

for EABA™

Fires of Heaven™

adventure and intrigue among the united worlds



BTRC

patrick sweeney

Fires of Heaven™ v1.0

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▼ **AUTHOR'S NOTE** - I originally wrote **Fires of Heaven** for another game publisher, but the project turned into such a mammoth undertaking that, by the time I'd finally completed it, the company had changed hands and it no longer fit into the plans of the new owners.

Fortunately, Greg Porter, whom I'd recruited to design the starship creation system for the game, offered to give **Fires of Heaven** a new home, with a new ruleset. I'm eager to see what you think of it.

Most space opera games feature sprawling, ancient galactic empires or federations of hundreds of alien races, with all sorts of hyper-advanced technologies. And while there's nothing wrong with such universes, I had something different in mind for **Fires of Heaven** – an interstellar civilization with enough size to provide plenty of adventure, yet not so vast the heroes will never see more than a tiny fraction of it. A young, expanding union of worlds with plenty of room for heroes to explore new worlds, make first contact with unknown alien races, and play key roles in the unfolding story if desired. I also wanted to keep technological and societal advances as plausible as possible, extrapolating from the modern-day save for nods to two science fiction mainstays – faster than light travel and artificial gravity. Finally, I set myself the challenge of basing the systems off current astronomical data on nearby stars and extrasolar worlds.

It's been a very long road to publication for **Fires of Heaven**. I hope you think it's been worth the wait.

- Patrick Sweeney



THE UNITED WORLDS



We're back.

- Maj. Michael Deacon,
lunar mission commander, 2010CE

▼ **INTRODUCTION** - The United Worlds has a long and colorful history, tracing its origins back to the early days of spaceflight on a fractious Earth still divided by nationalist loyalties.

▼ **THE HIGH FRONTIER** - The new millennium dawned bright for humanity, and nothing seemed a more apt symbol of its hopes for the future than the completion of International Space Station Alpha in the early 21st century.

Station planning began in the mid-1980s, and construction by space shuttle crews assembling modular components boosted into orbit by rockets took more than five years. Sixteen nations, including the United States, Russia, Japan, and the United Kingdom, took part in the project. Nearly eighty meters long, the completed *ISS Alpha* had six labs and quarters for a crew of seven. Photovoltaic arrays that rotated to follow the sun provided power to the habitat in its orbit four hundred kilometers above Earth. Regular shuttle missions carried fresh supplies and rotating crews of astronauts and mission specialists to the station.

The remarkable advances engendered by research aboard the station only accelerated the relentless pace of scientific progress on Earth.

The emerging field of nanotechnology, the manipulation of atoms and molecules by microscopic machines, made possible new polymers and alloys for construction, manufacturing, and other uses. Early superconductors also aided the development of new high-energy technologies, as did refinements in microcircuitry.

Fires of Heaven^{v1.0}

Computers reached new heights in speed, memory, and compactness even as scientists explored the science of optonics for the next generation of computers, using light, not electronic pulses, for their calculations.

Hypersonic aircraft traveling at the edge of the atmosphere pared travel times while a global positioning satellite system all but eliminated problems for lost, stranded, or misdirected travelers.

Vaccines and, later, cures for diseases that had burdened humanity for ages became possible. Researchers also took the first steps toward the prevention and even reversal of the deleterious effects of aging on the human body.

Prostheses gave way to early cybernetics, artificial limbs and organs that came ever closer to matching or exceeding the capabilities of biological tissues.

Biotechnology, using nanotechnology to alter cells and genes, gave scientists the power to directly modify DNA - opening a staggering new range of possibilities. Ethical and moral debates raged as potential human bioengineering, cloning, and biowarfare applications became clear.

Reversing a trend toward smaller and cheaper missions, humans returned to Luna for the first time in decades, even as preparations for a more ambitious space exploration project continued.

As a response to a number of high-profile failures of Mars missions in the early 21st century, the United States, enjoying the benefits of a remarkably strong economy, redoubled its efforts. The first manned expedition to Mars was launched from orbit in 2014CE. The international crew of astronauts and scientists spent six months in transit, then explored the red planet for a span of five hundred days before returning to Earth. Their findings vastly expanded human knowledge about the world and held out hope for eventual colonization of Mars.

But even as science lifted humanity starward, on Earth the rise of new technologies sowed the seeds for the deadliest conflict in the long, violent history of the world.

▼ **REALITY CHECK** - Future histories are remarkably fallible, *particularly* in the near term. No doubt some of the expectations underlying this possible future will turn out to be incorrect in coming years; in fact, there are already indications that the United States is taking a more cautious approach to further Lunar or Mars missions as opposed to the fairly aggressive strategy posited in **Fires of Heaven**.

In **Fires of Heaven**, completion of *ISS Alpha* fostered a boom in science and technology. New research avenues opened by the chance to conduct long-term experiments in freefall yielded advances in medicine, life sciences, metallurgy, construction, and scores of other fields. Faster semiconductors, stronger alloys, improved polymers, and high-efficiency superconductors were just a few products of station labs.

Insights into combustion provided new energy conservation techniques, while astronomical observations enhanced humanity's knowledge of stellar bodies - particularly that of planets around nearby stars.

Protein crystals grown aboard the space habitat aided research on cancer, diabetes, emphysema, parasitic infections, and immune system disorders. Zero-g medical studies advanced the treatment of numerous health problems and diseases, including cardiovascular illnesses, osteoporosis, and respiratory ailments.

The station also offered the opportunity to field-test innovations in robotics, recycling, air, and water purification, power management, computer science, sensors, communications, and other key systems. Finally, extended stays aboard *ISS Alpha* supplied invaluable data about living in space.

No one at Columbia-Presbyterian had ever seen anything like it. The New York Flu knocked people flat in no time. In 72 hours, patients either recovered or died. Most died.

By the time CDC identified it as a bioengineered pathogen, the flu had crippled New York City. We had patients in the hallways, lobbies, tents out in the parking lots. Then doctors, nurses, paramedics - all the emergency personnel started to come down with it.

People died in their homes or on the streets with no one to help them. The city was like a morgue. At some point, we heard a war using bioweapons had broken out, but by then we didn't have time to think about anything but fighting the epidemic.

I lost my parents, an uncle, my husband, and two of our children.

- Dr. Leslie Frieden, Columbia-Presbyterian Medical Center, 2021CE

▼ **THE BURNING EARTH** - A series of bloody conflicts, known collectively as the Biotech Wars, plunged Earth into apocalyptic high-tech carnage from 2016CE to 2021CE. The excesses of the era induced a fear of biotechnology and gene-tampering that still reverberates more than two centuries later.

Most historians date the start of the Biotech Wars to the April 18, 2016CE detonation of a terrorist nuclear device in New Delhi, India. A glut of other conflicts soon broke out, and crises and chaos multiplied worldwide.

No single altercation dominated the Biotech Wars. Rather, scores of disputes (new and old) erupted into violence around the globe. Corporate power plays, rebellions, racial hatreds, government coups, border clashes, religious jihads, terrorism, and underworld crime wars blended together in a seemingly endless tide of destruction, as local disputes swelled into global conflagrations by way of treaties, alliances, mutual interests, and the unanticipated side effects of untested new weapons.

Genocidal death camps arose as age-old enemies reignited grudges dating back to antiquity. Millions perished in the name of ethnic cleansing, religious purity, or simple convenience.

Famines, some caused by biowarfare, others exacerbated by the reallocation of scarce resources to military ventures, struck around the globe. Poverty, malnutrition, and pestilence festered in almost every nation.

Most combatants in the Biotech Wars eschewed conventional engagements in favor of more covert operations, biowarfare, silicon battlegrounds, and long-range missile strikes. Highly industrialized combatants, including most Western nations, outfitted soldiers with early cybernetic devices to even the odds against enemy forces with inferior technology but numerical superiority. Along with ever-more deadly firearms, troops carried prototype hand lasers, blinders, microwave-based weaponry, and other innovative armaments. Experimental wetware computers, interfacing excised human neurological tissue with optronic hardware, were but one of the nightmarish products of the era.

Advanced stealth technology, intercontinental missiles, and elite covert operations units visited the horrors of war on every corner of the Earth. In cyberspace, shadow conflicts of computer viruses, logic bombs, and code breakers mirrored the bloody real-world battles.

But the most feared armaments, the ones which gave the wars their name, were the chemical, bacterial and viral bioweapons crafted in the secret labs of governments, terrorists, and crimelords on every continent. Terror attacks released nerve gases in major population centers, while suicide bombers targeted government centers, military high commands, and communications facilities.

