data, difficult to determine whether or not the energy was having the desired effect, and so Cochrane ordered it increased by ten percent.

A finger slip made it ten fold instead.

Immediately there was a result and one that none would have needed a sensor to detect, for the warp coil shot through the detector array beneath it and went through another hundred meters of the colony before lodging itself three inches into a another warp coil comprised of Solite that had just been delivered to the station for use in a later experiment, over smashed through over a dozen floors with ease, and though none were so much as injured by the accident, all those who had witnessed it reported seeing nothing more than a blur simply slamming through the floor, with one VI who had been veteran of the Secessionist Crisis likening it to a tank round. Though it had been an accident, it was a resounding success, for it provided evidence that his warp field could move an object, albeit in a manner that was still not yet entirely understood, as none were at first sure of what caused the warp coil to shoot downwards till they discovered that a ring was poor geometry for a warp coil, as it seemed to cause the device to "pull" towards the nearest gravity well and thus the center of the asteroid itself at incredible speed, only stopping when it ran out of charge, or had some form of error
in the warp geometry itself as to cause it to be unbalanced. Even still, the test had opened the treasure
trove that was warp physics and proved that the technology was viable, since although the object had
shot through the floor, it was not distorted in anyway other than as a result of the impacts, but another
pressing issue and unexpected issue came up: heat. For some reason, the warp coil had generated a
truly immense amount of heat that had resulted in its surface beginning to liquify by the time it had
struck its Solite counterpart. Such observations would be translated into the next test, which made
use of a pair of simple horseshoe shaped coils cooled by a liquid helium loop, one above and one
below, which proved able to generate a detectable warp field without being pulled in any direction
and at a much more sustainable temperature, making it entirely capable of being used in a true
starship...only that there was a new issue, one that Cochrane had considered in his papers but
dismissed as an improbability.

The power requirements of a warp coil increased dramatically as the size of the coil increased. Thus,
whilst a small warp coil similar to those that had been used in the experiments were easy to run and
no significant drain on the station's power, the ones that would be used in the final craft would
require nothing short of a single gigawatt of power...and though this could be generated fairly easily
by a nuclear fusion reactor of sufficient size, it would thus require even larger warp coils to contain
the reactor and thus an even greater power requirement and thus need an even larger reactor, a loop
that would only be broken the coils became so large that they simply could not be powered with the
technology that humanity had at its disposal. The question of how to proceed was one that took
months to find a conclusive answer, and it required going back to the earliest concepts of the warp
drive, where Dr. Zefram Cochrane had briefly considered cutting the warp coils into segments in
order to reduce the cost of their construction and make it easier for a single coil to be replaced in the
event of malfunction or to conduct maintenance, an idea that had been discarded in favor of the
increased gains that were theorized to come with a single large coil, with experiments revealing that it
was not only cheaper to construct, but that the reason for the immense energy consumption of each
warp coil was that there seemed to be some form of diminishing return, meaning that whilst a single
large coil could more easily generate a warp bubble at low energy amounts than many small ones,
the increased number of the latter allowed them to combine many small distortions into a single large
one, compared to the brute force approach of the former - one apt comparison brought up by a
computer technician working on the project was to compare the process to a heat sink, where dozens
of small fins had a greater surface area and thus cooling power than one with a few large blocks.

Thus, where there would have been one warp coil in each housing, a hundred meters in depth, there
were now ten, each a mere ten meters in depth.

Synchronizing them became the next challenge, one that was as much a programming problem as it
was an electrical one, for it was clear that if there was even the slightest error between one coil and
the next the entire craft could be torn apart as different sections of the craft would be travelling at a
different velocity from one another...but with it clear that the project would need the problem solved
if it was to have any future whatsoever and that it would be best to leave his experts in the field to do
their work without interruption, the attentions of Dr. Cochrane and much of his team began to be
turned towards the task of designing the final craft. It was to be a hundred meters in length, thirty
meters in height, sixty meters across and eighty meters from one nacelle to the other, a masterpiece of
modern engineering that incorporated the latest technological advancements and even the lessons of
the other faster than light projects whose various technologies had been repurposed for one means or
another, such as Dr. Karume's emitter array being used to create a sort of "navigational deflector"
able to protect the ship from collisions with micrometeorites whilst travelling at superluminal velocities, which would be nothing less than catastrophic at such speeds. The best ship designers in the entirety of the Union would be brought onto the task of designing the craft, many of whom had built a reputation by working on the Warsaw-class battleships and designing orbital platforms, experiences that showed in the ship's heavily compartmentalized design that promised that even a serious hullbreach would not endanger the crew's safety, as well as oxygen ports for the crew, who could remain in their space suits and simply attach themselves to the ship's own life support systems with no difficulty, both features that were found in every Eurasian warship from the humblest corvette to the greatest battleship.

Its name was *Enterprise*.

The first warp capable vessel ever constructed by man, Dr. Zefram Cochrane's *Enterprise* was constructed inside of 87 Sylvia, the site of a number of Eurasian facilities that served both as communication relays to the outer system and scientific outposts. An extremely unique design by the standards of the time, it lacks all forms of artificial gravity due to the difficulty in confining a habitat ring within the field that would be generated by the "warp nacelles" in the rear of the craft, which are powered by an experimental antimatter reactor better known as a "warp core", which powers the coils emplaced within the nacelles. A large craft, much of the internal space is full of experiments and scientific instruments that were expected to be able to provide a wealth of information during its first ever warp flight.
Although its name might very well have come from the aircraft carrier that had been destroyed in the earliest days of the Augmentation War, there was no ill will over the use of the name in either the Eurasian Union or the Transatlantic Organization, for the salvaging of the Enterprise after the war's end had been one of the first acts of reconciliation between their predecessors, a thing that had begun with the removal and safe disposal of the ship's leaking reactors and culminated with the return the return of the fallen who could still be recovered so that they might be sent back to their homelands with all the honors that the Eastern Alliance had been able to give them as a valiant foe. More, its name had the added meaning of the word, for every dictionary in the world knew to list the word as it was: to be bold and willing to take the initiative were all things that made an enterprising individual, and the Enterprise was nothing if not bold. Constructed within the asteroid where it had been developed, it was a testament to all that had been accomplished in the twenty first century, for it was not only a technological milestone, it was the fruits of a civilization that span a star system - its warp coils were forged on Earth, its navigational array was assembled on Luna, its software programmed on Mars, its hull plating came from Jupiter and made from minerals gathered all throughout the asteroid belt, even its pilots were trained amongst Saturn's moons.

