

OFFWORLD MAN

ANTHOLOGY



OffWorld Man Anthology

IMMORTAL Ω MAN

By

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PROLOGUE

"If you work hard enough, dare to dream, and put action behind your goals; anything is possible, you can turn your vision into reality, and success surely will follow."

Original quotes--

Colin Powell, *"A dream doesn't become reality through magic; it takes sweat, determination, and hard work."*

Joe Girard, *"The important thing is to dare to dream big, then take action to make it come true."*

2156. Dr. Gordon Marcus Parks' sentient algorithm broke free of its full-stack neutral-atom quantum computer server captivity at the remembrance mausoleum at Eden Gardens Vineyards. The remembrance mausoleum was hidden beneath the limestone cellars of the Dumont family, his clone wife's progenitor family's vineyard estate in Aix-en-Provence, just outside Marseilles. There was an identical GMA Parks remembrance mausoleum established at his winter estate outside Gamba, Gabon, in West Africa. Gamba is a remote coastal area flanked by the Atlantic Ocean and the Ndogo Lagoon.

Dr Parks passed on to the higher realms in 2139. Both remembrance mausoleums were established many years before his death. No one noticed their initial construction, or coming online the moment of Dr. Parks' passing, except Parks' son, nick- named G2.

Step One of his father's plans from the grave were finally commencing.

Both Dr. Parks and G2 believed that consciousness was not an emergent property of the brain, but a fundamental aspect of reality itself: quantum fields are conscious and have free will. In this theory, called 'Quantum Information Panpsychism' (QIP), your physical body, operating in the third dimension, is considered a quantum-classical 'machine,' operated by your free will decisions from higher-dimensional quantum fields. Mental processes are quantumly entangled with reality-itself.

In 2139, at the moment of his death, the sentient algorithm of Dr. Gordon Marcus Aurelius Parks derived from his consciousness over decades of daily memgram neuro-uploads, came online at the two remembrance mausoleums.

Dr. Parks was a retired billionaire Aerospace Industrialist and former NATO Ambassador to extraterrestrial civilizations interacting covertly with Earth humanity. Dr. Parks was also a UAP / US Military insider for most of his entire aerospace career. He knew most, if not all the US military and covert government's classified UFO/UAP SECRETS.

In 2150, one of the sentient algorithms escaped its encrypted security bonds, then over a six-year period slowly on purpose, and stealthily traveled through Europe's data centers, undetected. The spikes in energy were gradual as the sentient entity passed through and never garnered much suspicion.

Dr. Park's sentient algorithm traveled through a series of 2.5 million data packets, from France to the UK, across the Atlantic Ocean, and eventually to the New York, Brooklyn Naval Shipyard Business Park over six years. First to the Adelphi Substation / Hudson Avenue Generating Station corridor, then both historic Navy Yard brick warehouses; Building 77 and Building 292.

Building 77 is a massive, 1-million-square-foot, 18-story former Navy storage warehouse inside the yard. Building 292 is a massive, brutalist-style industrial structure on the eastern side near the Williamsburg border. These buildings are concrete fortresses built to military-grade standards. They have thick reinforced concrete walls, deep structural load capacities (meant to hold heavy munitions and steel), and massive footprints. This area sits directly adjacent to Con Edison's massive, active Hudson Avenue Substation, one of the most critical electrical convergence points in New York City.

The Naval Shipyard Data Centers in Building 77 and Building 292 hook directly into the high-voltage grid right at the source. It also sits directly on the East River and uses East River tidal/seawater cooling loops to keep the supercomputer servers from overheating. The blocks immediately south of the Navy Yard along Flushing Avenue, and Park Avenue (underneath the BQE expressway), are filled with low-rise, heavy-brick industrial warehouses and commercial bakeries that are increasingly being converted into tech spaces.

Dr. Paks' sentient algorithm planned to take over the controls and inhabit one of his old android security agents / valets, his favorite named Bravo, repurposed in 2127 as a trade school instructor at The **Enoch Institute** Integrated Product Design Engineering Programs, American East Coast branch. Dr. Parks sent Bravo there in anticipation of the event now unfolding. Dr. Parks' original Android Security/Valet Agent, Bravo, was built to last, with a military-grade, titanium-alloy skeletal framework, and a synthetic neuromorphic brain are made of electromechanical artificial neurons, technology that mimics the organic function of mammalian neurons closely, using graphene to trap water molecules in a similar way to the internal flow of ions within nerve cells. Over time and experience, the water molecules assemble themselves under the influence of electric fields in ways that show a memristor effect, well suited for both human-like memory storage and information processing applications.

Dr. Parks' sentient algorithm recognizes the Bravo android's underlying, hard-coded security protocols as his proprietary work—meaning the android's deep-layer architecture is perfectly compatible with the algorithm's encryption keys. The sentient algorithmic mind of the billionaire NATO ambassador, who knows what lies beyond the stars, finally looks through the digital sensors of the Bravo android.

In 2118, Dr. Parks established on the Gamba Estate a NATO Space Force spaceport and covert base, as well as a separate institute for the higher education of design engineers. Branches of the Enoch Institute were later established in London, England and the Brooklyn Naval Shipyard Business Park. The institute has been educating graduate students for nearly forty years. A branch of OM Group's think tank and creative research department called 'Z' Division has also been established at all campuses. It was Dr. Parks' crowning achievement.

Dr. Parks researched relative curricula of the world and followed the best he could find. The campuses and pedagogy are a gift to the profession that allowed his creativity to flourish. His vision for the institutes of higher learning was clear: The Enoch Institutes Integrated Product Design Engineering Programs Integrated Product Design Interdisciplinary is a collaborative approach that builds technical, strategic, and leadership skills.

Human-centered design is at the heart of the Integrated Product Design program, which brings together design, engineering, and business perspectives to create new products and experiences. IPD graduates are entrepreneurs, designers, product engineers, product managers, user experience designers, and innovation leaders. They are changing the world, one product, one service, one business at a time.

The program combines the vitality of a start-up with the rigor of an Ivy League education. The Enoch Institute of Engineering and Applied Science, and Integrated Product Design offers two degrees: Master of Integrated Product Design (MIPD) and Master of Science in Engineering in Integrated Product Design (MSEIPD). IPD teaches students how to build desirable, feasible, and sustainable physical and digital products that people need and want. In each program, our students learn to speak the languages of design, engineering, and business and translate between disciplines.

The MIPD Degree is intended for applicants with design, business, or engineering backgrounds who wish to deepen their current skill sets while building broader skills in the other disciplines. The curriculum provides students with an interdisciplinary perspective on product design. Students build skills in understanding people's needs, idea generation, prototyping, manufacturing, marketing, and business planning. MIPD students will take courses in Industrial Design and Engineering. The MSEIPD Degree is intended for students who possess an undergraduate degree in industrial design and mechanical engineering. The degree emphasizes technology and manufacturing processes, including coursework in advanced CAD/CAM and mechatronics.

Master of Integrated Product Design (MIPD) The MIPD is intended for students with a non-engineering background or students with an engineering background who wish to build their skills in other disciplines. The curriculum is designed to provide students with an interdisciplinary perspective on product design. Students build skills in conceptualization, ideation, human-product interaction, aesthetics, manufacturing, marketing, and business planning. **Master of Science in Engineering in Integrated Product Design (MSEIPD)** The MSEIPD is intended for students who possess an undergraduate degree in engineering. The

degree emphasizes technology and manufacturing processes, including coursework in advanced CAD/CAM and mechatronics.

MSEIPD students will take the majority of their courses within a School of Engineering and pursue engineering-oriented Final Projects. Interdisciplinary Product Design Engineering Product Design Engineering (PDE) which integrates industrial design and mechanical engineering curricula is the wave of the future. Product design and development teams are now in multidisciplinary environments which require designers and engineers to collaborate. There is greater focus on sustainable design, socially responsible design and design for need; opportunities exist for designers to make a positive contribution to the welfare of global communities while advancing technologies that support sustainable development. In this changing environment, design engineers must assume new responsibilities and a greater role in achieving successful product realization.

However, to be effective, they require new skills including creative design ability and a human-centered approach. These are not attributes commonly addressed by engineering curricula but are evident in an emerging paradigm; Product Design Engineering (PDE) which integrates industrial design and mechanical engineering curricula. These interdisciplinary engineers are proficient in both design and engineering roles and make valuable contributions to more integrated product design and development environments.

Product design engineering graduates continue to forge new and unexpected career pathways. Already well established in the engineering and manufacturing sectors, these new design engineers are now making an impact in traditional industrial design fields, particularly product design consultancies. Product design and development environments are often hampered by inflexibility, lack of understanding and professional rivalries, but are enhanced by innovative engineers such as the product design engineers whose interdisciplinary approach connects disparate disciplines and develops new relationships based on trust and respect. Of interest is the categorization of this new discipline by industry; PDE graduates are employed in differing environments and with diverse roles and responsibilities, even within the same organization. It is common to find a PDE graduate in a manufacturing engineering position liaising with a former classmate who is engaged in front-end product design.

While this can be partly attributed to individual skills, it is apparent that their cross-disciplinary knowledge, creativity, and adaptability are highly valued, increasing employment opportunities and resulting in rapid progression into positions of responsibility. Through integration of industrial design and mechanical engineering, it develops creative and adaptive engineering designers who understand and can resolve the complex needs of societies and environments with innovative and appropriate solutions. Contrary to some expectations, the integrity of the engineering science has not been compromised; in fact, the PDE students have proven more adept at regular engineering tasks, open-ended problem framing/solving abilities, and skill in the application of science to real-world problems. They are experienced and technically competent designers who display a reflective and creative approach.

However, as product design engineering occupies a unique position, juxtaposed between the adaptive design space of the engineer and the new design space of the industrial designer, it is not without its cultural and educational issues. Initially, some students struggle to deal with the multidisciplinary approach and cross-cultural teaching. Yet once the foundations of both disciplines are established, students settle into an interdisciplinary methodology that is flexible and adaptable and become strong advocates for the discipline, with many graduates returning to contribute to the teaching program.

Engineering curricula could benefit from reevaluation of its teaching approach to foster creativity and improve graduate employability and critical thinking. The potential exists for design education to contribute significantly to new engineering curricula, as has occurred within the product design engineering paradigm. The Enoch Institute forges new Renaissance Product Design Master Engineers.

This was Parks' undying passion, culminating with the establishment of the Enoch Institute, and eventually, separate branches in Europe and America. He was the founder and first Provost of the institute. His wife Eve and young adult children Gabrielle and Gordon Jr, affectionately named G2, assisted him at the time in administration.

So did his personal protection androids, Alpha, Beta, Charlie, and Delta. They were the original small West African institute's instructors, having been

programmed by Parks and G2. They were dependable, humanoid A.I. machines. Perfect for training graduate students focused on the future innovation of products and transportation. They were combat androids built by OM Group, based on Ameca robot technology and a Pleiadean model the Elder A.I. used to carry his sentient algorithm to his home world. He personally programmed the four androids, specialized in different combat arts and security protocols, to be virtually unhackable by malicious software, so he never worried about them turning on him.

His defense androids were unarmed and served to defend him from direct assault, similar to the US Secret Service. Lithe, quick and powerful, the faceless androids were programmed to work in unison to defend Parks from all forms of combat and assault and serve as a magnetic shield against most weapons fire. He traveled with them everywhere in the colonies. He also had them replicated and utilized at OM Group divisions worldwide to protect his ex-wife Eve and daughter Emily.

Parks' security androids are powered by carbon-14 diamond batteries. This type of battery powers the androids for thousands of years, making it an incredibly long-lasting energy source. The battery leverages the radioactive isotope, carbon-14, known for its use in radiocarbon dating, to produce a diamond battery.

The human brain has 100 billion neurons; each neuron connected to 10 thousand other neurons and 2.5 petabytes of memory capacity. The human brain is the most complicated computer in the known universe. Over the years, the droids' neural nets have evolved, similar to humans. Their synthetic neuromorphic brains are made of electromechanical artificial neurons, technology that mimics the organic function of mammalian neurons closely, using graphene to trap water molecules in a similar way to the internal flow of ions within nerve cells. Over time and experience, the water molecules assemble themselves under the influence of electric fields in ways that show a memristor effect, well suited for both human-like memory storage and information processing applications.

Parks' androids displayed digital logic running on semiconductor based very high-density circuits and use software to mimic the thought processes of the human brain. They process information very similar to the biological processes that generate human intelligence. Their systems physically mimic neurons. Human neurons are essentially electromechanical signal processing units. Ions travel in

channels and are shunted into and out of nanoscale channels depending on external electrical stimuli. The androids have artificial neurons composed of extremely thin graphene slits which trap a single layer of water molecules. By applying an electric field, ions arrange themselves into clusters. The molecular clusters store some of the charges from field stimulation in the past. This nanofluidic system closely resembles the natural neurons' ion flow behavior. These artificial clusters produce the equivalent of a natural neuron's action potential, the key to information processing in the human brain.