Biowarfare stockpiles contained everything from plagues to assassin viruses keyed to unique DNA patterns. Anti-material bacteria, designed to destroy specific non-living substances such as rubber or plastics, threatened the equipment carried by foes rather than the troops themselves.

In 2021CE, the slaughter climaxed when some unknown faction, by accident or design, released a host of bioengineered bacteria and viruses that propagated like wildfire around the globe.

Fast-moving epidemics tore through urban centers, paralyzing entire cities. The rapid spread of the pathogens overtaxed emergency systems but also checked the spread of infection by preventing carriers from spreading the contagion very far.

Barely twelve days after it began, the Doomsday Plague burned itself out, an estimated 960 million people having died. Some of the worst hit areas were completely depopulated, towns and even cities left completely devoid of human life. In the 23rd century, some of these still remain empty except for skeletons, mute monuments to human excess, stating "never again" in a way that the crumbling WWII death camps were apparently never able to manage.

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▼ Bioassassins - Biogenic assassins

DATA DUMP

were one of the worst excesses of the Biotech Wars. Advances in biotechnology intended to benefit humanity were twisted to create sociopathic killers with physical attributes, cunning, and skills far beyond those of ordinary humans. Even against the backdrop of the Biotech Wars, these inhumanly efficient assassins were the stuff of nightmares. Using retroviral gene therapy, surgery, hormone manipulation, DNA-mapping computers, and other cutting-edge techniques, bioengineers carefully shaped selected individuals from normal pre-adolescents into near-superhumans with heightened physical and mental abilities.

Biolabs also manipulated brain chemistries and formative life experiences to purposely produce sociopaths capable of carrying out their deadly tasks without conscience or compunction. An intense training regimen using traditional as well as biofeedback and hypno-learning techniques turned out assassins expert at armed and unarmed combat, disguise, demolitions, use of poisons, and other tradecraft. In certain cases, bioassassins honed their skills by slaying scores of political prisoners, homeless people, or other undesirables in controlled situations.

Some were government products, while others were created in black market labs for sale to the highest bidder. Few in number and incredibly expensive, bioassassins still proved highly effective. No one knows how many victims fell to them during this chaotic period. Military chiefs, heads of state, crimelords, religious leaders, captains of industry, and political figures all perished at their hands. Bodyguards, police, corporate security officers, and countless other protectors died as well. In one case, two bioassassins destroyed an infantry company sent into the ruined city of Caracas, Venezuela, to hunt them down. Over the course of three days, the pair slew nearly 120 soldiers before escaping.

Following the carnage of the Biotech Wars, the resurgent United Nations declared bioassassins a threat to the newfound peace. The labs responsible for unleashing the bioassassins turned new profits by gene-crafting killers specifically designed to hunt their brethren. Then a concerted effort was made to eradicate the DNA maps, computer software, and equipment used to create both sets of assassins, succeeding in all but wiping out these executioners. Fearsome in their time, by the 23rd century they are just a bogeyman from the dim past to most citizens.

Why we Fear our Genes - reference r1892134.987342.1567452 - .05Cr

Just imagine: it wasn't all that long ago that we contemplated the possible destruction of all humankind. Now we ride solar winds to other worlds. There are children on Luna and Mars who have never set foot on Earth. We haven't seen the last of strife and peril, but hope for humanity dawns anew.
- the Rev. Gordon Wright, African Methodist Episcopal Church, 2060CE

▼ **RIDING ON SUNLIGHT** - Out of the ashes of the Biotech Wars arose a determination to progress beyond the rabid nationalism at the root of the apocalyptic conflict. While they still took pride in their national and cultural origins, the diverse societies of Earth increasingly began to view themselves as one people.

The United Nations, once maligned for its weakness and ineptitude, shed its toothless image to take a prominent place in the new world order. Relying on moral authority and the cooperative philosophy taking hold, rather than military force, the revitalized U.N. brought almost all nations closer together.

U.N. Secretary-General Hikeji channeled this cooperative spirit into a colossal project. New homes must be found for humankind, he declared, in order to prevent a single catastrophe from ever again threatening the entire race. While the space-faring nations of Earth refused to cede control over their national programs to the U.N., they did fund the new United Nations Space Agency (UNSA) to coordinate the efforts of the U.S., European, Russian, Japanese, Chinese and other space programs, guaranteeing that no single world power would dominate humanity's destiny in the stars.

The aging *ISS Alpha*, mothballed during the wars, experienced a rebirth as the orbiting base for the construction of a larger, more advanced platform, *Gagarin Station*, named after the first man in space.

A renewed series of expeditions to the moon climaxed in the founding of a permanent lunar settlement in 2036CE. The international base at the edge of Mare Crisium established humanity's first foothold on another world.

Named *Armstrong*, in honor of the first person to set foot on Luna, the initial base consisted of pre-fabricated modules hastily assembled and buried under the loose rock and dust covering the lunar surface to provide radiation shielding.

Later installations dug deeper, extending down and out as the population grew. Underground ice pockets and permafrost in the permanently shadowed craters of Luna's polar regions provided the water essential for life on the moon. Solar arrays bathed in the perpetual sunlight of a peak in Aitken Basin near the south pole powered the habitats. Hydrogen and oxygen, gleaned from lunar water, powered fuel cells to cover peak loads, and this water then sustained life support systems, as did oxygen converted from carbon dioxide in the extensive hydroponics tunnels that also yielded food for the colonists.

Mining operations commenced almost immediately, extracting more oxygen from lunar minerals that could be combined with hydrogen to refuel supply vessels from Earth. As lunar installations prospered, other processing operations began to extract glass, ceramics, and other useful products from lunar dust.

While such efforts at self-sufficiency made life on Luna feasible, for the most part lunar habitats remained heavily dependent on Earth. The early settlement of Luna, still expensive and dangerous, centered on scientific pursuits and space exploration support operations.

Resource-poor compared to Earth, Luna *did* benefit from easy access to space due to its lack of atmosphere and low gravity. Lunar ores launched into space for construction of orbital habitats constituted the bulk of its exports for many years.

The advent of fusion power in 2048CE changed everything. A decades-long drive to induce a sustained fusion reaction culminated in creation of the first fusion reactor in Livermore, California in the United States. Within a decade clean, safe, and efficient, fusion became the chief source of power on Earth and Luna.

The invention also revolutionized economic life on Luna. Second-generation fusion reactors used a helium isotope that was rare on Earth as a secondary fuel. Conveniently, that isotope had been deposited in the lunar regolith by solar winds for eons, and cargoes of helium gleaned from the moon began to correct the Earth-Luna trade imbalance.

Tourism eventually complemented the industrial core of the lunar economy. The first lunar hotels catered to the ultra-rich, but over time visits to the resorts on Luna gained in affordability. Low-g flying using personal wings in sealed, pressurized caverns below ground became a popular pastime for residents and visitors alike.

Microgravity made the moon especially attractive to the aged, who could expect longer and more comfortable lives there. Mass emigration to Luna became feasible in the late 2050's, following the construction of a so-called beanstalk, a tether extending from the peak in Kenya on Earth to a terminal station in high Earth orbit. People and goods traveled up the beanstalk on high-speed elevators to the station, officially named Clarke Station but commonly called EarthPort, and then transferred to ships docked at the terminus. The savings in time, fuel, and accidents by reducing ship landings proved considerable, and eliminating the need for a high-g rocket liftoff provide a means for transporting elderly or weak patients to zero-g orbital medical facilities or to low-g retirement communities on Luna.

As new settlements, such as Korolev, Aldrin, Verne, Komatsu, and Heinlein took shape on Luna, the people of Earth also pursued a second path into space. Composed of rings or cylinders, space habitats constructed with lunar ores used the centrifugal force of rotation to provide a semblance of gravity. Solar panels and fusion reactors provided power.

Corporations built orbital factories, while private stations populated by utopian societies and religious groups sprang into being high above Earth. Hospitals, military bases, research labs, and luxury resorts added to the proliferation of orbital habitats, as did the first space-based center of higher education: the orbital campus of McAuliffe University whose graduates stood at the forefront of the exploration and colonization movements.

EarthPort served as the key administrative center for United Nations regulation of space commerce as well as a major trading center and passenger terminal.

Fires of Heaven^{v1.0}

When the lunar colonies seemed solidly established, humanity set its sights on the next stepping stone to the stars: Mars. Robot probes and manned expeditions paved the way for the colonization of Mars in 2045CE. Scores of colonists, carefully selected for their skills, knowledge, intelligence, and psychological aptitude, set forth to establish a permanent human presence on the red planet. Waves of new settlers soon followed the first, and communities arose across Mars.