Yet what was perhaps the most important contribution to the project came from the humblest of places, for all the dreaming and planning and brilliance that went into the creation of the Enterprise would have been for naught without it. The reason was once again the issue of energy. Though the Enterprise was capable of carrying a fusion reactor powerful enough to charge its warp coils, a series of simulations and calculations made as the craft's skeleton neared completion revealed that it would not be able to do so to the desired amount, but only sixty or so percent; the ship would be capable of growing near the lightspeed barrier, but not of breaking it. This was a serious technical issue for the project, as the reactor designed for the Enterprise's engineering section was designed explicitly for the task of powering those coils and was the bleeding edge of what was available, with nothing yet devised being more powerful other than an aneutronic fusion reactor that, and there had been less success in that field of research than there had been in the field of faster-than-light engines. Construction continued, as even getting close to breaking the lightspeed barrier was certainly nothing to laugh at, but the future of the project was slowly beginning to come into doubt, as the most optimistic expectation for aneutronic fusion placed it at least several centuries into the future, well outside the lifespan of any in the world and certainly out of Dr. Zefram Cochrane's time.

And yet, just as some began fearing that Cochrane would give the world yet another failed engine, an Eurasian science vessel that had travelled to the Kuiper belt in order to study what radiations might lie past the Sun's magnetic field made the discovery of a lifetime whilst searching for any isotopes that may have been deposited on the asteroids that comprised the outermost part of the solar system.

It was at the very last day of that mission that they discovered dilithium.

At first considering the discovery to be nothing more than a new isotope of regular lithium due to their equipment being unable to recognize it as anything else, they launched an automated recovery pod to take a sample before heading on an Earthward cause, analyzing the information that they had recovered. Many hundreds of samples had been taken, both within the scope of the mission and
those that had been collected on the request of other scientific organizations within the Union, and they had the busy task of processing them all and carrying out preliminary identification work of any hazards that might have come from their long exposure to the energies of interstellar space, and that was when they realized that what they had found was not lithium, but something different. Having collected only a small sample, little bigger than a thumb, the small crystalline fragment had been almost completely identical to a simple lithium crystal to the naked eye and enough so on the interior that the computer simply classified it as an unknown isotope of lithium, yet when it responded differently to their examinations than expected, when scanning determined that it was the same element all the way through, a close inspection was prompted...and one that swiftly revealed that it was something different. It was a new element that had been previously unknown to science, resting in an island of stability far from the traditional elements of the periodic table, and after the science vessel returned to Earth, its findings having not yet been released to the public due to the risk of embarrassment that might come from an error, the fragment was transferred to the Eurasian Union's own scientific establishment, where intensive experimentation revealed a shocking fact and one that would have its existence classified at the highest levels of secrecy, where only Khan Noonien Singh and a handful of his chosen advisers were made aware of it, for upon exposure to high temperatures and high pressures, it created a self-stabilizing magnetic field that rendered it immune to the effects of antimatter and instead made it serve as a sort of control rod for the process of matter/antimatter annihilation. Theories ran abound as to the origins of the material, with some saying that it must have surely dated back to the first moments of the universe and been the deciding factor in the battle between matter and antimatter and the resulting imbalance in the universe, whilst others instead claimed that it was perhaps created in the greatest of supernovas in but the tiniest quantities, with others speculating that it was created not in stars, but in the accretion disks of great black holes, where the sheer speed of objects travelling just before the event horizon allowed it to function as a vast particle accelerator and smash atoms together into elements from across the known periodic table and beyond, the results released only when a sufficiently large star was able to disrupt the disc enough that its mass was flung out into space where it would ultimately arrive in stellar nurseries and protoplanetary discs.

Whatever the cause or the origin, dilithium provided a means by which a matter/antimatter reaction could not only be controlled, but converted into a stream of balanced mesons that then decayed into an electron plasma, which could then be harnessed to power electrical devices through a network of magnetic containment vessels through the ship, known as electroplasma relays, which would one day be referred to as as the backbone of a ship's EPS network. By this means, massive amounts of energy could be generated in a clean, efficient manner and with minimal waste, and the production of antimatter was already a known science that could be done with a sufficiently powerful fusion reactor.

Thus, a station could be constructed as nothing more than an antimatter factory and using power generated by a fusion reactor to create antimatter for starships, effectively creating a refined fuel for ships similar to how the petroleum refineries of old had once fueled cars. Even with the net loss in energy that came with the process, the antimatter reaction had a much higher peak output and could manage the reaction in a much smaller space, making it suitable for use in starships even if planets and other such facilities were entirely able to be powered by fusion.

It was obvious to all that were aware of it that this technology was exactly what was needed if Zefram Cochrane's warpship was to ever be able to do what it was promised to do, and yet there
were some concerns over revealing the discovery, for several reasons: firstly, there were the potential risks that could come with the construction of experimental antimatter reactors without a serious investment into the technology to ensure the safety of all and so making it wise to develop proper safety procedures first, secondly there was the serious concern that it might bring about an age of antimatter weapons that would ensure that any conflict between the superstates would certainly be the last due to their greatly increased destructive power over even the most powerful of nuclear weapons, whilst least of all and lastly there was the concern that another of the superstates might make a breakthrough in the field first, and since the designs of the warp engine were freely available to the other superstates in accordance with the original meeting that combined their efforts, this would have allowed them to take the prize that is the world's first faster-than-light engine from beneath the Union's feet, despite the Eurasian Union having invested the most into its development, effectively robbing them of their rewards. Yet despite the free technological sharing of the agreement, there was the incorporation of a specific clause that all three superstates had agreed on, which was that only items and concepts that had reached "developmental milestones" were to be shared, meaning that there was no need to share experimental technology if the results were ultimately useless or had not yet been proven to be entirely conclusive, and such a clause had been used by both the Transatlantic Organization and the African Confederacy to give themselves a small leg up over the competition by revealing technologies that were tried and true without revealing the direction that they were being taken and their own theoretical work, and so there were some who thought that this presented a fine opportunity to redress such wrongs.