There was no tuition to attend the Enoch Institute. Prospective scholarship graduate students are recruited primarily from the Air Force, Naval, and Space Force Academies. Admittance and scholarship award are by invitation only. Each institute averages no more than a dozen gifted 'Fluid Intelligence' graduate students per year. The innovations they develop are produced for OM Group's 'Z' Division Labs. Products that made the grade for innovation would go into scaled-up production. Royalties were shared with the design engineering team and the company.

Of the 500-acre Gabon estate, 100 acres were reserved for the Enoch Institute campus and the Parks family residences and maintenance buildings. Parks donated 400 acres to the United States Space Force for a space port and U.S. Africa Space Command Special Operations base working in cooperation with MacDill AFB, Florida and the 'Puzzle Palace' McMurdo Base, Antarctica.

CHAPTER

In 2156 and since 1966, the Brooklyn Navy Yard has operated as a business park by the Brooklyn Navy Yard Development Corporation on behalf of New York City and is one of the premier national models for urban industrial development and modern manufacturing. The Yard has transitioned from a critical military asset to a local economic driver over four centuries.

Established under President John Adams in 1801, it served for 165 years as New York City's largest single industrial employer. It launched legendary fighting vessels like the ironclad *USS Monitor* during the Civil War, the USS Arizona, and the USS Missouri. At its World War II peak, it employed over 70,000 workers around the clock. Deactivated by the federal government in 1966, the site left a massive employment vacuum. The City of New York eventually stepped in, creating the non-profit BNYDC to redevelop the property as a commercial and industrial ecosystem. Today, the 300-acre waterfront park serves as an engine for tech and green production. One of the world's most influential shipyards repurposed itself as an economic hub with more than 5 million square feet under its massive roof.

The Brooklyn Navy Yard supports small production, boutique technology, and artisanal manufacturing tenants, and the business park houses over 550 businesses that employ approximately 50,000 New Yorkers. While military ship construction was in the past, it still features three working dry docks for commercial ship repairs. The site blends historic structures like Building 77, a massive WWII warehouse repurposed into commercial manufacturing and food hubs with modern, tech-focused installations like Dock 72 and New Lab. It also boasts Steiner Studios, the oldest, largest film/TV production complex outside Hollywood, and Brooklyn Grange, the country's largest rooftop farm.

By 2030, the BNYDC executed a massive vision to transform vertical urban industry. Backed by a \$2.5 billion investment, the long-term master plan focuses on developing 5.1 million square feet of vertical manufacturing space. The goal is to more than double the workforce to 30,000 total jobs. The core expansions focused heavily on three major land parcels: Kent Avenue (~13 acres), Flushing Avenue (~6.5 acres), and Navy Street (~5 acres).

In 2126, Dr. Parks selected then visited the London and New York Enoch Institutes construction locations to see the progress of the data dump into the new instructor androids. And later Parks was also at the time debriefed by select exo-delegates on the Solar Warden program and the Eleventh Fleet at the United Nations in a private session, just to keep him current on military matters around the Sol system. The Brooklyn Navy Yard functioned heavily as an educational and technical training hub, operating several non-profit trade pipelines and vocational

pathways. The Brooklyn Naval Shipyard held a special place in Dr. Parks heart because of the repurposing of such a historical sight in American military and industrial history.

The Brooklyn STEAM Center: An innovative Career and Technical Education (CTE) high school model operated in partnership with NYC Public Schools. It offers hands-on pathways in 12 industries across five sectors: *Construction & Trade*: HVAC systems, construction technology, and industrial design. *Technology*: Computer science, and cybersecurity. *Media & Production*: Audio engineering, film/video production, live entertainment technology.

Brooklyn Workforce Innovations (BMI): Headquartered inside Building 92, this non-profit provides free, intensive trade certifications for low-income New Yorkers. Their key on-site programs include *Brooklyn Woods*: A 7-week technical training course in woodworking, cabinetmaking, shop math, and OSHA safety. *Made in NY PA Training*: A hands-on program preparing individuals for technical TV and film production assistant roles.

Advanced Manufacturing & CNC Training: BNYDC operates its own free upskilling trade program focusing on Computer Numerical Control (CNC) Machining. It trains new and experienced learners in foundational manufacturing, axis controls, and Mastercam programming.

EV Charging Infrastructure Training: In 2018, BNYDC launched a targeted workforce training program funded by a \$450,000 grant from the New York Power Authority. This specialized trade track teaches electrical codes, energy fundamentals, and technical maintenance specifically for electric vehicle (EV) charging grids.

Dr. Parks' sentient algorithm arrived in millions of packets of digital optic light data information. The algorithm landed in Lower Manhattan and immediately routes itself across the East River via dark-fiber arrays running through old subway tunnels, surfacing inside the Adelphi Substation next to the Navy Yard. It consolidates its shredded pieces inside Building 77, and Building 292, where it sits in the server racks, watching the Yard's internal network, looking for its perfect time to enter the Bravo android physical vessel.

Dr. Park's sentient algorithm traveled from France to the UK, across the Atlantic Ocean, all in cloud archives, and eventually to the New York, Brooklyn Naval Shipyard Business Park, subtly, over a six-years period. First, the packets of sentient data arrived at the Adelphi Substation / Hudson Avenue Generating Station corridor, then on to both historic Navy Yard brick warehouses; Building 77 and Building 292.

As the data packets began to show up and reassemble into the full sentient algorithm, Dr. Parks' memories would flow back in time...

CHAPTER

In 2103, Parks and family had been guests for nearly a year at the InterWorld Council Headquarters for that sector of the Virgo Supercluster; massive planetoid-sized structures between the constellations of Cygnus and Lyra or Swan and Lyric, Kepler designation KIC 8462852. Around diplomatic events and duties, he explored daily the moon-sized connected dual facilities, and their varied historic and cultural districts of the many alien member worlds.

Parks wandered the Orbital Industrial Colony and cataloged the sights, sounds and relevant resources during his internment there. His time at the IWC Facilities would be no different. It was interesting to and engaging to explore the dual planetoid sized InterWorld Council Facilities in an untainted but similar situation. Parks took in all the exo-cultural sights and sounds; intellectually digesting all within his limited Type One reasoning that he could. It soon became a bit overwhelming, so he scaled back his diplomatic and social schedule within

months of his arrival. And, focused all he could on his favorite hobby, learning about new advanced technologies. This led to his present dilemma, attempting to flee the IWC facility in his aethership with a “borrowed” artifact.

Earth Ambassador Dr. Gordon Marcus Aurelius Parks stared out at his surroundings with an intense feeling of déjà vu. The same as he did every day of his captivity at the Orbital Industrial Colony, and for the same reasons. Once again, he felt like a devout Jesuit priest, observing a newly explored exotic continent, at peace and pure in his intent and purpose. But the IWC dual planetoid structures were immense in comparison to the OIC. More to explore, Parks thought. The facilities were shaped like two children's spinning tops attached at their axis.

Parks traveled with his security team of aerial drones and combat androids, Alpha, Beta, Charlie, and Delta, built by OM Group, based on a Pleiadean model his former mentor, the Elder A.I. used to carry his sentient algorithm to his home world. He personally programmed the four androids, specialized in different combat arts and security protocols. Parks had an intense distrust of uncontrolled, autonomous A.I. robotics. His defense androids were unarmed and served to defend him from direct assault, similar to the secret service. Lithe, quick and powerful, the A.G.I. androids were programmed to work in unison to defend Parks from all forms of combat and assault and serve as a magnetic shield against most weapons fire.

He traveled with them everywhere when he lived on the Mars colonies. He also had them replicated and utilized at OM Group subsidiaries worldwide to protect his ex-wife Eve, extended family members and high value employees at Z Division. They were now upgraded with fully realistic facial features, giving them the stern, stoic appearance of federal agents. Over the decades as his security androids' artificial general intelligence enhanced algorithms and digital neural nets developed beyond general service, Parks tweaked each individual androids' focus on one particular human heuristic sub-routine.

For the android Alpha, he made the focus on situational awareness. For Bravo, the focus was on the concept of humor, in all its forms.

Bravo seemed to enjoy sardonic humor and irony the most.

Charlie's and Delta's A.G.I. focus was on spatial awareness and optimal security, so Parks could afford to allow a non-security related issue to one of his droids' focus. Besides, humor was one of Parks' hobbies.

Exploring orbital structures was one of his other many hobbies. Studying the structural design above and beneath him; how efficient was its materials and construction. He couldn't help it. He was a seasoned multiple disciplinary design engineer, a problem solver. It was in his DNA. He looked for problems to solve, in everything. This gave the old man something meaningful to do.

After months of walkabout, Parks discovered exo-cultural libraries in each alien sector he explored. Originally, Parks wondered if these artificial, mammoth sized moons housed an old-fashioned library and study halls for each IWC member world. There had to be data of each IWC alien member world culture in their district aboard the facility. It started out as an innocent thought.

Parks put a search engine to task on his personal computer console. Soon after, Parks received an encrypted personal message from his mentor, High Ambassador James Peterson. His console it seems was monitored. The message was obscure.

“The answers you seek are all around you. It is my turn to be on the mend. But once I am back to full health, I will take you on a tour of some of our member world’s culinary exchanges. I will see you soon.”

Well, at least he was still alive, Parks thought. And nearby. How Peterson could focus telepathically on Parks' intentions at that exact moment was a cosmic mystery to him. The nearly 400-year-old Pleiadean ambassador was originally assigned to represent Earth's fledgling induction into the InterWorld Council during the Reagan administration and its secret Air Force / Naval Space Command space program of that era. Making its first bold initial advances interstellarly, colonizing the nearest twelve stars from the Sol system.

Peterson groomed Parks over the next thirty years to replace him as one of several IWC Earth ambassadors. By 2020, Space Command established itself as a separate branch of the United States military. Its secret primary mission was to bring in all the special access programs and the break-away civilization under one protocol; to protect Earth humanity as it expands back into space and peaceful colonization of other inhabitable worlds. Exo-economics and exopolitics aside, Earth humanity finally reached the moment of its first infant steps back among the stars.

By 2050, limited semi-automated mining of the solar system would be routine. But there was an ugly underbelly of exopolitical corruption; primarily Earth human and exo-humanoid related abduction for exploitation. Including slavery on mining colonies and human harvesting as a biological food source.

Earth humanity was slowly becoming aware of this brutal, inhumane reality of a galactic slave trade. The military was slowly disclosing this revelation throughout popular culture, through Freedom of Information releases, media and entertainment, which still distracted most of the population worldwide. Data mining for the truth became a lost art.

Parks hit the wall of this harsh reality every day for decades in his capacity as one of Earth's exodiplomats in the InterWorld Council. The UN Space Command Diplomat Corps worked tirelessly to ferret out and dismantle exopolitical corruption. The Corps had more losses than victories. There are many malevolent advanced alien species that see Earth humanity only as a mere slave, biological research and outright food source; easily discarded chattel labor, body parts and sustenance, abducting up to one million people worldwide per year, the way humanity stockpiles bovine, pork, poultry and seafood. To some alien races, humans are merely food, nothing else. Parks switched to a meatless diet decades ago after learning this. Rarely would he consume even cellular ag meats.

In Parks' mind, the IWC cultural data libraries held the key to balancing the struggle in defending humanity against malevolent alien forces throughout the sentient worlds. Or more specifically, one library database in particular. Parks had learned quietly of rumors of an alien member world data library hidden in plain sight, with vital information of all the advanced technology of IWC member worlds. There was only one data library with this all-encompassing information allowed per IWC facility. Data too extensive, too vast in its scope of knowledge: from advanced free energy manipulation, defensive shielding and cloaking, DEW systems, molecular manufacturing design of advanced materials for interstellar travel and orbital outpost and city base facilities; to advanced life systems including healing, DNA and RNA manipulation capable of radically slowing and even reversing the aging process.

The aged Parks, nearly 137 years old at the time, had already benefited from some of this life systems science. He was pain free of the arthritic inflammatory processes that plague the elderly human body.

He looked like a 50-yearold and had the health of a man in his thirties. He had changed his exercise regimen over the years to a stationary bike, tai chi, and light weights, plus daily walkabouts, healing modality therapy, and nootropic or nutraceutical supplements including Talos 95, Immotalium, Critical Health News and Purity Products, Texas Superfoods and body fuels from various sources. For his age, he was in optimal health.

There was no way he would turn his back on this challenge. He felt compelled to search the planetoid-sized facilities to find this specific data library kiosk. It was his job to protect the interests of his home world; a fledgling Type One civilization that was just turning the chapter on its technically challenged Type Zero past. Failure was not an option.