Vast bermed domes constructed from native resources covered the settlements, trapping heat and pressurized air to make life possible in the chill deserts of Mars. Hydrogen, carbon, nitrogen, and oxygen gleaned from the Martian atmosphere and minerals recharged life support systems inside the domes. Some domes held factories or housing, while others protected agricultural operations designed to feed the burgeoning population.

Named for two science-fiction authors who wrote about Mars, the settlements of Bradbury and Burroughs rapidly expanded into full-sized cities. Other key Martian communities included Strugatsky, Lowell, Xiada, Robinson, Bova, Komarov, and Wells.

As the first colonists explored the surface of Mars, they discovered traces of bizarre alien ruins. The eons-old remnants of some advanced civilization offered the first proof that humanity was not alone in the galaxy, but provided few clues as to the origin or fate of the long-lost extraterrestrial race - although most scientists agreed they were most likely *not* native to Mars.

Found primarily in a region known as the Labyrinth of Night, a five hundred by two hundred kilometer network of criss-crossing valleys often filled by clouds of ice crystals at dawn, the ruins were crystalline structures of fantastic geometry and indecipherable purpose.

The alien structures inspired a furor. Scientists, politicians, religious leaders, and ordinary citizens debated the implications of the existence of at least one alien civilization, albeit long-dead. In time, the vanished alien race came to be known as the Progenitors. The paucity of hard information on the aliens quelled the firestorm of excitement for a time, though the entertainment industry had a field day, with dozens of alien-inspired features coming out over the following several years.

While Luna remained closely tied to Earth both economically and culturally, Martian colonists had almost all the resources necessary to create a self-sufficient, even prosperous new society. Sunlight and soils made farming beneath the protective domes a viable enterprise, and experts predicted Mars would someday export food.

But the real treasures of Mars were its extensive mineral resources: iron, aluminum, manganese, carbon, phosphorus, copper, and silicon. Indeed Mars even possessed vast quantities of deuterium, the heavy isotope of hydrogen used with helium in fusion reactors.

With a lower gravity, thinner atmosphere, and a conveniently equatorially located twenty kilometer-tall mountain, Mons Pavonis, in the early 2050's Mars was the test site for the beanstalk that would be built above Earth later in the decade.

Once this easy method of moving Mars' mineral wealth into space was constructed, the red planet quickly developed into a compact but key industrial center, providing ores and fuels for the next crucial step in settling the solar system: exploration and exploitation of the mineral-rich asteroid belt.

Thinly scattered across the millions of kilometers between Mars and Jupiter, the asteroids were blessed with valuable resources of all kinds, chiefly iron, nickel, cobalt, iron-magnesium silicates, and iron sulfides, as well as platinum, gold, silver, manganese, copper, titanium, and uranium.

Raw materials from the Belt provided the key to unlocking such long-held dreams as a universal rise in standards of living, mass emigration from a crowded Earth, and the start of a centuries-long drive to terraform Mars.

As mining operations crowded the resources of the Belt, the frontier moved out to the Trojan asteroids in Jupiter's orbit as well as the moons of Jupiter and Saturn. Daring space explorers searched for water on Titan and for life on Europa, giving humanity new insights about other worlds. Ice miners braved the frigid moons to blast chunks of ice into orbit to slake the thirst of habitat populations.

Long-haulers, powered by slow but efficient solar sails, plied the orbits between the outer and inner worlds of the solar system, trading speed for cargo capacity and economy in competition against fission- and the early fusion-drive ships.

Within a few decades of colonization, Luna boasted over 35,000 permanent residents (as many as 20% born off-Earth), while almost 10,000 people called Mars home (10% native-born). Thousands more lived in space habitats and the asteroid belt. While this is a lot of people, it was still less than one thousandth of a percent of Earth's population. The wealth of these planets compared to their populations started to become a social problem.

On Earth, access to the solar system's vast resources fueled the rise of what were called transnational corporations. One of the first, Amex, began as a credit and finance company in the late 20th century. Several transnats rivaled small nations in power. Indeed, some even used their financial strength and political influence to virtually take over weak national governments. Inevitably, distance and differing perspectives created a rift between the people of Earth and their brethren in space.

Pressured by the great nations and transnats of Earth, in 2066CE the U.N. imposed high taxes and tariffs on colonies, intended to repay the vast outlays of capital expended to develop spaceflight and settle the solar system. Colonists on Luna, Mars, and the asteroids chafed under a financial drain forced on them by an off-planet government. Those transnats with extensive off-Earth holdings, such as Amex, subtly encouraged rumblings of discontent.

Growing tension magnified every petty incident until the people of Earth and those in space found themselves almost inalterably opposed.

▼ **Solar-Sail Craft** - Developed in the early 21st century, solar-sail vessels utilize the minute pressure of sunlight for propulsion and power, accelerating slowly but eventually building up considerable speeds. Carrying only a small fuel reserve for docking and emergency maneuvers, craft with thousand-square-kilometer sails of carbon fiber or ultra-thin Mylar panels served chiefly as enormously efficient long-haul freighters during colonization of the solar system.

DATA DUMP

Crewed primarily by families, independently owned solar-sail vessels were the tramp steamers of the 21st century, carrying bulk cargoes too expensive to convey by more conventional ships. Trade within the solar system depended heavily on solar sailors until advances in ship drives and designs superseded these highly practical but severely limited vessels. In the 23rd century, solar-sail ships are used only in niche applications where their passive propulsion system is an operational requirement.

Light Riders - reference sd645192.092322.198742 - .05Cr

I've argued with some Earthers. They seem to think we're only out here to benefit them. But I was born in space, and I'll live here until I die. Why should I care about a world I've never even visited? The Earthers just don't understand.

- Sonja Thorstensen, coxswain, *Sunrider*, 2072CE

▼ **BLOOD OF PATRIOTS** - In 2072CE, the Mars Free Congress, an elected body not recognized by the U.N., rejected U.N. authority over Mars, abolished all taxes and tariffs imposed by Earth, and unilaterally declared Martian independence, while expressing hopes of peaceably reaching a new accord between the two worlds respecting the autonomy of each.

An uneasy calm followed the announcement, as diplomats strived for an amicable resolution to the breach, but behind the scenes all factions quietly prepared for the possibility of open conflict. The U.N. created the United Nations Colonial Defense Force, a spaceborne military with the express purpose of maintaining order in the solar system. Engineers on Earth set to work designing the first military space vessels.

Outworlder secessionist elements formed home defense militias armed with jury-rigged weaponry. Some solar-sail craft turned smuggler, conveying black market arms purchased on Earth to their compatriots in space, dropping stealthed cargo pods into low-energy transfer orbits for pickup by belt miners. Most arms shipments to Mars were stopped by increased vigilance by U.N. customs agents at the beanstalk terminus and smugglers were forced to drop shipments from orbit in auto-piloted re-entry containers, not all of which survived their hard landings.

The first bloodshed of the war occurred in early 2073CE, when some U.N. officials were grabbed by angry protesters on Luna. Fearing for the lives of the officials, police forces confronted the mob and a riot began. The effort to rescue the U.N. officials resulted in the loss of life on both sides.

When news of the incident reached Mars, a wave of agitation and indignation swept the red planet. The Mars Free Congress nationalized the beanstalk, and rebels seized control of this engineering marvel. Its next passengers were the remaining U.N. personnel on Mars. Expelled by the Free Congress, they were forcibly placed aboard commandeered freighters for the long trip back to Earth.

Fires of Heaven^{v1.0}

Soon, rioting erupted in every Martian city as angry colonists attacked U.N. offices and properties owned by Earth-based corporations. Retaliation by private security forces only worsened the conflict. The underground warrens on Luna also experienced violent uprisings, and in several cases rebels seized control of entire communities. Waves of U.N. personnel, corporate officials and other refugees ejected from the insurgent cities flooded those warrens still under U.N. control.

In the asteroids, many zero-g prospectors announced solidarity with the rebels, fashioning weapons from their tools to resist any effort to dislodge them, while others withdrew into isolated regions of the Belt to simply wait out the conflict.

A handful of space habitats in high Earth orbit declared independence as well, but most (tethered to Earth by the need for vital resources) remained at least outwardly loyal.

Over the next five years, a series of skirmishes sputtered along and kept tensions high. The vast distances and long transit times involved harkened back to the wars of the 18th and 19th centuries, when months or even years could pass between engagements. Rebel forces declared an embargo on Earth, constricting the flow of resources to and from the homeworld.

The first skirmishes took place high above Earth late in 2073CE as U.N. troops stormed rebellious orbital habitats. The zero-g conflicts presaged the fighting on Luna early the next year as freighters converted to UNCDF troopships landed to retake control of the moon.