And so the Eurasian Union gave its fellow superstates designs for the warp coils that had been perfected so far, material samples from their tests and even working prototypes that had been used in the earliest stages of the experiments, but made no mention of their discovery of dilithium crystals and how it might be used for the generation of antimatter power. Such an omission seemed nothing out of the usual - the TAO and the AC were entirely prepared for such a matter - and yet, when they themselves encountered the energy generation issue, they were so utterly dumbfounded by the problem that they couldn't even begin to guess what it was that the Union had up its sleeve, as the very idea of constructing an antimatter reactor powered by material that was generated through the use of a fusion reactor was so far from the norm that it had simply not even registered to their best minds, and the Union kept a close eye and a silent mouth on such matters, simply saying that progress was continuing but not saying how such progress was being achieved. What they did see, however, was the construction of a truly monstrous fusion reactor beneath the lunar surface, a giant similar to those that powered the Precincts themselves on the homeworld, followed by no less than a hundred small particle accelerator rings, stacked in groups of ten around the main reactor complex. It would take years to complete, bringing the project to 2061 by the time it became operational and powered up for the first time, but once it did, it was the first ever dedicated antimatter factory ever constructed, but for the exotic name and the unique role of its purpose, it used tried and tested technology that dated back to the early twenty first century, using a beam of protons to strike a fixed target. This typically produced very little antimatter, perhaps a few dozen atoms or so at best and not much more even with the advancements of technology to have further improved yields, but by running many such lines in parallel and doing so continuously it became possible to mass produce such particles on an industrial scale, converting hydrogen into antimatter at a "mere" loss of forty percent of the energy used in doing so. The TAO and the African Confederacy caught onto such a line of research quickly, and though they were not entirely sure as to how the Union were planning on converting the antimatter into energy, they swiftly came to the same conclusion that Eurasia had in that the idea of using antimatter to power the craft due to the much greater energy density of an antimatter reactor over a fusion one, and so began construction of their own antimatter production sites, both of which would be placed in the asteroid belt rather than on Luna, though they were still uncertain of how the Union was planning to convert that antimatter into usable energy.
Elsewhere, though, the revelation that the Enterprise could be powered through the use of antimatter led to renewed vigor amongst Dr. Cochrane's team, who worked harder than they had at any other time in the project, truly believing that they were now closer to breaking the barrier than anyone else had ever been. Plans were redrawn, halving the space intended for the ship's reactor and instead upsizing the conventional fusion engines that would propel the craft at sublight speeds. Constructing a specially designed containment vessel that placed a dilithium crystal in the center role and which had two main injectors on either side, designed to flood the chamber with equal amounts of hydrogen and antihydrogen and do so in such a manner that the reaction would take place within the crystal itself, the design was finalized under the name of an antimatter-matter reactor core, though a number of engineers would instead refer to it as a "warp core" because of how it was explicitly designed for powering warp coils. In any case, the main components of the device were relatively easy to fabricate, as the use of finely tuned magnets to contain antimatter had been developed before the start of the Augmentation War and perfected in the years afterwards, but that left only one major challenge.

Travelling to the edge of the solar system the newly completed *ESS Ibn Rustah*, the first of a new class of science vessel designed for long term operations at the outermost reaches of the solar system, where it carried out yet another exogeological survey, claiming to be searching for heavy elements that could have played a role in planet formation, yet in truth they were there for one purpose: to find more dilithium. The small fragments that had been recovered the first time were too little to safely operate the warp core aboard the Enterprise, and it proved difficult to find, even with sensors attuned to the task of finding the rare element and able to differentiate it from its more traditional cousin...and yet, given time, they slowly began finding small quantities of it, working their way towards a large deposit at the very same time that TAO prospectors searching the harsh terrain of Io for anything of value discovered another small deposit that tricked their own scanners just as it had first tricked the Eurasian ones. Extracting a large dilithium crystal from deep within a cavernous asteroid, little bigger than a house brick in size, the *Ibn Rustah* had finally discovered what it had been sent to find and hurried towards the Sylvia base where mankind's first warp ship was nearing completion, machining the brick that they had recovered whilst in transit, processing it to remove impurities that might have been on its exterior and even going so far as to use a molecular scanner similar to that which Dr. Oshiro had designed to remove any faults that might have been in its interior by transporting impurities out one at a time, a painstaking process that took place in a vacuum container and would be known as "dilithium cracking" in homage to the old petroleum cracking processes of the past.

Finally they arrived at the very same time as a full fleet of Eurasian warships did, escorting an antimatter freighter to the asteroid, a ship that carried a cargo that weighed no more than a few grams and yet which was by far the most valuable cargo that had ever existed in the history of mankind. All this would occur by the March of 2063, and at the very start of April, the warp core was completed, the dilithium placed inside its reaction chamber and the entire construction inserted into the Enterprise through a hatch from beneath, a process that would take two days to complete and which was followed by the delicate work of loading the ship's antimatter into its onboard containment units and in initiating the ship's own fusion reactor to power the magnets necessary, the Enterprise powering up for the first time.

And on the 5th of April, 2063, history was made.
End of Part 3.
Chapter Notes

This one was actually written quite recently in comparison to the rest of the post, and on the forum where I first started writing the story I had to back edit it into the part - something that I can't quite do here without making it blend in and not let people know that it has been placed in. So have it at the end of part 3! :P

****

Traitor's End

South Georgia, Earth, 22nd of August, 2057...