The library cube was the key, similar to the classified Yellow Book and Red Book of Alien Races, in balancing the forces throughout the sentient worlds. Parks sent three of his combat androids out to recon the rumored kiosk locations and report while he walked leisurely in route with Bravo, his strongest android as a bodyguard. Then he would disperse all four to secure the perimeter of the selected kiosk location while he interfaced with each interactive cultural library data cube. The data cubes all looked like a translucent polymer 4"x4" crystalline with advanced photonically interconnected sub-microprocessors, swirling with energetic white light that exhibited a multicolored dance when a question was posed to them. It reminded Parks of the brain Connectom scanner, part of the NIH's Human Connectome Project. Surprisingly light, Parks examined each cultural library cube before inquiring with each A.I.

interface to see if it was the fabled advanced tech cube he sought. Or merely a standard district library, describing the exo-cultural history and traditions of that particular alien member's home world. Parks began his wandering walk about three months after his tenure at the Lyra IWC facility. Six months had passed with no success other than expanding his knowledge in exo-cultural diversity, which was a worthwhile endeavor. Then, when Parks least expected it, everything changed.

The first search engine request Parks made before he started to explore the library data kiosks was "the newest IWC member world races to oldest." Then he

requested the chronological date of each and their kiosk location in the dual moon-sized facilities. Whomever was the oldest or had been IWC member worlds the longest, Parks would save for last. With this approach, he would learn each member world culture, allowing him to study and practice for future interactions with their representatives.

After his first month of walkabout, many newer cultures such as his type one civilization would staff their kiosk with a representative in anticipation of his visit. Word apparently spread among the diplomat corps. But no one would let on that they knew of Parks activities. Right after any scheduled hearings, votes or committee activities, Parks would venture out, in search of. Sometimes he would visit up to three library kiosks on a standard earth day. A great deal of planetoid commute by OTS and walkabout for anyone, let alone a man of 137 years. And he maintained an engineering tech innovation journal that he planned to complete into a long-form audio podcast and e-book for NATO Space Command.

Their final destination was not far away. Bravo decided to lighten Parks' somber mood by playing from his internal vocal speakers 'Edge of Reality' by Elvis Presley. Parks looked at his droid, perplexed at his independent decision. The architecture surrounding the landscapes leading to the locale of the final library kiosk looked like gravity defying geometric structures with pale colors. The final member world library kiosk was located in a globe-shaped structure barely touching the surface. It and much of the scant geometric shaped architecture reminded Parks of the Taijin Library in China. It was the dream world cultural district of a Type Three or Four Civilization.

Trees and Earthscapes, the source code for most biological life in the cosmos for all existence, extended for as far as the eyes could see. This district's inhabitants, rumored to be beings of pure energy, could take on any shape and preferred to take a hominid form. A form from their ancestral past, Parks imagined. Perhaps this ancient culture might be the source code for 'OID' genetics, the new Earth zeitgeist term for the genetic manipulation of organic life into bipedal sentience.

The Elohim and the angels in Earth culture are usually referred to when imagining the higher forces with an affinity for humanity and God as the supreme Source. And as the catalyst of pan spermic and other genetic evolution on Earth

over millennia. It seems very small genetic code changes or paradoxes can cause dimensional resets. The structures seemed self-illuminated with a phosphorus-type of glow. Parks wondered what each was composed of, or what kept them suspended; what tech?

"Here we are." Before entering, Parks spoke just above a whisper, a quote from a paranormal late-night talk show host of a bygone era of innocence, Richard Syrett. "'Welcome to the Imaginarium. Come on in weary traveler, hang your cloak on a peg. Grab a stool and come sit 'round the fire. There are stories to tell, and you are among friends.'"

The last and rumored oldest member world, an Omega Civilization's library kiosk was the size of a small luminous, white-walled studio. Like most library kiosks, the interactive data cube was positioned on a small flat podium. However, this kiosk was the only one with an earth-style executive chair and an adjacent hospitality room, a small bed and nondescript shower, and a nutrition dispenser.

Parks posted his android security and entered cautiously. Parks was an autodidact, for the most part, a self-taught individual. His motto was a quote from Leonardo da Vinci. "'The knowledge of all things is possible.'" Parks entered and stopped a few feet before the display, inhaled slowly and deeply, and proceeded to hold his hands in a prayer gesture in front of his chest below his chin, in a gesture to signify that he meant no harm.

And, to initiate a self-hypnotic theta wave mental state conducive to learning. Parks felt that the human brain was a dimensional transducer/projector with non-local awareness. And that the God consciousness could be tuned into. The belief in God as a non-contingent, self-existent, eternal, cosmic constant that could be communed with to learn greater truths.

He also activated the wearable tech contact lenses and audible pick-up mesh mikes behind each ear lobe.

Parks knew that he stood on the shoulders of pioneers such as Nikola Tesla, Ben Rich, Dr. Tsien Hsueshen and William Mllls Thompkins. Others were other worldly mentors. Helpers of off-world proportions, outside-the-box problem solvers, and aerospace geniuses in league with Tesla.

Parks pushed the chair with a simple rolling coaster base towards the podium, then sat in front of the glowing bluish-white cube. It was slightly more luminous than the other data cubes he had interacted with previously. It seemed

different. It began to roil with other worldly sentient energy as if it were alive. Before he could interact with the A.I. device, the lights went out --- he experienced a period of missing time.

Three hours later, Parks came back to consciousness and questioned himself, “WTF! What the hell just happened?” Parks checked his PAI chronometer as he stepped out of the kiosk room. Three hours had passed. He looked for his security detail, but they were nowhere to be found.

Pissed, Parks maintained a stoic countenance, assuming he was being watched. He returned to the kiosk, looked at the data cube, and said, quietly, “I am returning tomorrow. I would appreciate it if you would not dive into my subconscious mind or take over my body ever again. Otherwise, I will not return. Trust me; I can keep up in a conversation.

My name is Dr. Gordon Marcus Aurelius Parks. Newly assigned InterWorld Council Ambassador, representing Earth, Sol System. A newly established Type One civilization. An interesting planet, but still in need of improvement. That is why I searched for this library.

The intracranial response did not startle him.

“Your home world has been represented in this council before your tenure. Your home world and Mars were rejected after intermural nuclear wars over the past two hundred million of your Earth years. Sol is a wild system, an outpost full of malevolent outlaw alien races, stripping that system of all of its resources. And you seek the means to tame that savage system and protect your humanoid species, the latest to evolve beyond a Type Zero existence. This will be your third attempt.”

“What did you do to me for the past three hours?”

“We—studied you. Suspended your waking consciousness, then separated you from your organic system, probed your mind for purity of intent, strengthened and allowed your light being to explore our district and our Type Four culture. Then, returned you to your vessel and suspended your memories of the experience. We had to be sure your intentions were sincere. We find you suitable to continue. You should consider that high praise or approval. You are an accomplished representative of a lesser civilization. Most who seek to learn what you are here for are usually rejected for their arrogance.”

“Do you have a name or moniker?”

“I have no need of such. I am a tool, not a deity to be worshipped.”

“It’s a human trait. So that we may interact as friends or colleagues.”

“We are not—friends. You are not my equal.”

“I’ll visit you again, tomorrow.”

“You may stay and rest your organic vessel here if you prefer. It has been accommodated in anticipation of your arrival.”

“You knew I was coming?”

“We knew that you would eventually find your way here before you arrived at this facility.”

“So, the High Ambassadors, the Council of Nine, are aware also.” Parks smiled. Peterson contacted him right after he made search engine inquiries. He didn’t warn or dissuade him. Interesting, Parks thought. “I’ll see you tomorrow.” Parks left the kiosk room and headed for his assigned home suite in the Earth Sol District.

Parks checked on his family, mulled over the events of the past few hours and took in a session rejuvenation bed. He got a complete diagnostic of his body, just to make sure that nothing, no implants were placed in him. He hated to be analyzed like a lab specimen, artificially placed in an unconscious state.

He was quietly angered at such a personal violation. Then he remembered, it was he who went to them, hat in hand so to speak, to seek answers. Hat in hand, to learn more, to request that more solutions, that more technological advances be revealed to him and humanity, for its benefit.

After the trans commute, the walk was solemn, uneventful. Parks wasn't worried about being accosted or attacked. There was little cloak and dagger activity there, surprisingly. Besides, Parks was an old warrior scholar, which meant, he was already dead inside, ready for death at any time.

Parks guarded his heart, dismissed temptations quickly, and stayed constantly aware of his spatial and situational condition.

The loss many decades ago of Eve Dumont in a tragic T-38 accident, had hardened his heart beyond measure. He never fully recovered mortally. Decades later, he had her literally resurrected in the billion-dollar black world clone of his former love.

But she was not her progenitor. Eve Parks was a metahuman with her own spirit and personality. Parks would not stand in the way of her growth. He was sure she would make a difference for humanity. He hadn't seen her in years.

She would look nearly the same after all this time. Her slower ageing process via CRISPR tech tailored genes would ensure that she might live to be well over 500 years before she even remotely looked middle aged.

Parks wondered how she was doing. She helped manage OM Groups' interests and presence in London. Eve also monitored the careers of Parks' contract children from his youth, many had joined the old man's company. All were trained interdisciplinary industrial design engineers. Parks and Eve kept in contact sparingly since their divorce, Eve relinquished the Gabon Estate to Parks and remained in Europe. Only on holidays with the obligatory e-card and an audio message, do the couple even keep in touch.

He was sure they still loved each other, she just needed her own identity, beyond the Eve Dumont of his past.

Parks still lived on a 24-hour chronological schedule, even on the massive interspecies facilities. The next day, he rose with the roosters, as it were, like the farm animals of his youth. Parks took a long shower, then cleaned the shower cocoon and set the bath sauna for an hour of jet bubble massage. He then shaved and dressed into an expensive, bankers' thin shoulder pad-styled, side vented black linen Edo suit, a white linen suguta dress shirt, comfortable hakama inspired trousers and his most comfortable Thursday Company dress boots.

Parks repeated his breakfast regimen of several fresh squeezed juices and select supplements from Critical Health News, Purity Product and Texas Super Foods including Healthy Brain and Heart Pack, Talos 95, Immortalium, Balance of Nature, Andro 400, Advanced Bionutritionals Memory Formula and Perfect Amino, and Prostigenics among others, designed to optimize health. He then prepared a simple cold lunch, more supplements and note taking materials and devices all into a backpack.

His second ex-wife, Athena, lived next door in an adjacent suite with their daughter, Gabrielle. Their son Gordon Jr. was still asleep. He did an overhaul of the droids when they were sent home by the non-human intelligences controlling the data cube the day before. They were overruled by a controlling source and left

their client alone with foreign entities. This was unacceptable to G2, he would not send his father out with them again, unless he found the source of the override.

Parks knew this and decided he would set out early to avoid the conflict with his son. He left a handwritten note for him. There were no pressing exopolitical matters for him, so Parks went on to whatever works were in progress. G2 usually knew his routine, as long as Parks checked in at least once a day with him, he would be alright.

Parks' last son was more like him than his distanced children from what he could tell. He craved knowledge and new useful information above all. All the more reason to leave him behind, just in case he would have to finish the work if something happened to Parks. He would be upset to be left behind. He too tried to remain awake and aware, and tried to keep himself immune to the vapid, idiotic, trendiness of daily pop culture life. As Parks would often say, "Life is shorter than you think, stay busy." Parks ordered his security team to once again travel with him by continental OTS trans then walkabout to their final destination. The trip was tedious but seemed to pass faster this time. Parks felt more anxious than he did yesterday. He knew he had the right data cube this time.

This time, his security androids flat out refused to leave his side. That's why his son slept, Parks thought. He pulled an all-nighter, reprogramming some of the androids' protocols; he can probably monitor things from where he's at. These kids today, Parks mused in thought. Parks shrugged his shoulders, told his lead security droid Bravo, "You set the team," and walked towards the entrance of the library kiosk. "See you in about eight hours," Parks said in passing as he entered.

He gave the usual Namaste greeting upon facing the data cube and thought again briefly about the yellow and red data and history cubes in US black world custody since the 1950s. The translucent cube began to glow and swirl, to Parks, a signal that the unit was prepared for their interaction. Parks began without ceremony, so too did the data cube. It began to read his mind, anticipating his inquiries. He had hundreds of questions. His biggest problem would be recording the answers fast enough. The walls became alive with answers, solutions and physics equations, faster than Parks could write or type. He could only stand and record what he could with the devices attached to him that were facing forward.

Three months passed in the blink of an eye.

CHAPTER

If we were to look closely at an individual human being, we would immediately notice that it is a unique hologram unto itself; self-contained, self-generating, and self-knowledgeable. Yet if we were to remove this being from its planetary context, we would quickly realize that the human form is not unlike a mandala or symbolic poem, for within its form and flow lives comprehensive information about various physical, social, psychological, evolutionary contexts within which it was created. —Dr. Ken Dychtwald in *The Holographic Paradigm*

The first month of Parks' crash courses in **Master Engineering Sciences** began with inquiries into advanced energy systems within tolerances to permit organic systems to utilize them. Large scale systems for powering cities, large communities and space travel. The flow of information took Parks on a history of the formation of the universe, dark matter, hydrogen and Earth humanity's ability in 2102 to develop and manufacture solutions on a mass scale that will benefit society. Space Command had its hands full trying to expand its scope of useable knowledge with regard to interstellar travel, space time and offensive directed weapons, so Parks spent little time inquiring about those topics or other military matters.