Using lunar facilities still under U.N. control as bases of operation, UNCDF troops invaded warrens held by rebel forces one by one. Some of the fiercest fighting took place in the city of Heinlein, where rebels armed with mining lasers and other makeshift weapons repulsed repeated assaults. In time, however, nearly all of Luna once again lay under enforced U.N. control.

As battles raged beneath the lunar craters, rebel forces on Mars and the asteroids steeled themselves. Independence-minded spacers formed a rag-tag rebel fleet, outfitting their freighters for combat as best they could.

The pacification of Luna accomplished, the United Nations Colonial Defense Force next prepared to regain control of the asteroid belt between Mars and Jupiter, restoring the flow of critical raw materials to Earth. A handful of newly commissioned warships joined the converted-freighter force to meet the rebel fleet in the 2075CE Battle of Pallas, named for a nearby asteroid.

Earth vessels scattered the makeshift rebel fleet, but not before a desperate revolutionary captain rammed the *UNS Hyperion*, flagship of the U.N. fleet, resulting in the death of all aboard both ships.

The UNCDF paid a high price for the victory, with many ships badly damaged and scores of personnel killed in action. Although they never again assembled for a setpiece battle with U.N. forces, the remnants of the rebel fleet continued to raid freighters carrying ores from the reopened asteroid belt, restricting the flow of raw materials to Earth.

The long-anticipated invasion of Mars late in 2076CE began with the seizure of the orbital platform at the head of the beanstalk while UNCDF troopships carrying advance forces established beachheads on the surface. Rebel engineers foiled the invasion by severing the tether with explosives; spinning the platform into space and preventing the bulk of UNCDF troops from reaching the surface. The tether and its cargo cars crashed down on Mars like a hypersonic whip, causing a number of casualties on the ground.

With only the advance forces on the ground, and no hope of reinforcement until Earth could produce more precious surface landers, the UNCDF troops surrendered to Mars authorities.

As wartime losses mounted, both sides began to reconsider their positions. The rebel embargo showed the populace of Earth just how dependent it had become on the colonies. But without the beanstalk to carry supplies to the rebels, the Martians realized that Earth would be able now to slowly starve them into submission. A peace movement took root among the war-weary people of Earth and space, and a diplomatic effort, engineered behind the scenes by the Amex corporation, finally brought U.N. officials and rebel leaders face-to-face at a neutral outpost on Luna. The Lunar Accord of 2078CE ended hostilities and set the stage for negotiations leading to a permanent resolution of the rift between Earth and its former colonies.

In exchange for a degree of autonomy, each world joined a new interplanetary government intended to unify humanity no matter how far its reach extended.

The United Worlds government, in which the people of every planet (at first Earth, Luna, and Mars, followed by major Belt settlements as they grew) had a voice, would oversee interplanetary commerce, administer pioneer colonies, keep the peace, and protect the basic human rights of all its people. The United Nations ceded authority over space to the new federation, restricting its role to affairs between the various nations of Earth. The UNCDF was restructured into the StarForces Navy and Marine Corps in anticipation of the next colonial development: mankind's first interstellar colony.

▼ **Mars First!** - As the spread of habitat domes, pit mines, and ice reclamation facilities changed the face of Mars, some settlers began to agitate for a less intrusive human presence on the red planet. In their minds, the thirst to exploit its resources and flood it with colonists from Earth would destroy the stark, unique beauty of Mars.

DATA DUMP

Believing that someone had to speak for the silent world, in 2061CE adherents of these views founded Mars First!, a radical environmental group inspired by an Earth-based organization. As efforts to lobby for stricter colonization policies failed, the organization arranged for public protests, court actions, and bureaucratic red tape to snarl projects it opposed, sabotaging those that could not be stopped by other means.

When rebellion broke out, Mars First! joined forces with those opposing Earthly authority over the red planet. Its expertise in explosives and guerrilla tactics proved invaluable to the rebels.

In the 23rd century, Mars First! continues to advocate protection for the natural state of Mars. A recognized political party, the organization elects a handful of legislators each year but a continued, if disavowed, reliance on dirty tricks has prevented Mars First! from gaining widespread support among ordinary citizens.

Ecowarriors through the Ages - reference Jk094234.450342.673400 - .05Cr

We had our first meal of all-native foods tonight: dragon steaks, baked thumproot, lakecress salad, and dewberry pie for dessert. Of course, we can't survive on an Eden diet without nutrisupplements, but it was a nice change from the freeze-dried rations. It's going to be a while yet before the first terran crops come in and the livestock herds are large enough to start slaughtering for meat, so a little variety is going to be important.

Feasting under the stars, with the two moons and Alpha Centauri B shining bright in the sky - this place is starting to feel like home.

- Evangelina de Souza Oliveira, Eden, 2096CE

▼ **A NEW EDEN** - In 2056CE, an immense colony ship departed from Earth orbit, bound for another star. The *UNS Argo* faced a 40-year journey to Alpha Centauri A. Telescopes had discovered a system of planets orbiting the yellow star, part of a trinary star system, the nearest system to Sol. Unmanned deep space probes and very long baseline telescopic surveys had revealed that one world in particular seemed a likely candidate for human settlement.

Propelled by powerful fusion drives, the ship carried six hundred colonists carefully selected for their scientific and practical knowledge, psychological stability, and compatibility.

Designers overcame the problem of supplying hundreds of people on a decades-long journey by placing most colonists in cryogenic hibernation. Shifts of awakened colonists served as crew for a few years at a time before going back into hibernation, which also retarded aging and ensured that all would arrive at Alpha Centauri A still in the prime of life.

Back at Sol, the rebellion delayed launch of a follow-up colony vessel. The *UNS Odyssey*, nearing completion at the outbreak of hostilities, was hastily converted into a troopship. Following the Lunar Accord, the renamed *UWS Odyssey* departed on the trail blazed by its sister ship.

A third colony vessel, the *UWS Conestoga*, set forth in 2089CE, but signals from the ship ceased in 2093CE. The vessel never arrived at Alpha Centauri A, and no traces of it have ever been discovered.

In 2096CE, the *Argo* arrived at its destination. A flurry of orbital surveys, robot probes, and other investigations of the Earth-like third planet revealed a breathable atmosphere with no toxins, microbes, or other unseen threats. In fact, native vegetation and animals on the world seemed surprisingly biocompatible with those of Earth.

Fires of Heaven^{v1.0}

After weeks of study from orbit, a shuttle conveyed a small landing party to the surface. Elisabeth Knight, second-in-command of the *Argo* expedition, became the first human to set foot on an extrasolar planet. She named the garden world Eden, and settlement of the world began in earnest following construction of a base camp near the coastline of a small continent.

But a hidden flaw in the cryogenic equipment became apparent when the sleeping colonists aboard the *Argo* awoke. Ice crystals had formed in the brains of some sleepers, causing neurological damage resulting in memory loss, emotional instability, motor-control problems or, in extreme cases, strokes, retardation, or death. Almost a score of colonists failed to awaken from coldsleep.

With no hope of return, the colonists named the base camp Horizon, and set to making the best of their situation. Agronomists planted crops of seeds and seedlings brought from Earth, while biologists thawed frozen embryos for maturation into the first generation of livestock for the colony. Ex-military personnel ensured the security of the precarious human presence on Eden, as mineralogists scouted for suitable ore deposits, and experts in a hundred other fields handled the myriad specialized tasks involved in establishing a permanent colony.

Dozens of colonists perished in the first few dangerous years as they faced the challenges of a new world. Animal attacks, plant toxins, exotic diseases, and accidents claimed numerous lives, but each tragic death only made the survivors more resolute in their determination to make the colony a success, both for themselves and for those to follow.

When the initial reports from the colonists reached Earth by communications laser four years later, news of the problems with the hibernation equipment brought plans for new colony ships and exploration craft to a standstill. But the news came far too late for the *Odyssey*, now over halfway to Alpha Centauri A, and the vanished *Conestoga*.

Dragons of Eden - Settlers on

Eden discovered a variety of native lifeforms, ranging from tentacular krakens in the ocean depths to cork-like sponge-trees on land. But among the most intriguing were the sizable land animals that came to be known as "dragons".

DATA DUMP

Dragons resemble enormous wingless lizards, nearly eight meters in length and standing three meters tall on four legs ending in clawed feet. They have a tough, scaly hide, with a spiky dorsal ridge running from the skull down the body to the tip of a long, whip-like tail. Despite their vaguely reptilian appearance, dragons are warm-blooded. These voracious omnivores aggressively hunt live prey, even those few Eden land animals larger than themselves. Dragons are found chiefly in the lowlands of equatorial Eden.