Sister Elisabeth Auraham walked quietly through the wide and spartan halls, their walls of bleached and bare concrete irritating to the eye in the brightness of the shining lights above. Even here, nestled within the beating heart of the island fortress, she could feel the piercing daggers of the cold winds of the South Atlantic brushing against her dark skin, cutting through the thick black and white cloth of her nunly habit as though it were not even there...yet such was one of the reasons why the Organization had seen fit to construct so immense a prison complex as this here, at the southern edge of the ocean from whence they took their name. Every part of it was built like a fortress, for it was not just any prison, but a military prison and a prison for those simply too dangerous to ever be allowed their freedom and far beyond any chance of rehabilitation, men and women so accursed that not even Mercury would have them, so deep was their damnation. Diehard Darwinists who had committed acts of violence against the unmodified population of the superstate and against the state they saw as protecting them and impeding natural progress, elderly anti-Augment terrorists who refused to have anything to do with the world that the genetically modified had created and who had plotted with the so called Colonel Green to bring nuclear fire to the great cities of the world.

Those were just some of the people who had been confined here, and they only got worse from then on, people who could not be allowed to leave the island, no matter the cost, people who could only be sent there by the very head of the TAO's judiciary at the General Courts and people whose presence saw the island surrounded by sea mines and its shores fortified more than the beaches of Normandy on D-Day and the Maginot Line put together, with tetrachromatic snipers on every approach.

She had seen a lot throughout her life, things people would not dare to forget easily, yet even she could not help but swallow at the gravity of it all. This was a place she would never want to visit again, never again in a thousand years. One visit was too many, even for her.

But she was here for a reason.
She was here to listen.

"Once you are inside the cell, you will have however long is left before the sentencing is carried out to speak with the prisoner," came the voice of her guide through the labyrinth, of the Sergeant Aron Jóhannsson, who met her with piercing blue eyes that seemed to go through her, as cold as the island was. "Although they are to be executed at noon, they have remained composed. Even still, Sister, I would suggest extreme caution."

"I don't think that'll be necessary," was the nun's answer, coming with a slight smile. "He's the one that asked for me, not the other way around."

"Perhaps, but remember, we will be watching," the sergeant said quietly, turning away from her and to the hallways ahead, their layout written in memory.

*He doesn't trust me,* she knew in silence. *How could he trust anyone on this island?*

In a way, he was half right not to trust her, for the nun had just told him a half truth: the prisoner had the right to a final visitor before his sentencing was carried out and had chosen to spend it on the chance to talk to someone of faith, for whatever reason she knew not, only that she had asked to be the one to go there, to speak with him, to hear of his story and why he did what he did. To listen.

They rounded a corner, then another, Elisabeth seeing a dozen doors on either side of the corridor before they walked to the end of it and found a large room...with another room inside of it, its entrance akin to a blast door and flanked by twin bunkers, heavy weapons arrayed to make a crossfire on the doorway and clacking loudly as their gunners brought them to life, ready to fire. Gas vents dotted the ceiling between every other light bulb, connected either to tear gas or something much more lethal she didn't know, yet the sergeant that had been her guide walked forward without any of the fear that gave her pause, walking towards a small, round scanner built into the wall besides the door.

"Come here," he said, rolling up his right sleeve to reveal an intricate tattoo, a passcode written in biological ink on living flesh, applied not even twenty minutes before and yet already starting to crumble before the assault of the Augment's immune system, detailed so precisely and so perfectly that it could not be replicated by hand in the time it would take before the pattern degraded. "You will only have ten seconds to enter the room, then the code will be invalidated."

She stepped forward in silence at the ready, silent but for the sound of uneased breaths, then the
Augment soldier slid his arm into the scanner...and it hummed for but a second, knowing in an instant from the pumping blood in his veins that he was alive and not under stress, reading from the genetic code of his skin cells that he was the one on watch for this cell, and lastly, scanning the pattern on his arm to confirm that the code was correct and matched the image it had.

Then it blinked green and he took his arm out.

A heartbeat later she heard the buzz of electricity flowing into the door's unpowered systems and the clunk of bolts rising into position.

And then after what felt like a lifetime, the door opened.

She stepped through in that instant, unthinkingly, and instantly she felt the cold be replaced by warmth and the silence by the soft rumble of cellos, of an orchestra, echoing through the air from the small speakers in the walls, the movement punctuated by the thump of the door sealing again behind her.

She scanned the room...and whatever unease she might have had from the journey was banished by the sights she found around her, for whereas the corridors were dehumanizing and built for battle, this room was practically luxurious: its walls were papered with floral patterns on white, its floor a carpeted red, its furniture wooden and well crafted at that, with a double bed on the far side of the room and a dining table between her and there, covered in silverware that would have seemed set for a formal dinner were it not for the fact that all the knives had been removed. There was even a bottle of thirty or so year old Madeira on the table, uncorked and with a half full glass besides and a cigar that had been left in its ashtray to cinder, a plume of thin smoke rising from its smouldering end.

And there he was. Stood before the antique mirror, carefully fastening the buttons of his red jacketed uniform, adjusting them and polishing them and all to a shining perfection, as though he were heading to an occasion of state. This was the man who she was to listen to. This man was the architect of the rebellion on Mars, who had taken up the dream of a red planet independent of Earth after the death of the enigmatic Ares. This man was the commander who had seen the crimson plains become home to the first ever battles beyond those of Earth's atmosphere, the alien soil shuddering with the rumbling of tank treads. This was the man whose armies had rushed across an entire world, taking colony after colony, only to be held back from final victory at the gates of Olympus Mons itself. This was the man who refused to give up even when the warships of the superstates were entering orbit above him, charging with his troops in one last desperate attempt to breach the doors and rob the reinforcement fleet of a place to land.

This man was General Demétrio Cardoso himself.
"You'll have to forgive me for not being able to talk to you face to face," the general said softly, looking to her in the mirror's reflection for but a moment before getting back to the buttons. "These buttons were never easy to do."

Then he turned, ever so slightly, and gestured to the table and the chairs and the wine with an open hand. "Please, help yourself."

"Are you sure?" she asked, sitting down at the table. "It is your wine."

"Certain," he nodded. "Anymore Madeira for me and I will be drunk at my own shooting."

"There are worse ways to die," was her answer, the nun testing the waters, trying to get a measure of the man, trying to understand him little by little. "Your tie is a little loose."

There was a quiet laugh, then.