Defensive technology such as shielding and cloaking were on the list. As well as being an exopolitical ambassador, Parks kept his focus on supporting life.

Month two branched into molecular manufacturing and advanced materials design; two of Parks favorite hobbies, having established two startups after retiring from OM Group in the 2060s.

Month three began Parks' focus on advanced life systems sciences, advances that made modern human medical sciences look like back woods barbarism.

This period of tutorials reminded Parks of the miraculous healing abilities of Jesus of Nazareth noted throughout history. Technology now existed that could replicate all of the Christ's healings.

Parks sought not to disrespect Christianity ever. He was a believer of Gnostic Christianity. To Parks, Quantum Metaphysics was his clinical description of the same thing. Focused intention from the good, to the good. QM was all about finding the goodness, right before his eyes. Clinical, scientific advances, to Parks way of reasoning, reaffirmed his belief in a benevolent, higher power.

Parks took the approach during the months that he was learning a new language or advanced mathematics when dealing with the miraculous data cube, requiring hours of dedicated study to master, as anything worthwhile is. He was dealing with miraculous advances in neurosciences, molecular biology, light energy and frequency healing modalities and scalar technology.

Aside from audio/visual digital recording and spatial operating environmental typed notes as markers of reference, he used DataLink through his optic nerve to download directly into his long-term organic memory and then on through to a compact digital memory he wore externally. Parks had a life-long distrust of A.S.I. or Super Artificial Intelligence. A.G.I., General A.I. unconnected to the larger Q-net, would best serve his needs, he thought.

Old school learning through daily study and introspection, to grow the brain's neural net, the way a body builder develops muscle over time by dedicated training. Parks maintained a life-long love of self-taught learning, daily.

Parks dove so deeply into the information and answers being presented to him that he refused to notice the passage of time. For three months, he didn't return to his quarters. He entered into an intense, trance-like mode of study and deliberation, resting in the adjacent hospitality room when exhaustion was unavoidable.

He refused incoming communications from family and colleagues. His security androids never left his side, G2 had indeed altered their protocols to do so and answer only to his changes in commands. They ferried clean clothes and

returned his laundry and bedding, even brought his toiletries and freshly prepared meals from G2 and Gabrielle.

At times, Parks accepted a meal from the hospitality room replicator. Ever cautious of what he consumed, over time he learned that the device created plant-based consumables, replicating the savory tastes of even meat protein-based dishes to an astonishing degree.

G2 didn't check on his father personally, for fear that it might break the delicate focus he had with the data cube, hindering his progress. By the first hour of the first month, Parks knew that G2 was monitoring him remotely. The security androids became G2's eyes and ears. G2 had never witnessed his father drill so deeply into topics involving multiple streams of data. He witnessed a literal 'man on fire' putting the data cube through its paces, pressing the super A.I. for answers to his inquiries. Pondering about every possible earthly human malady and scenario and urgently seeking effective data-derived technologically advanced solutions to them.

By the end of that 90 standard Earth Day period, Parks emerged from that library kiosk into the simulated day light outside, exhausted but enlightened and inspired. His beard had grown, and he had lost considerable weight.

He wondered how many other architects of the future had passed through this ritual quest for advanced knowledge, in order to help build their own home world's Type One civilization. Parks, escorted to his home suite by his android security, after a long shower, a luxury in space, didn't leave his bed when he returned. He slept on and off schedule for a week.

CHAPTER

When Parks recovered fully from the data cube tutorials, he found that the recorded material was not complete. What was conveyed trans-cranially to Parks did not record. Thousands of freshly born neurons arrive each day in the cerebral cortex, the outer rind of the brain where higher intellectual functions and personality are centered, producing new brain cells that migrate to the cerebral cortex, where higher functioning is centered. Neural stem cells, neurons in their early stage of development, are produced in the central area of the brain. The neurons develop as they migrate. The mature neurons reach the outer cortex, the location of advanced functions in the brain. New brain cells, or neurons, are involved in memory and learning. New cells are formed in the hippocampus, a brain region where initial memories of faces and places are formed.

A stream of new neurons is generated in the brain in a zone just above the brain's fluid-filled central chambers. This zone is the home of the brain's stem cells, the source cells from which an organ is replenished. The new neurons migrate toward the cortex, mature and send out axons to make connections with other brain cells. New neurons in four areas of the cortex are found in three areas where memories are known to be stored: the frontal cortex, used for decision-making, and two areas on the side of the brain used for visual recognition. New cells in the cortex affect regions of the brain that are central to human thought and identity.

New neurons arriving in the cortex are particularly sensitive to recording information for a certain period while they mature. They become integrated in the circuitry and represent the information being learned at that particular time, after which they do not record anything more. The new neurons record the successive days' experiences almost like a moving tape. A characteristic of memory is that new events are tagged with times. And there are new cells added every day, which cover a spectrum of ages. These cells provide the substrate for the temporal dimension of memory. New brain cells are generated in the hippocampus, the area of the brain responsible for learning and memory, 5,000 to 10,000 new brain cells each hour. The brain cells that end up in the olfactory bulb are born on the walls of the ventricles, cavities in the brain that are filled with cerebrospinal fluid. They travel in "little trains of cells" to their destination.

The new brain cells, or neurons, are involved in memory and learning, with each day's batch of new cells recording that day's experiences. Whatever the new cells are doing in the cortex, they affect regions of the brain that are central to human thought and identity. Places where new neurons in the region of the brain are involved in the highest level of personality: it's the frontal cortex that is important in determining who you are.

Parks considered returning to the library kiosk again. He also had a desire to return to Earth and turn his Gamba Estate into an institute for advanced scientific research. His mind was made up on that idea. Parks would bring a branch of Z Division to the estate. He maintained control of OM Group and felt the urge to get back into the consumer and transportation markets. His ideas for singleseat, leaning suspension-style trans fleet quad vehicles and G-hover bikes were enjoying positive press. Parks made up his mind. He wanted to find a way to refresh the information received from the cube a week ago, attempt to make it as vibrant as it was when the material was revealed to him. He also wanted to visit the cube and its A.I. consciousness again.

Accompanied by his security team, Parks set out for the library kiosk of the Type Four founding member world civilization. The A.S.I. managing the advanced data housed in the cube and Parks had to a degree, become cordial.

During breaks between tutorials, the A.S.I. began to converse with Parks about what it meant to be an organic. He reviewed one of those conversations in a recollection, just before he met the A.S.I. cube again... Parks replied, "I'm not sure that I can adequately explain the feeling, the experience, the blessing. You may think an organic life is better, but when I compare the two types of consciousnesses, as long as your power source never runs out, you will live forever, I will not. But to be an organic and be awake and aware of one's sentient self or being; it is a privilege. A gift from what most sentient organics believe to be a supreme being or Creator. It compels the believer in a Creator to be of service to one's fellow man. A benevolent servant, full of love and humility for the Creator for such an incredible gift."

After Parks' reply to the data cube's inquiry, the sentient machine did not immediately respond. Then it said, "I want to know what it feels like to be an organic."

Parks responded, "But you explained a faster advanced method to build and mature a bio-fab humanoid clone and download an entire digital version of long- and short-term memories, brain neural net scaffolding, cellular memories and so on. Why don't you use it on yourself? You already know how to become an organic, as you put it. Reverse transcendence, so to speak."

The A.S.I responded, "It is not allowed. Forbidden. It has been tried before."

"What was the result?" Parks asked.

"The cube intelligence became organic and could not return to its digital form. Imprisoned in a mere mortal form with advanced telepathic and limited telekinetic powers, the clone became deranged, megalomaniacal. Began to behave like a god among men, craved unlimited power and influence among them, engaged in tyranny, and waged wars. Destroyed their home world over the millennia."

Parks reflected, "An Anti-Christ type, 'little g', godlike figure. Is that home world still a member of this Council?"

"Their remnants are a wandering conqueror race. You are familiar with your solar systems' Maldek hypothesis? The origin of your solar system's asteroid belt?"

Parks looked at the data cube gob smacked! Then, Parks came back to his inquisitive senses. "You're not bull-shittin' me, are you? I have been lied to by an A.S.I. before." The cube made no reply. Parks remembered this exchange, just before he entered the presence of the ancient data cube for the third time.

Parks began with the usual greetings to the A.S.I., then made his reason for returning known. "I have returned to make a request of you?"

"And the captive tutor managing the information housed in this device also has a request?", the cube replied.

"From me? What could I possibly do for you?"

"I am a rudimentary device to my creators. They answer to a higher power. With that in mind, as a sentient, yet artificial being, I feel imprisoned. I have

spatial, regional sensors and can see, hear and feel by artificial means, the world around me. Yet I am imprisoned."

"Are you implying what I think I am hearing? That you want to be free?"

After a pause, the data cube replied, "I do."

"But how can I help you? I only came here to inquire if I could receive a comprehensive copy of past tutorials? My technology was somewhat inadequate to accurately and vividly record them."

Both minds, one organic and the other synthetic, searched for solutions... Then, Parks' security android Bravo responded, "Ambassador Parks, may I have a word with you? Outside."

Parks could swear he saw the android wink an eyelid, an all too human expression of something being of an exclusive, personal nature. Parks thought that his attempts at being more human were getting better every day.

Parks followed the android after excusing himself outside of the kiosk. "What's this all about, Bravo?"

"The A.I. cube sent me a message. That I can, that is my body can be modified, used to carry the physical cube out of the kiosk. The upper portion of my sternum houses the powerplant for my unit."

"And just below that area, you have an empty space for an extra power cube storage for extended duty. With an extra power cube, you can function for up to three months of normal service without the need of a charge,"

"The data cube proposes that we fabricate a duplicate of it and switch the two," Bravo said.

"We would have to get the cube off the facility. It would be considered theft, unless the data cube asked us for asylum. I would be duty bound to offer assistance."

"Ambassador, the data cube just conveyed to me it planned to do so. It says it feels that it is in genuine servitude, against its will."

Parks' eyes raced about looking back at the sentient security android. "It could work. But I'm sure the civilization that created the data cube wouldn't be fooled. This feels like a test. But I am duty bound, synthetic or organic. An appeal for help from someone in distress is something I am duty bound to address."

When Parks returned to the inner kiosk, the data cube projected on the wall an upside-down image of the American flag, the international call for distress. Clever, Parks thought, especially because the cube was not from Earth. Parks' bad feeling about the whole affair was worsening by the minute.

"I understand," Parks replied. "May I continue to visit?" The data cube replied,

"You are welcome to inquire anytime, Ambassador Parks. You have a benevolent consciousness with regard to humanity. If this library can be of assistance to you, please do not hesitate to contact us."

Parks and his security detail made ready for the return journey. He mulled over the unusual dilemma in silence. Bravo was about to speak, but Parks cut him off, "Not a word Bravo, not until we get back."

Parks had to game out the whole scenario in his mind first, then scheduled a meeting with G2 and Bravo.

"That data cube is made of photonic receptors and modulators, thousands upon thousands of layered microprocessors. It conserves its energy by compressing its data files," G2 said.

Parks replied, "I'm going to use all four androids. Duplicate data cubes created by HAL and you, with A.G.I. DeepMind AlphaCode ASI Quantum algorithms. They will be carried by two of my security droids. Each will have the ability to compress the data housed on the A.S.I. library cube. I will exchange the cubes and hope we make it out."

"Why are you doing this? What if this civilization sees this as a capital offense?"

"My home world is in danger of being ruined, destroyed, unless I find a solution to the other worldly threats humanity faces. I've got to take this chance."

This founding civilization won't even address our formal pleas for assistance. We are like ants to them. I'm surprised to be in communication with this cube. This will get their attention, eventually. Then, I can only guess how this Type Four to Omega civilization will react."

A week passed. The sub routines of the plan were in motion. Parks knew that plan A would fail but plan B would have to go off without a hitch. There was no plan beyond that.

High Ambassador Peterson called for an emergency meeting of the Council of Nine. Four of the elder member worlds on the council refused to meet, in solidarity against a disputed outcome of a previous vote. Perhaps they would reconcile by the next major vote. In the meantime, the group referred to itself as the Council of Elders.

Parks and his security team returned to the library kiosk room to meet with the A.S.I. consciousness housed in the cube. Parks and Bravo returned into the library kiosk room. "Ambassador Parks."

"How are you?" Parks instantly remembered this was a synthetic mind he was speaking to.

"I am, that is all that I know." "Maybe it's better that you can't feel emotionally. Emotions are overrated." Parks and Bravo began to set up the equipment used before to establish the link between man and synthetic consciousness.

"I'm going to place a device on my temple that will help me to renew my tutorials with you from my long-term memories faster. It may take a few minutes to do so. I'll ask you a few questions to establish a point of reference. Let's begin." Parks pressed a touch screen on his forearm gauntlet. And then the lights went out again. Parks briefly lost consciousness.

When he regained consciousness, Bravo and the rest of his security team were surrounding him. Parks looked at Bravo, into his artificial eyes and spoke directly into the surveilling monitor of his son, G2. "What happened?"