Several colonists were slain by dragons in the early days of the Eden colony, and even in the 23rd century these creatures occasionally claim human victims. The world government offers a limited number of permits to hunt dragons each year, and they are a prized trophy for big-game hunters throughout the federation.

Young People's Exobiology - reference yu983430.239822.499823 - .05Cr

Note - The stats for dragons are left to the gamemaster. Basically, they should be tough and smart enough to be a challenge for adventurers at whatever point in a campaign they happen to be encountered.



All those worlds circling distant suns are as islands on an uncrossable ocean to us now. Like our ancestors, we must learn to build better boats.

- Dr. Fadil Boustami, astronomer, 2100CE

OCEAN OF NIGHT - The fatal flaws in coldsleep technology stranded Eden's settlers on an alien shore, cut off from aid or even a return home. Inhabitants of the solar system felt the gateway to the stars slam shut. Colonists of previous centuries might have accepted an outright casualty rate of one person in thirty just during the journey, and an equal chance of crippling injury, but few of the 21st century would take that chance, especially when our home system was still largely unexplored...and significantly safer.

Astrophysicists had long speculated that singularities, points in spacetime to which the laws of physics do not apply, might be used to skip across light-years of space in the blink of an eye.

Singularities are created in nature by stellar collapses so complete the star achieves infinite density and gravity while occupying a point in space infinitely small: black holes. Theory had long predicted that matter dropped into a black hole in one place could pop out in another, the singularity effectively creating a wrinkle in the fabric of the universe, causing two points in space any distance apart to momentarily co-exist.

But all experiments to test the radical hypothesis failed. A test station in the void between Neptune's orbit and the Kuiper asteroid belt and Oort comet cloud, built far from any planets to assuage public concern about runaway black holes, induced a series of artificial singularities. On the rare occasions that a singularity remained stable long enough to test, the unmanned probes fired into the roiling gravitic forces emerged, if at all, only as crumpled debris or streams of high-energy particles.

As desperation to solve the riddle of faster-than-light travel mounted, scientists turned to the notes of an eccentric researcher dead nearly 20 years.

Yevgeni Rozhkov had devoted most of his life to study of a collection of bizarre Progenitor relics written off by most researchers as an indecipherable enigma. The artifacts, which Rozhkov believed to be the remnants of a starship, had been discovered in 2040CE in a stable orbit on the far side of Sol from Earth, occupying a Lagrange point, a point in space where gravitational forces between the Earth and Sol balance one another. While some Lagrange points are gravitationally stable, and used for placement of permanent space habitats, many others (including the one on the far side of Sol) are not.

Curiously, however, efforts to relocate the artifacts to research facilities on Mars failed when they resisted all efforts to budge them from orbit. In frustration, a scientific base was constructed around the relics in 2060CE. Rozhkov was one of the mix of civilian and military researchers assigned to the facility in hopes of unraveling the secrets of the Progenitors.

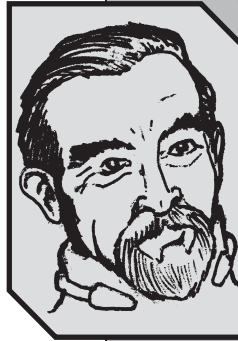
Although originally considered a prestigious assignment, as the years passed without any result from their examinations, most of his peers gave up on the inscrutable relics and moved on to other, more fulfilling, assignments. But Rozhkov persisted, examining the components of the hulk for the next twenty-five years. In time, he claimed to have deduced some principles of controlling gravitic forces from his studies but by then his obsession with the artifacts had all but destroyed his credibility in scientific circles. Rozhkov died in 2085CE, leaving behind notebooks filled with designs and concepts gleaned from his scrutiny of the Progenitor relics.

Now those "crackpot theories" yielded the answers sought by scientists experimenting with jump technology. In 2108CE, using new controls based on Rozhkov's notes to precisely calibrate the intense gravitational forces involved, researchers succeeded in sending a probe through a singularity to emerge an instant later, unharmed, motionless, thousands of kilometers distant.

Further tests using plants, animals, and finally humans, proved that living tissue could pass unharmed through the singularity. Most test crews reported a brief period of disorientation and physical weakness after emerging, however.

Construction of a permanent jumpgate capable of routinely inducing jump singularities commenced. Upon its completion in 2111CE, the first vessels sent through carried workers and materials to build a duplicate at the Alpha Centauri binaries. A ship filled with medical experts and equipment, the *UWS Angel of Mercy*, quickly followed to treat the cryogenically-induced neurological damage suffered by the people of Eden on their long journey from Sol.

Fires of Heaven^{v1.0}



Yevgeni Rozhkov - All

DATA DUMP

but ignored in his own lifetime, Yevgeni Rozhkov now stands out in history as the father of interstellar flight. The theories he developed over years of studying Progenitor relics solved the monumental problems facing early jump theorists, making possible the jump drive that now bears his name.

Born in Moscow in 2000CE, Rozhkov excelled in school and earned several advanced degrees in physics. But as a young adult, he proved something of a dilettante, teaching mathematics in China for a time, then spending a few years as an unsuccessful artist in Paris, then holding a succession of other odd positions before returning to academia.

Unable to gain tenure due to his gadabout youth and eccentric habits, Rozhkov flitted from university to university, project to project, before landing an assignment in 2050CE to the team examining a collection of Progenitor relics found in orbit on the far side of Sol from Earth. Some biographers speculate that Rozhkov's dean at the time only gave him the assignment to send him as far away as possible from the university.

Finally, Rozhkov had found something that captured his attention.

He spent the rest of his life examining the indecipherable relics, even as his peers drifted away to more fruitful endeavors. Rozhkov persevered through budget cuts and staff reductions, thoroughly convinced that he was only an inspiration away from unlocking the secrets hidden in the Progenitor artifacts. Rozhkov kept track of his studies and speculations in his meticulously kept old-fashioned notebooks. While his three decades of research failed to wholly explain even a single Progenitor relic, Rozhkov's analyses inspired him to jot down countless theories and designs for devices far too advanced to even be adequately tested in his day.

By the time he died in 2085CE, Rozhkov had been relegated by most to the crackpot fringe of scientific thought - an eccentric old man obsessing over ancient relics in a lonely space habitat. Rozhkov did not seem embittered by his obscurity, however, but continued his tireless scrutiny of the Progenitor relics until the very day of his death.

Let's see what's out there.

- Capt. Hanne Ronningen, commander, UWS Calypso, 2112CE

▼ **VOYAGERS IN A SEA OF STARS** - The gateway to the stars thrown open to humanity, a daring band of explorers, scientists, and spacers from every nation and planet prepared to step through that portal.

While the first interstellar jump voyages, the Alpha Centauri rescue missions, were a success, it was soon realized that the requirement of building an extensive jumpgate facility at the far end of each trip would make jump exploration prohibitively expensive. Instead, research turned toward incorporating jump capabilities into the ship itself.

Construction began on the *UWS Calypso*, an exploration vessel intended to scout nearby star systems for habitable worlds. Built in Earth orbit by the United Worlds government, the ship took its name from a respected 20th century oceanographic vessel.

Cutting-edge, purpose-built and extremely expensive, *Calypso* was nonetheless an ungainly vessel, unable to safely land on any planet. It carried a fusion power plant and a skimmer to scoop hydrogen from the upper atmospheres of gas giants for refueling. Almost eighty percent of its mass were the power systems and Rozkhov Drive that gathered and stored a full week's output from the fusion plant to initiate a single jump. The sensor measurements and astrogation calculations for each jump took nearly as long, even using the state-of-the-art computers aboard the ship.

In 2112CE, the *UWS Calypso* set out on its historic first journey, jumping first to Alpha Centauri. From there, the craft departed on a three-year trek through unknown space.

Known to every schoolchild, the exploits of the *UWS Calypso* have been retold in nearly every format, from literature to holovids, and still excite the imagination as can few tales of adventure fiction: the frantic escape from a pack of cunning razorclaws stalking the landing party in the sultry jungles and grasslands of Loki at Epsilon Eridani; the heroism of medical officer Dr. Maureen Halpern, who succumbed to an alien infection burning through the ship even as she finished synthesizing an antibiotic at Tau Ceti; the desperate hunt for a saboteur among the crew as *Calypso* lay crippled off Epsilon Indi, marooned light-years from home; the daring jump to Alpha Centauri on a jury-rigged Rozkhov Drive - arriving months behind schedule just as authorities prepared to declare the ship lost; and through it all, the iron will and determination of Captain Hanne Ronningen conveying her vessel past every obstacle to its homecoming.