"It might not be my Sunday best, sister," the traitor general smiled, reaching up to his collar with a steady hand to adjust the knot in the mirror. "But I do intend to die with some pride at least. Thank you."

"A pleasure to be of service," she smiled back, knowing he could see it in the mirror. "I am Sister Elisabeth. You asked to speak with someone of the Church?"

For a moment, there was nothing but the sound of music.

"I did," he answered, looking towards her at last, his dark eyes sad. "You must already know who I am. What I have I done...what I did."

She nodded, silent.

"The Council let me choose anyone to be here today," Demétrio said, straightening himself, the fleeting moment of vulnerability banished by the commander's strength, allowing her to see him as he
had been on Mars: a confident and decisive leader of men, a worthy heir of centuries of military
tradition. "I hope you will forgive me for having chosen someone of the cloth to be witness to me,
today. I always felt comfier around priests than around any counselor."

"It is not something that needs to be forgiven."

"No...I suppose it is not," he sighed, the warrior's facade slipping once more to reveal a heart filled
with uncertainty and questioning and guilt. "We are treated well here, but South Georgia is a lonely
island. They let us out into the sunlight, but never with anyone else. We are allowed to receive
letters, but never to send our own and the solitude...it has given me time to think. To reflect upon my
past and the things I have done."

She nodded. She was listening.

"I am sixty one," he started. "I have seen the world change so much over those last sixty years, sister.
I saw bombed out cities be rebuilt and made to shine. I saw the maps change as Eurasia and Atlantis
and Africa rose. I have seen Earth change, when the ice caps were still melting and the glaciers
retreating, before the Great Mistake, before Sanvu. I have seen those without Augmentation age and
shrink. But there was one thing that never changed. Never."

"What was it?"

"The desire to do good," was his answer, so quiet as to be almost a whisper. "My father...he was a
policeman. During the war and after, many of the food shipments to Portugal were stopped because
of submarines and the need to bring supplies for the soldiers. As part of the Policia it was his duty to
track down people who weren't rationing, not people who were wasting food by not reusing their
scraps of bread, but black marketeers, people who held back part of their produce to sell and who
took food from the hungry by doing so."

"That is what they told him, anyhow," the general sighed once more. "It wasn't true. Did you know
that in the Augmentation War, nearly three quarters of the world's merchant shipping tonnage was
sunk in the first two years of the fighting? Do you know why?"

"Because the ships had been consolidated into a few," she answered. "Instead of hundreds of small
ships, there were less than a dozen superfreighters."

"Exactly so," the general nodded. "Logistically, its rather sound: less fuel wasted on sending lots of
ships, less room taken up at ports, less paperwork, easier when loading and unloading cargo...at least in peace time. Such large freighters were easy targets for submarines, and one ship could be the difference between a people being fed or starved across an entire country. For the Eastern Alliance it wasn't so bad - they were all next to one another. For us, our food had to come from the United States, across an Atlantic filled with submarines that cared not what cargo was in your holds, only whether you could be sunk or not."

"A few weeks before Ascension Island, one of those superfreighters was sank half way to Lisbon; no one really knows how, some think it might have been an accident," Cardoso said with a wave of his hand. "Whatever did it finally broke their back; local production wasn't high enough and the warehouses didn't have enough left in them to make up the deficit. Relief was promised from our allies, but the need to escort it meant that it couldn't arrive for weeks, not enough some ships had been freed up from Indonesia to carry it out."

"People would starve before it arrived," she said with understanding.

"Can you imagine being a man who has to go up to people, men and women and children, whose muscles are just melting right off their bones, and take their food from them before they take even a single bite because it was stolen from a train bound to the front lines?" he asked. "Can you imagine having to drive back the starving with batons and tear gas to stop them from storming hospitals they are told have food for them when there is none? Or the mothers who are willing to sell their own bodies to anyone who can give their children a bowl of soup?"

"He couldn't do it," he said before she could answer. "He couldn't bring himself to do it. He couldn't arrest people simply because they were hungry and were using money to buy rations they should have queued for and gone without when there was no more to give. He ignored them when he had to. He helped them when he could, helped them get to the trains, take what they needed to survive. Was it legal? Of course not, but was it the right thing to do? How could saving lives not be?"

And then the general leaned back.

"He took that secret to his grave, but I joined the army because I wanted to do what he had done. I wanted to do good in the world. Help people, keep them safe and make a difference in their lives, the way he had. That is why I became an army engineer, one trained in bridge building and infrastructure repair, not in demolition or fortification work. That came with an officership that I thought would give me the power to make the difference to as many as I could - not to just one or two like he had, but to dozens and hundreds at a time. If one man can lay down a brick and help a truck find the grip it needs, then a hundred can build a road and help an entire convoy move. I never wanted to command armies."

"You only wanted to help people."
"Exactly," the general nodded...before reaching forward and taking his glass once more, swirling its dark contents. "And then Sanvu happened."

"You were sent to the Eurasian Union to help them rebuild, weren't you?" she asked. "It was what got you promoted through the ranks so quickly."

"It was," he answered. "That was my finest hour, not Mars."

Then he reached down to one of his pockets, and plucked out a medal, a medal of that was the eight rings of the Eurasian flag placed behind a cross, all in silver, fastened to a ribbon of blue and white...and he was silent as he looked at his own reflection in its shining surface.

"The Silver Medal of Humanitarian Assistance, given proudly for helping those in need," he said after a long quiet, echoing the words of some distant awards ceremony before looking towards herr with dark eyes once more. "My pride and joy."

The general wore the smile of a man with pride, then...yet it didn't quite reach his cheeks, weighed down by the memory of all that had happened since then, stopped by war and treason.

"I was the first man outside the Eurasian Union to receive this award," he said, his words full of nostalgia. "The TAO hadn't even formed back then. That happened after Sanvu showed that there were things that even a superstate couldn't fully handle on its own, yet alone a country like Portugal or Spain. But the sight of all of us pulling people out of collapsed buildings, building bridges and roads...it showed the world what could be done if we worked together. That we didn't have to face the problems of the twenty first century by ourselves."

"It changed history."