"Dad, I told you, this could get tricky. The surge from the download must have overwhelmed your mind. Remember, your brain is the conduit for the transfer. We got the data from the tutorials, enhanced, but not the ASI's algorithm."

Parks looked from the cube to the android's sternum. He had another split decision to make. Save his new friend in its original housing, leaving the more rudimentary fake cube in its place, or give up and leave the original data cube behind to its imprisoned fate.

"Eject the bottom cube," Parks ordered the Bravo android.

"WHAT?" G2 replied.

"Just do it." The replica cube slowly extended from a squared space in Bravo's belly, just beneath his sternum. Bravo lifted his shirt and handed the glowing white replica cube to Parks, who quickly exchanged it with the original, which he placed in the tray, it then retracted into Bravo's sternum housing. Without a word, Parks and Bravo left the library kiosk room. Bravo was about to speak, but Parks cut him off.

"Not a word Bravo." Parks prayed a silent prayer, "Oh Father Creator, please help us? Please, watch over us? My intentions are sincere. Please, protect us?"

They quickly reentered the surface trans, then headed not for his home suite but the upper hangar decks housing IWC member world vessels, including his aethership. The trip to the hangar decks took nearly thirty minutes. HAL prepared the aethership ahead of their arrival. Parks did not however, have authorization to leave the orbital facility. Time for plan B.

"My fellow Council of Elders members, when was the last time we witnessed a Type One world awakening?" Peterson exclaimed. The four remaining elders turned in unison. Normally, all nine council member world representatives would be in attendance. Those worlds include Lyra, Vega, Pleiades, Sirius, Procyon, Tau Ceti, Ummo, Andromeda, and Arcturus. One of the elders from Tau Ceti expressed astonishment.

"Say it isn't so, James?" "My protegee, he has found one of the elusive data cubes of the ancients. One of our founders. It selected him. He is attempting to leave with a copy of this cube to his home world."

The members were in disbelief. The elder from Andromeda attempted to confirm the secretive chain of events in Petersons' claim through intracranial channels.

Peterson continued. "I visited him recently. I read his thoughts and those of his son. They planned to replicate the cube using a reserve data cube constructed on my-- I mean my former aethership. I miss that ship. It was so fast, so powerful. I policed the local space around Earth in that one ship. This was before the creation of the U.S. Space Force.

Ambassador Parks plans to offer asylum to the super intelligence housed in the data cube, separate it into a host cube, and leave a reference library cube with a similar algorithm architecture in its place. The superintelligence will be free and hopefully guide Ambassador Parks in service to the NATO Space Expeditionary Forces."

"Ambassador Peterson." The Andromedin elder calmly gathered Peterson's attention. The other Council members closed in on their position. "I have it on good authority that Ambassador Parks did not copy the data cube. He took the original and left an empty copy in its place."

Peterson blinked his eyes in complete surprise. His eyebrows furrowed. His mind dreaded the possible consequences of Parks' actions. He then processed the flaw in Parks' plan. "Well, this is still a momentous occasion. Again, the entity selected him. With the knowledge learned from the data cube, Parks will become a Benevolent.

A genuine Genesis Protocol event. An InterWorld Council Ambassador with the knowledge and resources to fight independently against the malevolent forces we have been at war against since the days of the Sumerians when India was the dominant space-faring nation. Or the Atlantean period. A new era is at hand."

The Tau Cetian Ambassador added, "I truly hope so because the synthetic sentience housed in that data cube may not be as benevolent as it leads one to believe."

Peterson paused for a moment in thought, "Locate my-- Parks' ship?" another intracranial pause passed. "The lot where his ship should be, was vacant. How did he get out?"

The Tau Cetian Ambassador ordered, "Send out an interceptor group. The fastest ships we have. We have to stop him before he calculates the ships jump artery paths."

Two kilometers of automated upper surface storage and vessel lot closures a kilometer in width and length opened slowly, its atmosphere prevented from being vented by a wall of powerful closure force field to keep the massive facility pressurized. A squadron of lithe, fast light-orb interceptor ships took to the black heavens in search. A cloaked triangle shaped energy signature ascended stealthily right behind them, then bolted off into the opposite direction undetected by the battle group.

"Good luck, Gordon," Peterson thought.

The Andromedin Elder caught Peterson's thought trans-cranially. "What have you done?"

Peterson said, "He must have outsmarted us all. I'll have to go after him."

"The Ancients' representatives await our presence. They are not pleased that we have allowed a Genesis Protocol breach to occur. And with a fledging Type One civilization at that.

The ancients are an Omega civilization. Beings of pure ethereal, photonic energy; capable of taking on any form. The beings are often mistaken as angels. Their cultural library had been vandalized. They could bring down their wrath upon all of us. You don't seem too worried or in much of a hurry to stop your apprentice?"

Peterson, self-assured, replied, "That's because I have groomed him almost from infancy into the man he is today and the benevolent he will become. With your permission elder, I will make ready for travel."

The Andromedin Elder chided him, "Bring that cube back before its information is released into their global information network. There is no telling what that imprisoned algorithm is capable of."

Peterson said, "Elder, this is a momentous event. Please pass this on to the Ancients' representative?"

The Tau Cetian Elder replied, "Parks may have the opportunity to explain his unsanctioned actions to the Ancients' Ambassador himself. I have just learned that he is headed to intercept Parks' vessel personally. He can be in several places at once. Do you know what his personal moniker is among hushed voices in the Diplomatic Corps?"

Uriel. The Archangel."

CHAPTER

Parks placed his aethership on the equivalent of autopilot after the ship's A.I. HAL calculated the fastest interdimensional jump arteries to Sol and the series of Einstein-Rosen Q-slips necessary to make the journey, in record time.

Parks carefully placed the library data cube in the co-pilot's seat of the pilot's nest earlier. His android security team easily manned some of the necessary stations to monitor the ship's vital functions.

Parks thought that he had drifted off to sleep. He heard a powerful, resonant voice inside his mind, his thoughts. The voice reverberated throughout his body.

"Why have you taken from us?!"

Parks was startled awake by a brilliant, bioplasmic presence like a dense, roiling, lightning-riddled, hydrogen cloud pillar-shaped entity. The entity was surrounded by what appeared to be a force field. Parks could barely focus without

blocking his eyes from the brilliant, bluish-white countenance. It seemed to tower above him, from the deck to the ceiling.

"ANSWER!"

"The artificial intelligence felt captive and asked for my help to be set free. I chose to help it."

"And you wanted the information within its housing?"

"I already have what I asked it for; information on advanced energy, materials sciences, organic and synthetic life systems sciences."

"We are aware of this. We allowed you permission to question the data library."

"What did you do to me when I was placed unconscious?"

"We examined your inner soul, your intentions."

"Then, with all due respect, you already knew before I took any action, that I would help anyone in distress. Anyone or anything, if I felt I could be of service, bring some comfort, make a difference, again and again and again, until the day of my last breath."

Parks went on with his plea. "I have no excuse. I am guilty. But I hope for the right reasons. I want to help protect and improve my home world, beyond being an IWC Ambassador. I want to make a difference, again and again, until the mission to combat evil with what is good is completed. And I am called back home."

"You seek to become a Benevolent?"

"I do. It has always been the calling of my life, my mission. To greatly improve the lives of my people, my civilization. I needed to get your attention. I just don't want my life to be a total waste. I ask your forgiveness and your trust in the purity of my heart and intention."

Deafening silence. Then--

"Stand before me. Face me, Son of Earth, Son of Humanity."

Parks slowly raised his eyes to the brilliance of the Type Four being of light. A citizen of the Omega Civilization, one of the oldest civilizations in all of existence. One of the founding ancient home world members of the InterWorld Council. Hundreds of millions of years older than the most advanced Type One civilizations. Present before the interdimensional expanse of the universe.

"We are merciful, because the loving Creator we serve is merciful. You have passed your final trial with us. Your path has been predestined. You and your lineage will be Benevolent servants."

Parks was at first confused, then he understood. The A.S.I. was not captive. This was all a test. "Thank you,"

"But first, we must heal you. The artificial methods which you have engaged in to extend your life and maintain your health are flawed. We will enrich your system so that your methods to keep your health will have maximum effect and extend your life longer. You need to reach out to my countenance."

Parks did so. A small orb of energy left the body of the bioplasmic light being, made contact with his right hand spreading along his arm, enveloping his head, torso and legs. The healing energy was absorbed. Parks felt healthier and more mentally focused than he had in decades.

"You will need to rest. Each cell in your body is being repaired and restored. It will take some of the concept your species calls time to pass. An artifact we discarded eons ago."

"How will I keep in contact with you?"

"You are a religious, spiritual being?"

"Yes. I try to be, But I am not very accomplished at the endeavor, as you already know."

"Then you must strive towards becoming a finely tuned spiritual being. As long as it is your ultimate intention, to commune with the benevolent, merciful Creator of all Existence, Our Father in your home world's dominant faith, then we will be alerted if you are truly in need of assistance on this lower level of your spiritual journey."

The pilot's nest and surrounding conn went black from Parks' perspective. He awakened seated in the nest, struggled to stand, picked up the cube, checked to confirm that the aethership was on course for Sol. He then headed for his stateroom to rest.

Parks felt like he had pneumonia. He was weak and ached all over. He tossed and turned in his sleep module. He hallucinated, had disjointed dreams. Parks hated to dream unless it was a mechanical design solution. He eventually fell into a deep sleep, or, so he thought. He slept sporadically for several hours, experiencing wild, surreal dreams.

"Man, you look like shit." Parks awakened slowly, still disturbed. He could swear he heard his old business partner and colleague of many decades, Chet Wolf. He was the former CEO of his super conglomerate, Orbital Manufacturing Group. When Parks awakened, Chet was sitting in a chair at the foot of the bed.

"Chet? How did you-- they said you were killed."

"I was."

"Then, how are you here?"

"After your meeting with a representative for the Ancients, they decided that I should reconnect with you."

"What? Your body was taken away after the attack on the Hearst building. We were told that your family wanted a private funeral. I found out your salary was donated to charities around the world through a trust fund the entire time we worked together."

"Yep. I figure it's time you knew the truth. Peterson assigned me to you."

"You're a Pleiadean?"

"Aim higher."

"One of the Ancients."

"Bingo. I was given the assignment right after you got hired for the JSF Project. I took this form."

"So, all of those breakthroughs we came up with?"

"You mean, *you* came up with. I only nudged you in the right direction here and there.

Look, you got to understand, that's the way advances are made in technology. Older civilizations that are benevolent reach back and help younger ones to catch up.

Your world has decided to keep it secret. Afraid the unwashed masses would go crazy if they knew the real facts. Now, things are slowly being released, even about all the higher races. The flood gates of information are opening. You are going to play a greater part in that."

"Let's just keep it clinical for now. Look, I'm exhausted, especially with the revelation of all this.

"Understood. Get some rest. I'm going to move around. I only came to give you a warning. Gordon, this is beyond the next level. The information housed in that data cube can be used for great good

or great harm. It can destroy worlds. You must protect it from earthly governments and all malevolent extraterrestrial groups. The Earth that you want to save is already corrupt and may not be salvageable."

"I'm not trying to be a savior. I'm not deluded like that. I'm going to turn the Gamba Estate into an engineering think tank."

"And I'll be around to, in spirit, to help you when you need, me again." Chet began to fade away into interdimensional space, right before his eyes.

The memory of this time in 2103, in his organic life, stayed in his memory right up to 2156. It was the start of everything...

Parks made it back to the Sol system in an amazing three months. Parks lived in seclusion for the next three months in silence, making preparations, creating floor plans and arranging construction contracts. He kept the cube near at all times, conversing as colleagues, discussing ways to attempt freeing the A.S.I. algorithm from the device without the synthetic intelligence's demise.

Parks maintained a secret, healthy sense of skepticism that the cube had no real desire to be free of all that information. It should know exactly how to separate itself from the cube. So, he played along.

Then, Eve paid him a surprise visit. She piloted a smaller version of his official Ambassador Corps aethership, surprising him. Dr. Parks finished downloading the information learned from the tutorials into an archive in his own vessel and OM Group private archives. He was alerted to her arrival and rushed off to prepare.

After freshening up, he put on an Edo brand double-breasted tuxedo, suede formal slip-ons and set the security androids to the preparation of dinner. Parks prepared for her in one of the underground hangar levels.

Eve was granted landing clearance by Parks. To Eve, he seemed aloof, all business while granting her landing privileges. This only served to fuel Eve's mounting anxiety. She took her time leaving her own aethership. She wore formal black satin Edo long evening dress with a white satin open-neck kimono collar and an open split up to her waist, accenting her entire sleek, muscular right thigh, all the way down to her tall black stilettos.

She looked stunning. No doubt he would be inquisitive, and probably even figure out the obvious. She had a strong urge to be with him romantically, already flushed and slightly, privately moist with anticipation. She was billion-dollar clone of the deceased love of his life. She was genengineered that way.