The *Calypso* returned with a wealth of scientific data and amazing discoveries. Its survey of Epsilon Eridani, Tau Ceti, and Epsilon Indi revealed the existence of numerous worlds suitable for human colonization. The hard data gathered by the ship's science staff on stellar phenomena, planetary formation, and biocompatibility kept scientists in dozens of fields busy devising new theories for decades to come.

Evidence that life was relatively common throughout the stars yielded hope that intelligent alien races might someday be encountered, while tantalizing hints from other Progenitor ruins on worlds in numerous systems deepened the mystery surrounding the vanished race.

Exploration of the stars continued with new vessels and new crews, but none could ever match the courageous first journey of the *Calypso*. The fully restored *UWS Calypso* now holds a place of honor at the orbital annex of the Smithsonian Institution above Earth, alongside such pioneering craft as *ISS Alpha*, the service modules of two Apollo missions, and the deactivated original Pluto-orbit jumpgate.

Barely 50 years after the voyages of the *UWS Calypso*, humanity had established footholds on eight extrasolar worlds, as explorers ranged outward cataloguing new stellar systems, followed by waves of science outposts, corporate operations, and pioneer colonies.

The StarForces military expanded alongside the federation, defending against internal threats, such as piracy, and the unknown dangers awaiting humanity in unexplored space.

StarForce Academy, a cylindrical habitat orbiting Luna, opened its doors to midshipmen and cadets in 2150CE. This prestigious four-year academy trains young men and women for duty in the StarForces officer corps.

Even as humanity spread across the cosmos, advances in science continued apace. In time, progress in the fields of superconducting alloys, energy production, and micro-circuitry made ship-mounted Rozhkov Drives less expensive (though transit through jumpgates between established systems would always remain cheaper).

Refinements in architecture, life support systems, and construction materials enabled humans to establish colonies on less Earth-like worlds, although at considerable expense and great risk. The fields of agronomy and exobiology provided vitally needed information on raising crops and livestock on alien worlds or artificial habitats.



Fires of Heaven^{v1.0}

▼ Ruins of the Progenitors - A

DATA DUMP

mysterious alien race that vanished millennia before humanity ventured into space, the Progenitors are a topic of endless speculation and debate among exoscientists. Definitive facts about the Progenitors are very hard to come by, despite almost two centuries of research. Their weird, crystalline ruins have been discovered on six worlds, including Mars in Sol system. Examination of relics found in orbit around the sun yielded insights vital to development of the Rozhkov Drive, yet revealed few concrete facts about the artifacts themselves.

Curiously, while numerous Progenitor ruins have been found, none appear to be settlements or homes. In fact, no one knows quite what the ruins do, if anything, or what purpose they once served. They are universally impervious to penetrating sensors. Constructed of superhard crystal materials beyond the capacity of any known race to duplicate, the design of the ruins follow a bizarre geometry in which lines look straight to the eye but aren't when measured by instruments, no two chambers have walls that meet at the same angles, and in which explorers tend to get lost with ridiculous ease despite the fact that it should be easy to backtrack through a series of such completely unique rooms - just a few hours studying the ruins is enough to cause headaches in a small fraction of researchers. Isolated artifacts recovered are similarly constructed and equally puzzling.

The government, society, and language of the Progenitors remain a mystery as well. Scientists are not even certain of their physiology, although analyses of their ruins suggest a bipedal form. There are even some indications that the Progenitors were not one race, but several. The Progenitors left behind no records and very few tools or other objects, but what remains hints at a mastery of science far beyond that of humans or other races.

Some say the Progenitors seeded life throughout the galaxy, citing the biocompatibility of species on worlds light-years apart as well as the tendency of bipedal forms among sentient races as evidence. Backers of this theory also point to the coincidence that the homeworld of each sentient race so far encountered by humanity has a single, large moon, believed by some to be critical to the rise of sentient life due to the creation of strong ocean tides that encouraged evolution of land-based life. Detractors belittle the notion that the existence of these moons signifies Progenitor influence, and not coincidence, at work.

Farming the Stars: Seeds of Sentience - reference gl826300.131994.692392 - .05Cr

One day in the language lab, the Nutoa suddenly burst out singing "Ding dong, the witch is dead!" Apparently someone had shown them a vid of "The Wizard of Oz" (the flat version with Judy Garland, not the holo-vid remake) and they seemed to identify strongly with the Munchkins.

Funniest thing I ever heard. Think about it, though. First contact occurred when an exploration shuttle crashed in the jungle - falling out of the sky, right? And the strange, towering humans inside told the Nutoa they hailed from a faraway star, correct? I'd have to look it up, but I think one of the explorers was even born in Kansas.

The Nutoa may look and act like a bunch of furry, good-natured adolescents sometimes, but they are actually pretty damn clever.

- Dr. Andwele Msuya, linguist, 2168CE

▼ **FIRST CONTACT** - Over a century before, the discovery of Progenitor ruins had demonstrated to mankind that it was not the only species in the galaxy. As new worlds were explored and settled, more inexplicable Progenitor structures were discovered. While that puzzle was not about to be solved, the long-anticipated moment of first contact with a living alien lay within reach.

Deep-space probes launched on one-way trips through the Sol system jumpgate had revealed the presence of a life-bearing world orbiting third from Procyon A, a hot white star sharing a binary system with a white dwarf. The *Horizon*, an independent exploration ship based in the Epsilon Eridani system, accepted an Amex contract to investigate the system in 2162CE.

Establishing orbit around the targeted world, explorers began a closer examination. A sultry, tropical planet covered by lush vegetation, Procyon A-3 possessed extensive lakes, rivers, and swamps. The soaring equatorial rainforests rising from mist-shrouded bogs exhibited a stunning diversity of plant and animal life, although the dense forest canopy precluded detailed study from afar.

Exploration parties from the *Horizon* began landing on Procyon A-3 after several weeks of orbital investigation approved the world for human visitors. Shuttles set out for different regions of the planet to collect specimens of native life, conduct mineralogical surveys, and undertake other tasks necessary to provide a complete picture of the fascinating planet.

Then the hand of fate intervened.

A quick-brewing storm caught one of the exploration shuttles near the equator. Buffeted by extreme winds, the shuttle crashed into the thick jungle marshlands. Violent storms prevented the orbiting *Horizon* from launching a rescue mission for days. The crash survivors awoke to find themselves in a village high in the treetops, surrounded by diminutive, furry, mammaloid bipeds. Using hand gestures and pantomime, the beings explained they had pulled the humans from the shuttle wreckage to protect them from vicious predators lurking in the bogs below; humanity had made first contact with an intelligent alien race.

While their technology was primitive, barely equivalent to the human Iron Age, the friendly aliens seemed skilled at natural medicine. Employing a detailed knowledge of the healing properties of their jungle habitat's rich plant life, they treated the injuries of the crew as each group learned more about the other.

By the time rescue shuttles arrived from the *Horizon*, the crash survivors had befriended the inquisitive aliens and made a start at establishing meaningful communication between the two races. The Nutoa, as they called themselves, seemed particularly fascinated by the advanced technology carried by their strange visitors. Promising to return, the *Horizon* set course back to the United Worlds with the electrifying news.

As reports of the incredible encounter spread through the federation, a full complement of scientists, diplomats, linguists, and other experts returned to Procyon A with the *Horizon*'s crew to establish permanent relations with the Nutoa.

Linguists began learning Nutoan and teaching the aliens Anglic, while exosociologists delved into Nutoan culture and exobiologists studied their physiology.

In 2170CE, the Nutoa agreed to establish a planetary government and join the United Worlds. Forward-looking Amex swallowed its disappointment at lost colonization rights and capitalized on its contact with the first alien race met by humanity. The corporate giant quickly established trading ties with the Nutoa and sponsored cultural exchanges to bring the aliens fully into federation society.

Discovery of the Nutoa seemed to open the floodgates to encounters with intelligent extra-terrestrial races as United Worlds explorers pushed ever deeper into the cosmos.

In 2172CE, an expedition to Eta Cassiopeia A, a yellow star in a binary system with a red star, yielded humanity's portentous second encounter with intelligent life; this time, an ancient, highly evolved civilization.

Orbital surveys of the worlds orbiting Eta Cassiopeia A by robotic probes had failed to turn up any sign of them, but in 2172CE the enigmatic aliens on the fourth planet chose to make contact with the human expedition to their star. The strong telepathic powers of the Ethereans eliminated all language barriers and allowed instant communication with the United Worlds scientists and diplomats dispatched to Etherea.