"It did," the general nodded. "We changed the world back then, and we did it by making a difference in the lives of those who were there when the hypercane struck. We did it by bringing in food for the hungry, water for the thirsty and medicine for the wounded. We did it by rebuilding roads, bridges, houses, churches and hospitals and schools. Mindanao was the island I was sent to, and it was so badly damaged by Sanvu that it was like someone had drawn an eraser across the land; skyscrapers are tall and strong and they can take a beating, even in war, but the wind was so strong it ripped up smaller buildings and cars and simply hurled them through the air and carry it for hundreds of miles."
"Entire apartment blocks collapsed because of that, sister," he explained. "Houses could be torn straight from the ground and smashed into them and do just enough damage that the wind can finish the job and bring it down."

And then he went quiet.

"Everyday I remember how lucky I was not to be in the recovery teams they sent into the basements after that," he whispered, the pain in his voice clear. "There were children in them, but the roads were so blocked they couldn't be rescued quick enough and they'd be stuck down there for days, weeks, without food or -"

She reached out, and placed her hand on his, gently squeezing to bring him back to reality and to bring his attentions back to her.

"You needn't go on if you don't want to, general," she said with a soothing voice.

He met her in the eye then...and for the tiniest moment, she saw him as he was: not as the supreme commander of the Martian Secessionist Forces or as a condemned man awaiting his sentence, but as just a man, as a man who had simply wanted nothing more than to make the world a better place and who had committed themselves utterly to that task, to the saving of lives...only to find themselves before the unsavable. It was a look she had seen so many times before in the eyes of doctors stood before patients they knew they could not help and so many others, the feeling of helpless grief.

: in the eyes of doctors stood before patients they knew they could not help, in the eyes of

only to find themselves on the wrong side of things, to find that they had came up short.

And as quickly as it came, it went. He took his hand away from hers and reached for the slowly burning cigar, gazing into its cindering end as he spoke.

"In any case, I did my duty to the best of my ability," he continued. "I worked at the Agus with the men who found themselves under my command, and I did everything I could to clear the waters so that the island's peoples had the electricity they needed."

"We made quick progress," he said, a tiny smile on his face. "When my superiors found out, they promoted me for my work just as the Eurasians gave me the medal."
The smile was short lived.

"Eventually, that would lead to me being sent to Mars. They called me a logistics wizard because of how I organized the relief efforts, and logistics was always the most important part of waging war. On Mars, where every breath of air has to be rationed has to be rationed it is even more so."

"They thought you were the best man for the job."

"They honestly thought I was was," he said. "In hindsight, that might not have been true."

She was quiet in answer, then, considering it for a moment. She was a listener, and she had listened for decades, even centuries, as any of her kind might, a woman not native to Earth but one who had been there so long she could barely remember what El-Aur was like...one who had seen the world change even more than Cardoso had. She had seen with her own eyes the rise of the steam engine and the construction of railways that it made possible, railways that tied nations together in a way that they had never been before, yet she also saw with her own two eyes the effect such rails had on the people whose land they passed through, of the tribes and cultures destroyed and lives ended. She had seen how electricity and industry gave wealth and abundance on a scale that had ever before been imagined in human industry, bringing with it a comfort that even the greatest of kings would have looked to with nothing but envy, yet making it possible for tyrants to dictate the lives of millions. She had seen how the harnessing of the untold power trapped within the atom promised to bring forth an age of cheap energy for all, yet how its power had once been thought of for nothing but war. She had even seen how the very study of life itself, began by the dream of a world where every man and woman need never be sick or weak again, was looked to with the fear that it could instead bring forth an age of division, where Mankind would be forever segregated into those who were modified and those who were not...a nightmare that even she herself had feared, till the opposite came to past and the gift of genetic engineering was given freely to all of humanity, bringing forth a golden age that she herself had never thought to expect.

She had seen many things, been many persons, some prominent and proud, some reclusive and quiet as Elizabeth Auraham was, whose very name was a homage to her true self. She had seen how the passing of time brought change, both good and bad, not just to single people, but to entire nations. She had seen the entirety of humanity be changed, culturally and technologically and now physically, with the rise of Augmentation allowing each and every last man, woman and child to be so much more, to be free of inherited illnesses, to be stronger and faster and more intelligent than those that came before. Their great ability have given them great ambition and their rise had shattered nations and traditions that had stood isince time immemorial, but had such things not given them the drive to push outwards beyond the bond of Earth, and to spread across the solar system in a way that only a few minds had even dared to dream but a century before? To look at the fiery hellscapes of Venus, and not only dare to dream of a garden, but to step forth and make it a reality? To see the very laws of physics, the building blocks of all of reality, stood against them and step forward, confident that they could be smashed and bent to give them the chance to reach the stars as well?
Had it not made them turn their attentions towards the failings on Earth, towards the poor and the
tired and the oppressed yearning to break free, and lift them from their woes with the aim of building
a world worth living in?

These were all things that she had seen happen, seen with her own two eyes, like a visitor to the
theatre watching the actors coming and going and never daring to take to the stage for herself. She
was a listener, an El-Aurian, it was not her place to write the tale of humanity, of the people she had
walked amongst and known longer than she had her own, but to witness it, to learn from them and
the wisdom that they discovered in their lives, to help guide them not as a whole, but as individuals.

And after all that had been said so far, she finally understood what he wanted her to understand.

"You want to know whether or not you fought for a good cause," she said with the understanding
that could only come from so many lifetimes of listening and thinking, the acknowledgement, the
acceptance, clear on his face. "I can't give you that answer. Only you can. Do you truly believe that
you fought for good? Do you believe what you did on Mars was right?"

He rolled the cigar between his fingers.

"Do I feel like a hero? Like someone who did good?" he asked, a question that was as much to
himself as not. "No. I do not. I fought for a free, independent Mars, a Mars free to choose its own
fate, to be more than Earth's workshop and stripmine. To have a chance to become as green as
Venus will be."

He looked her dead in the eye.

"I failed."

"But none can question the fact that you tried," she said. "You stood and fought for a cause that you
believed in."

"And all it ended with was the death of thousands," Cardoso answered. "I know what I did, sister.
At the start of it all, perhaps it was right. Perhaps it was a good thing to try and fight back against
those who seemed to have abandoned us for another...but after it? No, I think it wasn't."