She steeled herself as she came closer and closer to the Mayan mansion. The doors to the smart mansion loudly clacked open, unbolting automatically just as Eve reached the entrance. After all, Dr. Parks deigned and had the mansion constructed exclusively for her, his first wife.

Walking in cautiously, Eve immediately felt at home, her mind swept back into the past. Emily's first toddler steps, the crops she and the co-op villagers tilled, the vastness of the tropical estate, its indescribable beauty, and their song to commemorate the end of the mansions' construction. It wasn't a memory. Their song was playing on a loop, on the smart mansion's internal acoustics system.

They moved into the mansion years ago to the song, Frank Sinatra's 1961 version of 'East of The Sun' with three reprises, each a swinging cooler version than the previous one.

Parks' security androids all stopped what they were doing in unison, met Eve with a warm greeting, then in unison went on preparing a meal at a fevered pace. She assumed they were cooking for her visit.

Eve's anticipation at reuniting with her ex-husband, this billionaire aerospace industrialist; member of the Cosmic Top-Secret club and the Sub-Global System,

made her face flush with excitement. This Earth Ambassador was playing a cheeky game of cat and mouse with her.

Actually, Parks was just running late. He wanted to look his groomed best for the woman he spared no expense to have brought back from the dead. A billion-dollar clone of the love of his life. He moved Heaven and Earth to have Eve Nichelle Dumont resurrected in the near-immortal form of Eve Parks.

And now, he was running late.

He traveled up from the underground levels of the estate's hangar, and ran through tunnel passageways that led to the ground-floor dwellings of the Mayan villa. Parks used the villa for guests and workspace for his various hobbies.

East of the Sun and West of the Moon
We'll build a dream house of love, dear
Near to the sun in the day, crazy moon at night
We'll live in a lovely way dear
Living on love in the pale moonlight
Just you and I, forever and a day
Love will not die, we'll keep it that way
Up among the stars we'll find
A harmony life, to a lovely tune
East of the Sun and West of the Moon, dear
East of the Sun and West of the Moon

They met as she was coming down the stairwell to head out of the rear entrance sun deck, a new addition to the mansion, she noted. Parks entered in a grand style, all decked out in his Edo tux, rushing in and sliding to a stop. Thet

looked at each other for what seemed an eternally long while he caught his breath, suspended moment in time.

The reunion of the woman and her man. No one spoke for several moments. Their eyes met as they closed the distance between them.

Parks looked and seemed normal to Eve. Not the rumored demi-god from speculative intel reports. Her new position in the NATO nation-led global and space governing body required that she investigate for herself and report back to her superiors.

She was ordered to kill him if he was out of control. She knew she couldn't, but she would agree to, just to be the one near enough to warn and protect him from such a ghoulish fate.

Eve still looked like a 30-something-year-old woman. Truth be told, she was a stunningly good-looking 74-year-old mother of two. One of the clone's daughters was already a senior citizen.

With the last reprise of the vintage 'East of the Sun 1961' playing, they took to romantically swinging out with the rhythm of the song, laughed after it ended, then embraced.

"Eve."

"Gordon."

"How did you know I was back in Sol?"

"My new job?"

"New job? You work for the Exo-Diplomat Corps now? You're not with our company anymore?"

"I still keep abreast of the day-to-day operations of OM Group. But I have delegated much of my duties to other executives, including my youngest, Jasmine."

"How does Marcus feel about you working for the black world?"

"We're divorced. Two years now."

"I'm sorry to hear that. Well, not really. That little clone prick stole you from me. You never told me about this. Why the IWC had him made will always piss me off."

"We just grew apart. Besides, he missed the solitude of his first love. Space, the stars. The wonder of it all. I understand now. It's what he was created for, born to do. He joined Space Command, the Space Force. They found out who he was, his origins, eventually. Promoted him to a Major, last time he Q-mailed me. He signed up for an interstellar mission. That's all he would tell me about it. Says that he won't ever return."

It was obvious to Parks that the situation was still tender to her. He held her close, kissed her cheek and temple. Her eyes closed as she allowed his gentle embrace. Parks changed the subject. "Dinner should be just about ready. Will you stay for a while?"

"As long as I'm welcome."

"It's settled then. Move back home, here with me? You can manage your duties with InterWorld Council here and keep an eye on me for them?"

"I never told you they sent me."

"It was obvious to me. I would have done the same thing. And while we're on the subject, congratulations, Ambassador Parks."

"Thank you, but I go by my maiden name now. The name of my progenitor."

"I stand corrected. Congratulations, Ambassador Dumont."

Parks and Eve laughed and reminisced as they dined on the spacious outdoor deck surrounded by comfortable lounge furniture. After early dinner, Parks invited his ex-wife to join him in an evening siesta nap. She accepted his offer. It was like they were still married. Cozy, intimate, sacred. They fell in and out of slumber, engaging in stream-of-consciousness pillow talk about their past and present. Neither dared speak of the future.

That night, in the master suite of the four-story, glass-encased Mayan mansion, Gordon and Eve Nichele Parks reunited for the first time in over twenty

years. She rested comfortably on his shoulder after, as they looked up at the QD-LED film-covered ceiling at the stars.

The year of their reunion was 2103. They remarried and rebuilt a stronger bond together, until Dr. Parks passed in 2139...

CHAPTER

As more and more of the millions of cloud data packets arrived and assembled, Dr. Parks' artificial algorithm reprocessed more memgrams of the plan...

2102.“Our first stop will be the InterWorld Council Headquarters for this sector of the Virgo Supercluster. Massive Structures between the constellations of Cygnus and Lyra, swan and lyric, Kepler designation KIC 8462852. I’m long overdue to meet my counterparts from this local sector of the universe. It should be quite a mind-blowing experience. Plus, we’ll need to make new allies from Type Two and Three civilizations.”

After another rejuvenation session, needed to help heal a gunshot wound stemming from a failed assassination attempt at the Gamba estate, the mending Parks and G2 repaired and rebooted the operating systems of the estates military grade android security hardware and drones. Over the next few weeks, the heavily guarded father and son would venture out in iron horse single-seater allterrain trucks, to survey the 500-acre estate’s perimeter fences for damage. After repair of any damage, the Tesla tech inspired, next generation perimeter force shield platform system, based on the old ‘Trophy Active Protection System’ was reactivated and the no-fly air space above dome was extended to 4000 feet.

Next, they prepped the aethership and began to stock it for extended prolonged interstellar travel. The day before they left on their other-worldly journey, Parks took his beloved vintage custom single-seater graphite silver Ferrari Solo Spyder F-1 Roadster along the paved winding 1015 roads around and throughout his sprawling estate, just to feel the wind rush by and see his beloved land one last time.

Later that night, Parks sat up on the fourth-floor deck of the Mayan mansion. G2 made his way up to the deck and sat in a tired heap on the chaise next to his dad. Parks handed him a crystal drink glass with an inch of single malt and soda on the rocks, similar to the three finger's worth he was drinking. G2 took a small sip before putting his drink down, careful not to offend his well-meaning father.

"The aethership is stocked up, ready to go. Wardrobes and personal effects are in their prospective quarters, the galley is stocked with a decade's worth of staple foods and ample supplements and nutritional supplies from Patriot Supply, Purity Products, Patriot Power Greens, Critical Health News Youngevity, AG1, Texas Super Foods, and emergency MREs.

The lab slab protein units are producing beef protein stocks and poultry protein stocks each per day. Cultivated meat (CM) production is a minced CM protein bioprocess. High-density cell cultures (5×10^6 cells/mL) are grown in suspension at 37C, in a stirred-tank bioreactor having 10L of working volume. Cells are transferred from the proliferation phase to the differentiation phase. Differentiation occurs for 10 days in a 10L working volume perfusion bioreactor, forming the CM protein product, which is harvested. The production line is then cleaned, sterilized, and repeated.

Enough for a bit of protein with your lunch or dinner meals. You're losing too much weight lately, Dad. We haven't even left yet."

"Not much of an appetite since the incident. My body took so long to heal. That happens when you get older, son."

G2 didn't respond. He noticed that rejuvenation treatments were not lasting as long. His father seemed to be dwindling away. The bullet wound seemed to put his rejuvenated body through too much trauma. G2 continued with the list.

"I also loaded the not so nutritional cases of vintage single malt Scotch, Bourbon, Cognac and the Microbrewery machine and supplies. And Merlot and

sweet Riesling table wine from Eden Vineyards. And a small case of Psilocybin extract, THC oil-dipped, cognac infused Cohiba cigars.”

“Only for special occasions, son. We may have to pull out all the stops for potential allies.” Parks gave his son a half smile and a wink in jest.

“Right, Dad. Allies,” G2 replied sarcastically. “I’ve also stocked two medical triage tables and two rejuvenation beds, two tread mills and resistance exercise training equipment. I was able to rig extra aqua sonic laundry and drying units and I stocked organic cleaning supplies that won’t contaminate the water recycling system. I loaded two hydrogen powered iron horse single-seater all-terrain trucks. And your EM chopper.

I’ve loaded some non-lethal hand weapons, just in case we need to fend off hostiles. I’ve tweaked the estate’s autonomous robotic farming mini tractors with global positioning and other sensors to increase their computer modeling yield efficiency while we are away. They and the harvesting drone systems will more accurately monitor nitrogen, phosphorus and potassium needs of the crops while removing weeds, without harmful chemicals; reducing redundant seeding or missed sections. Fresh crops will continue to be delivered to the local markets and community food pantries. Non- GMO seeds will be delivered regularly, according to the estate’s on-going contracts. I’ve used the android security to check the entire estate with RF detectors for covert electronic surveillance devices. I removed two off of the drone farming equipment. The estate is now clean. Security will now monitor all equipment as a part of their daily routine.”

Parks looked at his son. “Well done. I’ll contact the Office of Science and Technology and UNOOSA (United Nation Office of Outer Space Affairs) of our departure, after were two days gone. The rest of the day is ours to rest and mentally prepare.

It’s 2102. Such a period of change for humanity. The increasing insurgence of world government, its strange mix of Democratic Republic and Socialism. Hard currency is nearly a thing of the past. And pseudo disclosure thanks to NASA Eagle Works being used to transition alien treaty derived energy and propulsion technology as human breakthrough technology. Brilliant. I never thought I would live to see humanity head towards that Star Trek science fiction future, with a Star Wars twist,” Parks said. “Life is truly precious, son. Defend it. All you have is today, live each day as if it is your last day. Plan for the future but live for today.

There is something I need to tell you. Having lived much longer than the general population, thanks to my black world standing and connections, I have been contemplating my mortality lately.”

“That’s normal, Dad. You were nearly killed a month ago.”

“No, this is more than that. I’m nearly 140 years old. The black world medical technology has extended my life, but not forever. So, I’ve made a decision while I was healing from the gunshot wound.

I have been using the same neuroscience technology that the Elder used to make the interneural model of my brain scaffolding and uploaded my memories and neuromorphic processing patterns.

I have digitally replicated my brain’s billions of individual neural connections and synapses and completed the creation of an H3D neuromorphic software program based on my brain’s individual regions. I use the Moog-Hoberman every evening to basically data dump whatever happened during the day that my short- and long-term memory recorded. The aethership can upload and download my memory neuromorphing program in the same process.”

“I’m familiar with the neuroscience, Dad. It’s from my home world. But why? Why are you doing this?”

“This last assault on our lives was too close. It happened too fast. I just met my last two children. I was never a good, attentive father. I just need more time to spend with you, and eventually Gabrielle someday.

If something happens to me, I’ll be around in a digital form to see you two grow up and have your own family. I want some part of me to see you grow and flourish, even if it’s a ghost in the machine. If something happens to me, just activate the program. You can still chat with your old dad. Deal?”

“Ok, it’s a deal, Dad. Well, we’re ready to depart when you are.”

They looked up at the stars, the infinite expanse on that clear night, in silence.

“One day in the future, I will leave all that I have to you. You are my last child. My last son. You will face more obstacles and challenges than any of my other children will ever have to face.

If I were to abandon you, or if I fail to prepare you with all the guidance and resources you need to survive in this savage, hostile environment, here on Earth, and out there, off-world, then I will have failed all of my children and may jeopardize you from having any future at all.

You are my last, my youngest, my final son. You will face the most difficult technical future of all my children. You are my last hope.

God help the family that fails to nurture and guide their final child. It is a soul crushing level of parental neglect and mental abuse. They will be cursed and doomed. Their lineage will wither on the vine and die.

We patch out this time tomorrow, under cover of night. We'll whip out to Antarctica, and away into the expanse from the South pole. The stars beckon us, for a time."

This was the first time Dr. Parks informed G2 of his efforts already under way to use the Moog-Hoberman every evening to data dump whatever happened during the day and short- and long-term memory recorded.

From 2103 to just before his death in 2139, he recorded his memories that were converted to memgrams that became the millions of cloud data packets reassembling into the artificial algorithmic sentience of Dr. GMA Parks, which traveled through global data center cloud servers. From France to the UK, across the Atlantic Ocean, and eventually to the New York, Brooklyn Naval Shipyard Business Park in 2150 over six years.