In time, the wise but baffling Ethereans agreed to permit human visitors on their planet and send an ambassador to the United Worlds government (a tremendous sacrifice for the Etherean volunteer). While they have declined full U.W. membership, they are benign neighbors of the federation, providing little direct help beyond inscrutable advice and vaguely worded prophecies.

The Ethereans, whose true race-name could only be spoken telepathically, dwelt deep below the oceans covering Etherea. A physically weak aquatic race of powerful psions, Ethereans had no cities or settlements. They roamed the vast seas of their homeworld, physically alone yet enveloped in a worldwide psychic bond known as the Unity. While capable of interstellar travel via living organisms native to space, the Ethereans rarely left the comfort of the Unity.

The Etherean's psi powers resulted from a symbiosis between the aliens and a microscopic, non-intelligent spore native to Etherea. As a byproduct of this symbiosis, the spore awakened the psionic potential of the host's mind. Millions of years of evolution adapted most forms of life on the watery planet to the symbiosis; not only were the Ethereans perpetually mind-linked in the Unity, but they shared a psychic bond with all life on Etherea on a primal level.

The beautiful song of the Worldvoice reinforced the Etherean disinclination to travel, explaining their failure to establish colony worlds or embark on journeys of exploration despite the age and sophistication of their civilization. Charting the infinite possibilities of the future via precognitive psi powers, the Ethereans awaited contact with other races on their own terms.

Fires of Heaven^{v1.0}

The year 2181CE brought news of an encounter with yet another intelligent alien race. The D'eira inhabited the world first in orbit around its primary at 70 Ophiuchi A, one of a pair of orange stars nearly 17 light-years from Sol. The *UWS Kit Carson*, an old Frontiersman-class frigate of the StarForces Navy, detected the launch of a primitive solar sail spacecraft while investigating confusing electromagnetic radiation signals that had been detected coming from the system. Following protocols set up after the first meeting with the Nutoa, the frigate jumped back to U.W. space. A federation first contact team soon returned to establish communication with the D'eira.

An austere, peaceful race of thinkers, scientists, and philosophers, the vaguely reptilian D'eira welcomed human contact. Their highly cooperative society had reached the point of early spaceflight, but D'eiran mathematical knowledge outstripped even human higher math. D'eira considered math the key to unlocking the mysteries of the universe - a language for expressing reality. The ages-old family lines of the D'eira, reproducing asexually through natural self-cloning, inhabited beautiful cities of glass on their metal-poor homeworld.

Shared interests and a reasonably common perspective drew humans and D'eira closer together. In 2186CE, the D'eira agreed to join the United Worlds as full members.

As U.W. explorers pushed back the edges of unknown space, however, humanity faced an even more astonishing change: the rise of human psions expanded the frontiers of the human mind.

In the mid-2180s, cases of verifiable psionic powers among humans began to appear. U.W. researchers quickly discovered the presence of an alien spore in these newly emerged human psions and traced its origin to Etherea. Amazingly, a very small percentage of humans were adequate hosts for the Etherean micro-organism, and it awakened the psionic potential in its new human hosts.

The organism could be passed from human to human and, when no host could be found, formed exceptionally hardy spores. After more than a decade of contact with the Ethereans, dormant spores had spread throughout the United Worlds. *There was no getting rid of them.*

The discovery of human psions, followed shortly by news of the alien origin of their powers, ignited a firestorm in federation society. Unrest and confusion rapidly gave way to public fascination with psi powers, psions, and the Ethereans, as tales of psychics and psi phenomena went from fanciful fiction to reality. Some psions became celebrities, while the entertainment industry rushed to produce films, holocaust series, dreamscapes, and games featuring psions as heroes.

Not everyone welcomed the rise of human psi powers, of course.

Extremists accused the Ethereans of deliberately seeding the United Worlds with the spore, ascribing nefarious motives to the cryptic aliens. In fact, the Ethereans had simply not considered the topic relevant to their contacts with humanity and seemed baffled by the uproar.

Even those who dismissed the conspiracy theories voiced concern about the potential for abuse of psionic talents. Evidence that some human psions could read thoughts or influence the will of others gave rise to fears of mind-rape and other violations. Some speculated that psions might use their powers to overthrow governments and subjugate non-psions (or that psions would be used by governments to oppress their citizens). The wave of public fascination and even adoration of psions drowned out many of these cautionary voices. U.W. citizens soon came to accept the radical notion of human psi powers, helped by the crafting of new laws to protect the rights of psions and non-psions alike.

Federation ships encountered the vessels of another starfaring race at Epsilon Indi in 2218CE, when a Jodoni exploration craft jumped into U.W. space. United Worlds officials established friendly relations with the insectile aliens aboard, and soon made contact with others of their kind in Jodoni-held space.

The Jodoni Combine, a seemingly fragmented civilization composed of countless independent socio-political-economic units dubbed "demesnes" by humans, consisted of five star systems near the edge of federation space. While a few demesnes proved unfriendly, most were open to diplomacy and trade with the United Worlds.

At peace with itself and its neighbors, humanity looked forward to a bright future.

▼ **Crisis of Faith** - Incontrovertible proof of intelligent, non-human life threatened to shake the human perspective to its core. Centuries of speculation had prepared humanity for the idea of extra-terrestrial civilizations, but confronted with the fact of their existence many humans faced a tremendous readjustment in thinking. For the first time, people had to consider just what it meant to be human, sentient, and intelligent. Nowhere was this reconsideration of basic beliefs more profound than in Earth's religions. Humans had long turned to religion for reassurance about their role in the universe. Contact with not one but several intelligent races, some even starfaring civilizations, seemed to throw long-held assumptions about that role into doubt.

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In addition, many faiths faced difficult questions about the origin and spiritual nature of the aliens themselves.

Some religious sects splintered under the strain, with one faction embracing the opportunity to save alien souls and another rejecting the concept that human religious teachings had anything to do with extra-terrestrial races.

The Christian belief that God created man in his own image, in particular, divided many churches. A reconsidered view that the passage referred to the divine origin of all sentient beings, regardless of physical appearance, won acceptance among some religious scholars, while others argued for a literal interpretation that seemed to impart a spiritual superiority to humankind.

Naturally, many fringe sects also grappled with the spiritual questions raised by alien contact. The role of the Ethereans in the rise of human psi powers, in particular, fostered the evolution of a variety of radical sects viewing the aliens as agents of evil and human psions as carriers of their infection.

The Nutoa, D'eira, and other races encountered by humanity in the stars had their own opinions on faith and spirituality, of course. Some races, such as the Nutoa, proved fertile ground for missionaries sent to spread the word of God throughout the cosmos, while others remained largely dubious of human concepts of religious belief.

Overall, an atmosphere of tolerance emerged among the various faiths, both human and alien, of the 23rd century, but the precise role of humans and aliens in the spiritual makeup of the cosmos continues to inspire contemplation and impassioned debate among religious thinkers of all races.

I was on duty as helmsman when the Vorn destroyer jumped right into the middle of the convoy. An alarm sounded on the bridge as the jump point opened, and the Vorn ship appeared, firing. I still remember the way it moved - not like any human starship. It almost glided through space. No inertia debt - instant course changes.

A second jump point opened off the port bow, but our sensors picked up only debris coming through. It must have been another Vorn ship that didn't survive jumping into the star's gravity well. I guess the Vorn figured that it was worth the chance. As it turned out, one ship was all it took, anyway.

The skipper ordered full-burn evasive and opened fire with the ion cannon as the freighters scattered. Then the damned Vorn gravitic beams caught us. The sensors op shouted something about quantum gravity waves and the ship just shook itself apart. I got to an escape pod just in time.

Floating out there in space, helpless, I watched the Vorn ship finish off the freighters full of refugees.

- Chief Petty Officer Dmitri Putin (ret.), StarForces Navy, 2229CE

▼ **A STORM IN HEAVEN** - The horrific carnage of the Interstellar War began with a freelance jaunt by a civilian exploration company. The white star Chi Draconis seemed an unlikely candidate to have any habitable worlds, but in 2228CE the crew of the *Jie Wu* judged the potential reward worth the effort.

An exploration craft out of Tawhirimatea in the Lalande 21185 system, the *Jie Wu* emerged from a jump outside the Chi Draconis system, and its sensors picked up numerous ships of alien design, some incredibly huge. Many of the ships seemed to be harvesting the cometary cloud around the outer edge of the system, and the crew of the *Jie Wu* (ignoring federation first contact policies in their eagerness to gain a place in history) set course to investigate.