"My father always said that lucky men go to their graves with no regrets," the general reached out for
his glass. "It would seem the son was just as unlucky."

"But did your father ever regret the fact that he saved those people?" she asked.

"No," he said, hesitating to bring the cup to his lips. "He didn't."

"Then why do you regret fighting?" she asked. "What you did was not legal, but isn't that no different than what he did?"

"Because in the end, no good came of the war," the general answered. "Olympus Mons saw to that. How many men died beneath those cliffs? A thousand? Two thousand? Three thousand? How many more in the tunnels? A hundred? Four hundred? Eight hundred? How could that have been worth it, when the entire population of Mars was not even a million?"

He allowed himself a small, sad smile.

"You are a very good listener, sister," he said, placing the cup back on the table. "But one who I think doesn't realize why I asked for someone of the faith to come talk with me. I know what I have done is wrong, for there were surely other ways we could have made our displeasure known to Earth than through fighting. I ask only whether it can be understood?"

"You want to know whether I understand why you thought?" she asked.

She nodded.

"You fought because you thought it was the right thing to do," was Guinan's answer. "Because you wanted to make a difference in people's lives and make them better."

He nodded at that.

"When we first revolted against Earth, there was one thing that was there, behind it all, behind the armies, behind the cities, behind me," he said. "Dreams. The soldiers dreamed of a world where they would not have to take orders from commanders on a world that they had never stepped foot on, where those from the colonies who could have been their enemies would be their brothers. The
people of the cities dreamed of using their resources not to fuel the appetites of Earth and Luna, but to construct great machines of their own, their own wonders that would be an equal to any of the old world, to start turning the red planet into a paradise of their own making...

"And you?" she asked as he fell silent.

"...mine was to see it all happen," he admitted at last. "They looked to me for help, the same way the Eurasians had after Sanvu. They needed a leader, someone who could guide them towards the paradise they dreamed of, and I had always dreamed of helping people and making a difference. The Crisis was my chance to make that difference, not just for one island, but for an entire world. I didn't fight out of a desire to be seen as a hero. I didn't fight for glory or just for the sake of having a fight. I fought for Mars because the Martian people needed someone to fight for them if they were to have any chance of achieving their dreams. I thought I was doing good."

He reached into his pocket once more, removing the shining medal, gripping it so tight in his hand that his knuckles turned white as he took a long breath...and then he extended his hand over the sister's own and let go, dropping it into the El-Aurian's hand as the door hissed and clunked.

"Remember it whenever you do good, sister," he said as the music stopped. "Remember it."

She could only look back at him in silence as the door opened and as the general rose to his feet, whatever emotion he might have shown on his face replaced with a veneer of regal confidence and absolute certainty that made him look every part a king, even as Sergeant Jóhannsson came through the door with an entirely new tattoo upon his arm, completely different than the one from before.

"It is time," the sergeant stated flatly, flanked by soldiers in armor that was as grey as the concrete outside, carbines at the ready. "Will you come quietly?"

"I will, but I would like just a moment to pray," Demétrio said.

The sergeant only looked towards the nun, and did nothing as she took the Martian general's hands in her own, bowing her head with him as she found the words.

"Carissimi kyrie eleison in animabus omnium qui occiduntur, nonnulla esse, et sub poena mortis," she prayed in perfect Latin, Cardoso utterly silent. "Placere eleison in animabus illorum qui ad hoc officium praestare. Amen."
"Amen," the general echoed....

"But I do have one question," Demétrio whispered at last, so quiet he barely spoke at all, a flicker of hesitation and uncertainty in his chestnut eyes. "Do you think I did the right thing?"

"Does it matter what I think?" she asked, her words as quiet as his as he leaned back.

"No, I suppose not," he said at last...before smiling. "Thank you, sister. Your presence has been a great comfort in these final hours. I could not have asked for better."

Then he looked to the guardsman, and nodded as he rose from his seat, adjusting his tie for the second time, as though he was going towards an inspection. "I am ready, sergeant."

"Then come with me," the sergeant said, before looking towards Guinan. "Will you be witnessing the sentence, sister?"

"I would spare her of that," the general said. "It is not something a good woman of the faith should see."

She nodded again in quiet answer, entirely aware of what was to happen next...and the walk to the courtyard was long and quiet, filled with only the sound of their footsteps through the armored complex, mingling with the ever stronger sound of the winds howling off of the prison's fortress walls, just as the air grew colder till they rounded another corner where there was simply nothing but the dimmest of lights for a good ten, twenty meters of hallway, from the corner to the door, so dark that the bright light of the outside world would have rendered the inside impossible to see for any attacker and their unadjusted eyes, easy pickings for the elite troopers within.

It was through that door that they came to the courtyard, or what might pass for it on the remote island of South Georgia: a small square of seamless and perfectly flat concrete, with not so much as a single blade of grass to distort its white surface and with the very sky above barred by steel mesh. It was a place designed to give those who came to it not even the slightest chance of escape, to be no weak spot in the defense, yet the little metal gates on the left wall had tables and chairs and balls and books and other such things to let them enjoy their time there all the same, even as they were watched from the great window on the far side where all the other witnesses had gathered.

And in the midst of it all, there was a pole.
It was a pole towards which Cardoso was escorted, the general complying with the sergeant's actions and doing so with absolute certainty, utterly unafraid of what would come next, with the only thing that might near hesitation being to adjust the thick white cloth that was being placed over his heart so as to properly cover his service ribbons and other awards.

"To keep the glare out their eye," he said to the sergeant knowingly. "The last thing I want is to have to stand here all day because your men can't see the target."

The nun had expected the sergeant to ignore his words and move it back into the position that he had set it, maybe even to answer with a few words of his own or to cuff him to the post, yet he did something that even she had never expected of the stoic Atlanticist soldier.