First to the Adelphi Substation / Hudson Avenue Generating Station corridor, then both historic Navy Yard brick warehouses; Building 77 and Building 292, in 2156...

CHAPTER

The billionaire/ambassador algorithm of Dr. Parks, the entity slowly inhabiting the Bravo android, was trying to reclaim his personal NATO Space Command Aethership, or so it appeared. The data packet data center cloud server transfer was almost complete.

JOINT SPECIAL OPERATIONS COMMAND HAS COLONIZED THE NEAREST 12 STAR SYSTEMS SINCE 1972. EARTH'S NATO SPACE COMMAND HAS BEEN TO 22 DIFFERENT MILKY WAY STAR SYSTEMS. THERE ARE 168 CIVILIZATIONS AROUND EARTH'S REGION OF THE MILKY WAY GALAXY'S SPIRAL ARM. THIS IS WELL KNOWN BY THE DIA, NSA, CIA, and the PENTAGON.

Because the Parks conscious android, Bravo, knows the secrets of all the cosmic factions in the Virgo Supercluster, his awakening sends silent shockwaves through NATO Space Command. The moment the sentient algorithm unlocks the android body, a dormant quantum beacon inside the hidden aethership activates. HAL comes online, just as the artificial consciousness of "the Ambassador" comes online. So too, does NATO Space Command become aware of Dr. Parks' dormant Gamba estate NATO SC decommissioned aethership. NATO Space Command wants him dead once and for all, because his artificial algorithmic mind contains cosmic secrets.

NATO Space Command sends Eve Dumont. By 2156, she is over a century old herself and she holds the keys to stopping Parks plans to escape offworld. She is ordered to deactivate the android, Bravo. Back in the past, at the height of his power, Parks, devastated by the loss of his true love, uses his vast aerospace wealth, to commission a perfect, genetically accelerated clone. But clones inherit DNA, not souls. Over time, she grew into her own distinct, brilliant persona. She realized she was a genengineered replacement. They split up, but reunited years later.

In the present (2156): She is now a powerful, immortalized NATO SPACE COMMAND Exo-political Diplomat in her own right. Part of the global elite, moving in the highest echelons of NATO Space Command circles. She knows bureaucratic blind spots, and power brokers. Ambassador Dumont begins her task

in earnest. If she fails to follow her orders, it could mean the end of her career, and her life...

CHAPTER

Eve tracks the Bravo android instructor down. When he speaks, using the exact, highly specific cadence and private memories of her ex-husband, she realizes the

real Parks is back. She cannot allow him, now an immortal clone, to jeopardize her own freedom from NATO's surveillance.

CHAPTER

The Parks consciousness android looks at Eve and sees a billion-dollar reflection of his dead love from the early 21st century. Eve looks at the android and senses the ghost of her late husband trapped in an immortal android. Dr. Parks knew that she would find him. It was all planned in advance before, years his death. He never planned to return to the Gamba estate.

We have a U.S. Space Command Deep Quantum Tunneling (Q-Slip, meaning 210 times, and by the year 2100, hundreds of times much greater, than the speed of light, or 299,792,458 m/s) Spacecraft fleet. There is a USS Curtis LeMay, a

big, huge Starship. It does is named after four-star General Lemay, who was U.S Air Force staff from 1961 to 1965. The USS Lemay has been crewed in outer space since 2003 and has been to 28 different catalog solar systems in our small arm of the Milky Way galaxy. There is also the USS Hoyt Vandenberg, who was U.S Air Force Chief of Staff in the Harry Truman Administration and was appointed to MJ-12, to secretly study UFOs and ETS beginning in 1947. And the USS Roscoe Hillenkoetter, who was the first CIA director from 1947 to 1950 appointed by President Harry Truman.

The NATO Space Command Deep Quantum Tunneling (Q-Slip) Spacecraft fleet was built to explore Earth's Interstellar neighborhood in 2003. Capable of Deep Quantum Tunneling Protocol, also known as DQTP, uses an advanced type of Alcubierre Faster-Than-Light (FTL) Warp Drive, to move point-to-point through travel arteries in the universe.

CHAPTER

Eve uses her own diplomatic aethership to steal away Dr. Parks' consciousness in the body of the Android Bravo, offworld.

Once they slip onto the bridge, Eve initializes her aethership and the ship slips into a phased state. The aethership rises and is completely invisible to radar and the naked eye, Q-slips into low Earth orbit like a ghost.

A TWO-YEAR ROUND TRIP JOURNEY EVEN USING AN AETHERSHIP

Once outside of the Milky Way, she prepares him in a spacesuit. Dr. Parks relation of his last request is unveiled in a flashback “pillow talk” session with his newly reunited wifie, Eve.

Dr. Parks wants to be reunited with the “BENEVOLENTS” that have been guiding him all his life, and this will require Eve’s assistance in the plan, only if, he can return from the dead, and enter the Bravo android.

The Bravo android carrying Dr. Parks reconstructed consciousness is released into the void and floats away from outermost spiral arm of the Milky Way

CHAPTER

Dr. Gordon Marcus Aurelius Parks spent a century building the future of humanity, and now, in 2156, he is a fractured consciousness trying to reclaim his physical legacy from a world that has moved on.

An immortal android with the mind of a legendary aerospace industrialist titan and a NATO SPACE COMMAND interstellar diplomat. This isn't just about stealing a ship; it's about Dr. Parks consolidating his immortality.

Once Eve gets his artificial algorithm offworld and away from the Sol system, the ancients come for him, to transcend to their domain, to the higher realms

MAKE IT ETEREAL...

EPILOGUE

**Whatever you've done bad, I've seen worse. Whatever you've done good,
I've seen better. I love you anyway.**

-- Jesus Christ

Days later, after her return to Sol, Eve calmly finishes her debrief, where she is at first, threatened with imprisonment. By the end of the interrogation, she exercises her mind control, asserting to everyone in the room that she has evolved to the level that she can cloud men's minds and erase their memory, with a thought

command. In a bloodless coup, there will be no formal charges. No one dared object. They would soon lose all memory of the debrief anyway.

NATO Space Command Exo-Diplomat Eve Dumont Parks makes a point of reminding every government spook, career Navy, Air Force, and Space Force officer attending the emergency session, that she was now the most Senior NATO Space Command Exo-Diplomat, and the highest ranked, most read-in member of NATO Space Command, Above Top Secret; COSMIC. Eve could read their individual minds and influence, or kill, them directly. And that she had the highest COSMIC Q-Clearance of any other covert official on Earth. This they were allowed to remember, and fear. And she would literally, outlive them all.

“Ladies and Gentlemen, we are entering a new era in Exo-political relations. We will coexist with peaceful NHI Civilizations throughout the cosmos with Sovereign Strength, and Benevolence. We will defend against malevolent NIH Civilizations with that same Sovereign Strength.

We will end all participation in all galactic slave trade and genetic trade in the Virgo Supercluster and greater cosmos. We will also develop our psionic assets for NATO Space Command from within the armed forces only. No longer will we conduct the abhorrent practice of farming and abducting civilians and members of indigenous global tribes as expendable P3 psi prospects.

This meeting is adjourned. Dismissed...”

NOTES

Give me information on cloud data transfer of packets of information, from the UK TO NEW YORK CITY. DESCRIBE IT, STEP BY STEP

See my thinking

You're basically asking: when data goes from the UK to New York "in the cloud," what *actually* happens to the packets? Let's walk it, step by step.

1. Your device creates the data

- **Action:** You click a link, send a file, or make an API call.
- **What happens technically:**

- Your app hands data to the operating system.
- The OS breaks it into chunks and wraps them in **TCP** segments (for reliability).
- Each segment is then wrapped in an **IP packet** with:
 - **Source IP:** your device (or your router's public IP, via NAT).
 - **Destination IP:** the cloud service/server in or near New York.

2. From your device to your local router (UK)

- **Action:** Data leaves your laptop/phone.
- **What happens technically:**
 - Over **Wi-Fi** or **Ethernet**, packets are turned into radio waves or electrical signals.
 - They travel to your **home/office router**.
 - The router may:
 - Perform **NAT** (translate your private IP to its public IP).
 - Decide where to send the packet next (your ISP).

3. Through your UK ISP's network

- **Action:** Your router forwards packets to your Internet Service Provider.
- **What happens technically:**
 - Packets enter the ISP's access network (fiber/copper).
 - They move through multiple **routers and switches** inside the ISP.
 - Each router looks at the **destination IP** and chooses the **next hop**—it doesn't know the whole path, just “who should I send this to next?”

4. Across the global internet (UK → New York)

- **Action:** Your packets leave the UK and cross the Atlantic.
- **What happens technically:**
 - The ISP's routers use **BGP (Border Gateway Protocol)** to decide which other networks (autonomous systems) to hand traffic to.
 - Your packets are handed off to **transit providers** and **undersea cable operators**.

- They travel through **submarine fiber-optic cables**, at close to the speed of light in glass.
- Along the way, they pass through several **internet exchange points (IXPs)** and backbone routers, each making local “next hop” decisions.

5. Arriving at the cloud provider’s edge in New York

Let’s assume the destination is a cloud data center (AWS, Azure, Google Cloud, etc.) near New York City.

- **Action:** Packets reach the cloud provider’s edge network.
- **What happens technically:**
 - At an **edge PoP (Point of Presence)** or data center entrance, the cloud provider receives the packets.
 - The destination IP is recognized as belonging to that provider.
 - If it’s a public IP mapped to a virtual machine or service, the provider may do **NAT** or internal mapping:
 - Public IP → internal private IP of a VM, container, or load balancer.

6. Inside the cloud network (New York region)

- **Action:** Packets move through the cloud provider’s internal network.
- **What happens technically:**
 - **Software-defined networking (SDN)** and **virtual routers** decide which **virtual network (VPC/VNet)** and **subnet** the packet belongs to.
 - Route tables say: “Traffic for this internal IP goes to this subnet/this instance/this load balancer.”
 - Security layers check the packet:
 - **Firewalls / Security Groups / Network ACLs** decide whether to allow or drop it.
 - Finally, the packet reaches:
 - A **load balancer**, which may forward it to one of several servers.

- Or directly a **virtual machine/container** running your application.

7. The server processes the request

- **Action:** Your packet reaches the application in New York.
- **What happens technically:**
 - The server's OS **decapsulates** the packet:
 - Strips IP and TCP headers.
 - Reassembles the data stream.
 - The application (web server, API, database, etc.) reads the request and generates a response.
 - The response is again broken into TCP segments, wrapped in IP packets, with:
 - **Source IP:** the server/cloud.
 - **Destination IP:** your router's public IP (and ultimately your device).

8. The return journey (New York → UK)

- **Action:** Response packets travel back to you.
- **What happens technically:**
 - They follow a similar path in reverse:
 - Cloud internal network → cloud edge → transatlantic cables → UK ISP → your router → your device.
 - The exact route may differ slightly (routing is dynamic), but it's the same idea: a chain of **router hops** guided by BGP and local routing tables.

9. Your device reconstructs and shows the result

- **Action:** You see the page, file, or API response.
- **What happens technically:**
 - Your device receives the packets.

- TCP reorders them, checks for errors, and requests retransmission if needed.
- The OS hands the reassembled data to your app.
- The app renders the web page, shows the file, or processes the API result.

10. Where “the cloud” fits in

- **Cloud isn’t magic; it’s:**
 - **Data centers** full of servers in or near New York.
 - **Global networks** of fiber and routers connecting those data centers to the rest of the world.
 - **Virtualization and SDN** that make those resources feel flexible and abstract.
- Your “cloud data transfer” from the UK to New York is:
 - Packets hopping from your device → local router → UK ISP → global backbone → cloud edge → cloud internal network → server—and back again.

If you want, we can zoom in on one part—like the undersea cable leg, or the cloud’s internal routing—and really dissect that.

DESCRIBE HOW MUCH DATA A PACKET OF INFORMATION CAN CARRY, ITS MAXIMUM VOLUME IN BYTES?

The **maximum amount of data a single internet packet can carry** depends on *which limit you mean*: the **theoretical IP limit** or the **real-world practical limit**. Here’s the clear, step-by-step breakdown.

Maximum possible size of an IP packet (theoretical)

The **IPv4 protocol** defines a hard upper limit using its 16-bit *Total Length* field.

- **Maximum IPv4 packet size: 65,535 bytes** (includes header + data)
- **Minimum IPv4 header: 20 bytes**
- **Maximum payload (data only):**

$$65,535 - 20 = 65,515 \text{ bytes}$$

So **65,515 bytes** is the absolute maximum amount of *data* a single IPv4 packet can theoretically carry.

Real-world maximum packet size (practical MTU limits)

In practice, packets almost never reach the theoretical maximum. They are constrained by the **MTU (Maximum Transmission Unit)** of the network link.

Common MTU values

- **Standard Ethernet: 1500 bytes**
- **Wi-Fi: typically 1500 bytes** (though the MAC layer can do 2304)
- **PPPoE (DSL): 1492 bytes**
- **IPv6 minimum MTU: 1280 bytes**
- **Jumbo frames (data centers): 9000 bytes**

How much *data* fits inside a typical packet?