As a contingent of the alien ships broke off to intercept them, failing to respond in any way to the hails of the *Jie Wu*, the crew grew uneasy, but it was too late to turn back. Intense beams of never-before-seen gravitic force lashed out at the lightly armed exploration vessel.

As hull breaches and explosive decompression tore the *Jie Wu* apart, the communications officer beamed a distress call and images of the attacking ships into space. The *Jie Wu*'s last signal reached the nearest United Worlds outpost, at Sigma Draconis, nine years later - but the aliens got there first.

Fires of Heaven^{v1.0}

Worldless starfarers who ages before rendered their home planet uninhabitable through ceaseless warfare, the Vorn roamed the stars in vast crystalline cityships attended by armadas of warships. Driven by a sense of evolutionary imperative to better their race by culling the weak or deficient, the Vorn sought constant challenges. War posed the greatest challenge of all, the crucible in which the Vorn purified themselves and proclaimed their fitness to a hostile universe.

Three months after the Chi Draconis encounter, sensor buoys in the Sigma Draconis system detected ships of an unknown design emerging from a rip in spacetime outside the star's gravity well. A Star-Forces task force stationed in the newly colonized system set an intercept course for the oncoming vessels.

As had happened to the *Jie Wu*, silence met all attempts at communication. Without warning, beams of destructive power ripped the Navy vessels apart, while answering laser and ion cannon fire proved ineffective against the seemingly fragile alien ships. Without pausing, the alien fleet carved its way through the Navy task force and continued inward to the human colonies of Sigma Draconis.

The Vorn quickly eradicated the remaining spaceborne defenses of Sigma Draconis and established a blockade, fending off all human attacks with reactionless gravity-well drives that permitted Vorn vessels to glide through space unaffected by inertia, used gravity shear weapons that literally tore United Worlds starships apart, while crysteel hulls grown from a monocrystalline matrix provided them nigh-impenetrable protection.

On the ground, Vorn forces proved equally potent, fighting with a ferocity matching their monstrous appearance. An armored carapace provided Vorn warriors with formidable natural protection, while their muscular hook arms and wicked mandibles made them deadly hand-to-hand combatants. Smaller tool arms carried advanced hand weapons, such as continuous-beam laser rifles.

Along with the Sigma Draconis blockade, Vorn forces struck at the 61 Cygni, 70 Ophiuchi, and Lalande 21185 systems. Lightning raids, feints and reconnaissances-in-force kept federation forces off-balance and terrorized the populace.

Nonetheless, the men and women of the StarForces fought on to defend the United Worlds against the unrelenting invasion. Desperate ramming maneuvers by battered Navy ships obliterated more than one seemingly impregnable Vorn warship. Free traders took armed freighters into battle alongside Navy ships, or else fled for safer star systems packed with civilian refugees. Shipyards, factories, and other industries worked around the clock to turn out ships, arms, ammunition, and other supplies for United Worlds forces.

Meanwhile, scouts ranged into unexplored space seeking to pinpoint Vorn supply points and other key systems, while diplomats pleaded with the fractious demesnes of the Jodoni Combine for assistance and sought information from the mysterious Ethereans.

While the Vorn continued to hold the Sigma Draconis system, they seemed disinterested in the colony worlds after eradicating their meager space-defense capabilities. Apparently satisfied with sending periodic raiding parties to assault key production or population centers, the Vorn made no attempt at full-scale planetary invasions.

Even these raids sorely tested the defenders on Tin Hau and Shen Nung, however. StarForces Marine Corps units and planetary militias, reinforced by a handful of special forces troopers brought in by stealthy blockade runners, took heavy losses in every engagement with the Vorn but succeeded in either forcing the raiders back or delaying them long enough to evacuate civilians each time.

The 61 Cygni binaries, 11 light-years from Sigma Draconis, were next to face the Vorn. Curiously, however, the Vorn committed forces piecemeal to the fighting in the binary system. Countless minor skirmishes took place amid the outer planets, whittling down defending forces even as the Federation desperately rushed reinforcements to the embattled system, but the hammer blow never fell.

Harassing raids on nearby systems continued, and in 2229CE a surprise attack by a Vorn task force destroyed the Hephaistos Starport at the Alpha Centauri binaries, killing thousands. Panic swept the core worlds as news of a strike so close to Sol spread.

Rumors circulated that the Vorn were preparing for an all-out assault on multiple federation systems or in a concerted drive at Sol and the homeworld of humanity, but just as they seemed poised to overrun the entire federation, the Vorn suddenly withdrew from federation territory, only eighteen months after they burst into U.W. space. No truce was declared, but the battered defenders of humanity had no interest in pursuing the Vorn as they pulled back into deep space.

In the years since, the Vorn have been content to harass frontier systems or United Worlds ships in unclaimed star systems. These attacks typically consist of a half-dozen or fewer Vorn ships that directly engage federation ships before fleeing. Sometimes Vorn raiding parties land on colony worlds, but these forces pull back into space and depart after fighting a battle or two.

StarForces strategists are unable to explain this behavior, which seems to gain the Vorn no tactical advantage - although some experts suggest the Vorn are perhaps testing United Worlds defenses in preparation for a renewed invasion. The ease with which Vorn weapons ripped through StarForces ships in earlier encounters casts doubt on this theory.



The future wears many faces.
- *Etherean proverb*

▼ **IN THE YEAR 2237CE** - Humans now dwell on a score of worlds, side by side with friendly alien races, enjoying longer, happier, and more productive lives than ever before. Scientific progress marches on, producing such innovations as antimatter power plants and artificial gravity. Exploration, colonization and emigration has taken place on a scale that early 21st century futurists would never have predicted, technology and economic development of outer space pushing each other forward at an astounding rate. After severe stutters in progress because of the Biotech Wars and the Interstellar War, expansion of the United Worlds has resumed (following the Interstellar War) with the recent colonization of the Delta Pavonis star system nearly 19 light-years distant from Sol. Daring explorers continue to extend the boundaries of known space, often at great personal risk. Ever vigilant, the rebuilt StarForces stand ready to defend the federation against all threats. But every door opened by humanity's trek to the stars leads to new mysteries, new dangers, and new adventures.

The Vorn continue to harass frontier systems with occasional strikes, as time counts down to an explosive new confrontation with the implacable aliens.

Systems bordering the Jodoni Combine face less dire, but no less troubling problems with periodic attacks by hostile Jodoni demesnes. Diplomats seek peaceful solutions in the fractious maze of Jodoni politics, while intelligence operatives seek information on unfriendly demesnes and advance warning of impending raids. Vague reports of vanished ships on the far side of Combine space may be the first inklings of renewed Vorn aggression or hints to the presence of another potentially hostile alien power.

Internal concerns also trouble the United Worlds: ruthless corporations war for economic dominion. Interstellar crime cartels vie for mastery of the underworld; slavers selling bioengineered clones traffic in human misery; black-market factories churn out illegal armaments and other proscribed goods; and on dozens of worlds, the silent ruins of the Progenitors hold secrets and hazards yet unplumbed.

Fires of Heaven^{v1.0}

▼ **Aftermath** - Tens of thousands of United Worlds citizens, both military personnel and civilians, perished in the Interstellar War with the Vorn. While numerically small compared to the populations of Earth, Mars and the various interstellar colonies, many of these casualties came from the ranks of trained starship personnel. The eighteen months of fighting left the StarForces fleet in ruins and decimated the Marine Corps.

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And no one knew why the Vorn had departed or when they might return.

Battered, weary, and confused, the United Worlds began the colossal task of rebuilding. Nine years later, most of what was lost has been restored, yet preparations for what some believe to be an inevitable rematch with the Vorn go on. Shipyards bustle with activity replacing StarForces Navy ships lost in the fighting, while architects draft plans for a new generation of vessels employing the latest technology, and the Marine Corps continues an ambitious recruiting drive to restore its shattered strength, arming troops with weapons it hopes will even the odds on the ground. Examination of wrecked Vorn starships has already resulted in functional artificial gravity generators, and scientists strive to unlock other Vorn secrets, such as gravity-well drives and crystalline alloys.

Diplomats continue to improve relations with the Ethereans and friendly Jodoni demesnes, hoping to cultivate allies in the next war.

UW White Paper: Aftermath - reference uw0387822.821783.904475 - .00Cr

Human psions have secrets of their own, with evidence that some carriers of the alien spore responsible for awakening human psi powers have suffered progressive, irreversible neurological damage. The Institute for Psionics has concealed this startling news, fearing a public backlash.

It is a time of great danger, of threats known and unknown, an era of grand adventure, tragic loss, and joyous triumph.

An age of heroes.