He saluted him, quickly and silently, respectfully all the same, saying no words as he walked to the side to serve as a witness of the event as the shooters lined up, already present in the courtyard. They were the firing squad that would see the sentence done to completion, and they were a line of greys and whites nine men in length. They were three shooters from each of the superstates, all armed with the weapons with which they were most familiar, all dressed in the uniforms of their home nations and all sharing in the symbolism of what was to happen next, and symbolism it was: execution in such a manner was perhaps one of the oldest forms of punishment in the armies of Earth, dating back centuries before she had came to the planet in the late seventeen hundreds, yet from then till the present one thing had remained the same, one universal fact that separates it from any other way of putting a man to death.

It was done by the unit. By the same group of soldiers who should have been their brothers-in-arms. It was to show that they had been condemned not just by the government, not just by the military, not just by the law, but by their own comrades, by the men who had served with them in battle.

It was the same thing here: three Africans, three Atlanticists, three Eurasians.

Nine Earthers who had fought against him on Mars when he should have been at their side.

His crime was not that he had waged war against his countrymen.

His crime was that he had waged war against Earth.

"Ready weapons!" came the order from the officer at the head of it all, the otherwise silent yard filling with the sound of clicking magazines and toggling safeties.
"Take aim!"

The Martian general looked towards his executioners with a steely gaze as they raised their weapons towards him.

"É doce e honroso morrer pela pátria!"

"Fire!"

And then there was gunfire.

****

End
Map of 2060

Did anyone ask for a map? Because here is a map!
THE TRANSATLANTIC ORGANIZATION

<table>
<thead>
<tr>
<th>PRIMARY MEMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Founding Members of the TAO.</td>
</tr>
<tr>
<td>Full Members of the TAO.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECONDARY MEMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial Members of the TAO.</td>
</tr>
<tr>
<td>Member Candidates.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TERRITORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Settlements and Labs</td>
</tr>
<tr>
<td>Antarctic Stations</td>
</tr>
</tbody>
</table>

1. Germany, a country with a rich history, is drifting between the idea of being a full member of the Transatlantic Vacuum Tunnel and the desire to join the Transatlantic Vacuum Union. A member state is steadily becoming more independent.

2. Famous for many things in recent years, such as being the birthplace of the internet and the Transatlantic Vacuum Tunnel, the United States of America has undergone a series of social reforms. The bloody experiences of the Augmentation Wars have toughened the nation to mix together - rich and poor, black and white, rural and urban - and to form a powerful coalition to rebuild the nation. Now home to a universal healthcare system, the United States is one of the few countries that can do so.

3. The single most powerful member of the Transatlantic Organization and the rise of the superstates, the United States of America has undergone a series of social reforms; the bloody experiences of the Augmentation Wars across the nation to mix together - rich and poor, black and white, rural and urban - have formed a powerful coalition to rebuild the nation. Now home to a universal healthcare system, the United States is one of the few countries that can do so.

4. Easily one of the most welcomed political events on the twenty-first century world stage, the creation of the United Nations coalition and the need to rebuild the nation further served to advance the United States as an example of human rights.

5. The youngest of the superstates, the rise of the African Confederation is both within it and without, who see it as a sleeping giant finally beginning to stir. Bringing about a final conclusion to the days of starvation and fusion energy, lacking in interplanetary or aquatic colonization it is more than making up for the masses, and all in an environmentally friendly manner.

6. Although many nations that were applying for membership in the Transatlantic Vacuum Tunnel, Korea has only remained a partial member, yet the reason for this is simple: with more blood being shed than in the Korean peninsula, the collapse of the North, its maturation into a region of similar economic conditions to the south and with a passport to visit the south freely, as though it were any other nation of both. There is little doubt that Korea will reunify now, yet the question...
7. Much like Germany, the growing realization that there will be peace between matters of prestige has encouraged Australia to fully commit to joining the reduced the strategic importance of their massive uranium reserves and the resources, location and industry have made it very well clear that they would simply because their uranium would allow the TAO to produce a limitless arse itself, Australia prides itself on having *the* best civil defense network in population would be able to survive a nuclear war, albeit one that would lim

8. Although the people here still remember the invasion of the United Nations the Eurasian Camp in 2030, by 2060 things have changed dramatically in the been reborn out of an understanding that they need to band together in order TAO, having had its holdings in the Americas separated from one another by ASC development package as an apology for the destruction of the war, a sum pocket change to any of the superstates. With memory of the war fading, that such funds could pay for served to grease the wheels of international never been able to. Having finally found a way forward, the TAO is all too h

9. Entire essays could be written on the topic of Brazil's rise to prominence nation in someways being a vital member necessary to the balance of power the incredible situation of the Amazon Rainforest that is truly the greatest. Having been logged for its exotic and valuable timbers for centuries and in the Earth's ozone layer due to the Great Mistake would have been thought by Earth's rainforests. Yet the Great Mistake may very well have proven to be additional ultraviolet radiation to reach the ground level...which although Greatly increasing the growth rate of most tropical plants and trees, it has that simply containing the forest and keeping it from overgrowing into agric industry...though some instead claim that the accelerated growth rates of the experiment gone terribly, terribly right.

10. Like many things in recent years, the colonies of the Sargasso Sea have the offworld colonies in the war for the public's imagination, they have thus making it cheaper to ship finished goods to and fro, but the true econ with mining settlements only appearing in those parts of the world's oceans interested in visiting them. Such colonies would prove to be highly success of the superstates, yet the TAO, as if living up to its Atlanticist moniker,

11. ...but whilst all the ocean colonies were treated the same as cities on settlement close by but separate from those of the rest of the Sargasso Sea: more than a suboceanic ascetic-nudist colony which operated by invitation on for tetrachromatic snipers, filled with vibrant and bright colors of many di a miniscule manner so as to aid the brain of a soldier deemed worth the trail cone in the Augment eye, which it often "forgets" in the vast majority of pe Eurasian Union and the African Confederacy have similar facilities, with Eur nestling theirs deep beneath the dunes of the Sahara Desert, far away from p of tetrachromatic troops they can field.

12. The last of Earth's truly pristine lands, the white fields of Antarctica such scars were mitigated in their size by the dawn of fusion energy. Slowly international law, an agreement between the three giants themselves, that no

Please [drop by the archive and comment](mailto:) to let the author know if you enjoyed their work!