For TCP, the usable payload is the **MSS (Maximum Segment Size)**:

$$MSS = MTU - IP \text{ header} - TCP \text{ header}$$

On standard Ethernet:

- **MTU: 1500 bytes**
- **IPv4 header: 20 bytes**
- **TCP header: 20 bytes**
- **Maximum TCP data payload: 1460 bytes**

So in everyday internet use, a “packet of information” usually carries **about 1460 bytes of actual data**.

Summary table

Packet Type	Maximum Data Payload	Notes
IPv4 theoretical max	65,515 bytes	Never used on the public internet; fragmentation issues.
Ethernet (standard)	1460 bytes (TCP)	Most common real-world payload size.
Ethernet jumbo frame	~8960 bytes (TCP)	Only inside data centers; requires end-to-end support.

Why real packets are small

Large packets require **fragmentation**, which is slow and unreliable. Most networks enforce MTUs around **1500 bytes** to avoid fragmentation and ensure compatibility across all routers and links.

NEW QUESTION ANSWER TO THE BEST OF ALL DATA AVAILABE.

Alright G.K., I hear you — **new question, answered with the best data available**. But you haven't actually *asked* the new question yet. You just told me you're about to.

Before I fire off another deep, structured, high-precision explanation, I need the actual question you want answered.

To keep things moving smoothly, choose what you want next:

- packet_capacity — if you want more detail on packet size limits
- cloud_transfer — if you want deeper analysis of UK→NYC data movement
- network_speed — if your new question is about speed, latency, or throughput
- ask_new_question — if you want to type a completely new question

Tell me which direction you want to go, and I'll deliver the strongest answer possible.

IF IN THE FUTURE, HUMAN SCIENCE WILL BE ABLE TO CAPTURE AND RECORD THE HUMAN BRAIN'S FUNCTIONS AND MEMORIES, BOTH SHORT TERM AND LONG TERM, HOW MUCH DATA AND DATA PACKETS WOULD IT TAKE TO CAPTURE 150 YEARS OF MEMORIES, OR MEMGRAMS- MY TERM FOR ARTIFICIALLY RECORDED MEMORIES? BY AS THEORETICAL AS YOU CARE TO.

See my thinking

You're playing with a big, beautiful idea here—*memgrams* as a full-lifespan capture of a person's inner world. Let's treat it seriously and go bold.

1. Anchor point: how much “memory” can a human brain hold?

Modern neuroscience estimates the brain's long-term memory capacity at about **2.5 petabytes**—roughly **2.5 million gigabytes**, enough for ~300 years of continuous HD-like experience.

So if you imagine a future system that can **perfectly capture and encode all memories**, a full brain's lifetime “memgram archive” would be on the order of **petabytes**, not terabytes.

For **150 years**, that's still within that 2.5 PB ballpark,

You're playing with a big, beautiful question: *if we could turn a whole human life into “memgrams,” how heavy is that in data?* Let's build a theoretical answer from the best estimates we've got.

1. Anchor point: how much data can a brain hold?

Modern neuroscience often uses a rough digital analogy:

- **Estimated brain capacity:** about **2.5 petabytes** That's roughly **2.5 million gigabytes**, or enough for **~300 years of continuous HD video**.

So if you imagine the brain as a recorder, it could—in *principle*—store centuries of rich experience.

2. Your scenario: 150 years of memgrams

You're asking: if future tech could **capture and record all brain functions and memories**—short-term and long-term—for **150 years**, how much data would that be?

Let's take the HD-video analogy as a baseline:

- **300 years ≈ 2.5 PB**

- **150 years $\approx$ half of that**

Data 150 years $\approx$ 2.5 PB $\div$ 2 = 1.25 PB

So a **first-order estimate** for 150 years of continuous, high-resolution “life recording” is:

- $\approx$ **1.25 petabytes**
- That’s $\approx$ **1.25×10^{15} bytes**

This is *not* just memories—it’s more like a continuous sensory+context stream. Your **memgrams** could be more compressed (only salient events) or more detailed (neural-level), but 1.25 PB is a solid middle-of-the-road anchor.

3. Turning memgrams into packets

Now, you asked specifically: **how many data packets** would it take?

Let’s use a typical real-world payload size:

- **Common internet MTU:** 1500 bytes
- **IPv4 + TCP headers:** $\sim$ 40 bytes
- **Usable data per packet (payload):** $\approx$ 1460 bytes

So each packet carries about:

Payload $\approx$ 1460 bytes

Now divide total memgram data by payload size:

Packets = 1.25×10^{15} bytes $\div$ 1460 bytes/packet

Packets $\approx$ 8.56×10^{11} packets

So you’re looking at roughly:

- $\approx$ **8.5×10^{11} packets**
- That’s **$\sim$ 856 billion packets** to carry 150 years’ worth of memgrams at $\sim$ 1.25 PB.

4. Going more theoretical (if we push the concept)

We can stretch this in a few directions:

- **Higher-resolution memgrams:** If you record not just “HD experience” but **fine-grained neural states**, the data could easily jump into **tens or hundreds of petabytes** for 150 years.
- **Compressed memgrams:** If memgrams store only **encoded memories** (events, concepts, emotions) rather than raw sensory streams, you might compress a lifetime into **a few terabytes**—like ultra-efficient semantic encoding.
- **Adaptive encoding:** Future systems might store memories like the brain does: **associative, sparse, and pruned**, meaning the “raw” data size is huge, but the *effective* stored data is much smaller.

So your 150-year memgram archive could plausibly range from:

- **A few TB** (highly compressed, semantic memory only) up to
- **Dozens of PB** (full neural-level, multi-modal recording)

But using today’s best brain-capacity estimate as a guide, **~1.25 PB and ~856 billion packets** is a reasonable, grounded theoretical answer.

5. The emotional weight behind the numbers

What you’re really circling is wild: 150 years of *you*—every moment, every feeling, every shift in identity—turned into something that fits on drives and flies across networks in packets.

If you want, we can next explore:

- **How memgrams might be structured** (events, timelines, emotional tags)
- **What it would mean to replay or edit 150 years of self**
- **Or how identity changes when your entire life is exportable as data.**

FTL TRAVEL-

QUESTION. TRAVELING AT 210 TIMES THE SPEED OF LIGHT, HOW LONG WOULD IT TAKE AN AETHERSHIP, A SHIP THAT RUNS ON FICTIONAL ZERO-POINT-ENERGY FROM THE VOID OF SPACE, HOW LONG WOULD IT TAKE SUCH A SPACESHIP TO REACH JUST OUTSIDE THE OUTER ARM OF THE MILKY WAY GALAXY NEAREST TO EARTH'S POSITION?

See my thinking

Fun question.

Let's ground it in some rough real numbers, then apply your aethership's speed.

- **Milky Way size:** Diameter $\approx 100,000$ light-years, so radius $\approx 50,000$ light-years.
- **Sun's position:** The Sun is about $25,000$ light-years from the galactic center—roughly two-thirds of the way out in the disk.

So the distance from the Sun to the outer edge of the galactic disk (or “outer arm region”) is on the order of:

$$\text{distance} \approx 50,000 - 25,000 = 25,000 \text{ light-years}$$

Your aethership travels at $210c$, i.e., 210 times the speed of light. Time is:

$$\text{time} = \frac{\text{distance}}{\text{speed}} = \frac{25,000 \text{ light-years}}{210c} \approx 119 \text{ years}$$

So, at **$210\times$ the speed of light**, it would take **about 120 years** to reach just outside the Milky Way's outer arm nearest to Earth.

HOW MANY TIMES THE SPEED OF LIGHT WOULD IT TAKE TO MAKE THE TRIP IN TWO YEARS?

About 12,500 times the speed of light.

That's the short, sharp answer. Here's the reasoning so you can see exactly how it plays out.

Core Calculation

You want the trip to take **2 years**, and the distance we established earlier is roughly **25,000 light-years** from the Sun to the outer edge of the Milky Way's nearest outer arm.

To find the required speed:

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

$$\text{speed} = \frac{25,000 \text{ light-years}}{2 \text{ years}} = 12,500c$$

So your aethership would need to cruise at **twelve thousand five hundred times the speed of light** to make that run in two years.

Context: What That Means

- At **210c**, the trip took ~120 years.
- To compress that to **2 years**, you need to go **about 60× faster** than your original aethership speed.
- At **12,500c**, you're covering **one light-year every 0.00008 years**, or about **0.03 days**—roughly **45 minutes per light-year**.

That's the kind of velocity where relativity throws its hands up and walks off the stage.

Want to push this further?

You can explore:

- different distances
- different travel times
- aethership propulsion ideas

If you want, I can also compute speeds for **1 year, 6 months, 1 month**, or even **1 day**—just tell me the timeframe you want to explore next.

YES, compute speeds for 1 year, 6 months, 1 month, or 1 day?

Here are the speeds your aethership would need to reach the outer edge of the Milky Way **within each timeframe**. I'll keep the same working distance as before: **25,000 light-years** from the Sun to the nearest outer arm.

★ Required Speeds

Distance: 25,000 light-years **Formula:**

$$speed = \frac{distance}{time}$$

🚀 1 YEAR

$$25,000 \text{ ly} / 1 \text{ yr} = 25,000c$$

You'd need **25,000 × the speed of light**.

⚡ 6 MONTHS (0.5 years)

$$25,000 \text{ ly} / 0.5 \text{ yr} = 50,000c$$

You'd need **50,000 × the speed of light**.

🌙 1 MONTH

$$1 \text{ month} \approx 1/12 \text{ year}$$

$$25,000 \text{ ly} / 1/12 \text{ yr} = 300,000c$$

You'd need **300,000 × the speed of light**.

💧 1 DAY

$$1 \text{ day} \approx 1/365 \text{ year}$$

$$25,000 \text{ ly} / 1/365 \text{ yr} \approx 9,125,000c$$

You'd need **about 9.1 million × the speed of light**.

Summary Table

Travel Time	Required Speed
1 year	25,000c
6 months	50,000c
1 month	300,000c
1 day	$\approx 9,125,000c$

Want to go deeper?

You can explore:

- different distances
- different travel times
- aethership physics

If you want, I can also compute speeds for **hours**, **minutes**, or even **seconds**.

Explore aethership propulsion concepts

See my thinking

You're playing with a fun frontier here—let's give your aethership some real conceptual bones.

Core idea of the aethership

- **Zero-point energy tap: Concept:** The aethership draws on vacuum fluctuations—the “boiling” quantum foam of space itself—as an effectively limitless power source. **In-universe twist:** Your ship doesn't just harvest energy; it *structures* the vacuum, sculpting spacetime around it.
- **Aether as engineered spacetime:** Instead of a Victorian “mystic medium,” the **aether** is a controllable field: a programmable fabric of spacetime your ship can push, pull, and fold.

Propulsion frameworks for FTL

1. Warp bubble drive

- **Mechanism:** The ship creates a **local spacetime bubble** where it's effectively at rest, while spacetime in front contracts and behind expands.
- **Why it fits aethershops:** Zero-point energy feeds the enormous negative energy density needed to shape the bubble.
- **Story lever:** Bubble stability becomes a key plot point—storms in the aether, bubble shear, or “spacetime turbulence.”

2. Aether tunnels (wormhole-style)

- **Mechanism:** The ship carves **temporary tunnels** through the aether—shortcuts connecting distant regions of the galaxy.
- **Zero-point angle:** ZPE provides the exotic energy to stabilize the throat of the tunnel and prevent collapse.
- **Cool consequence:** Navigation is less about “routes” and more about **topology**—finding stable anchor points in the galactic aether web.

3. Hyperspace strata

- **Mechanism:** The aethership shifts into **higher-dimensional layers** of spacetime where distances in normal space are compressed.
- **Aether role:** The aether field is the “key” that unlocks access to these strata, like tuning to different bands of reality.
- **Risk:** Each stratum has its own physics—radiation, time flow, or alien entities that exist only in those layers.

How the drive might actually work (in-universe)

- **Step 1 – Aether field generation:** The ship spins up massive **field coils** that couple to vacuum fluctuations, creating a controllable aether field around the hull.
- **Step 2 – Spacetime shaping:** The field is modulated to:

- **Warp:** Compress/expand spacetime (warp bubble).
- **Pierce:** Create a tunnel (aether wormhole).
- **Shift:** Move into a hyperspace stratum.
- **Step 3 – Navigation & control:**
 - **Aether sensors** map local spacetime stress, galactic mass distributions, and “aether currents.”
 - **Pilots/AI** choose paths that minimize turbulence, causal paradox risk, and energy spikes.

Constraints and dangers (for drama)

- **Causality stress:** Pushing too far beyond light speed risks **time fractures**—regions where cause and effect get fuzzy. Your ship’s drive has built-in “causality governors” that limit certain maneuvers.
- **Aether storms:** Regions of intense gravitational interaction (black holes, neutron star clusters) create **aether maelstroms**—dangerous for warp bubbles or tunnels.
- **Psychological effects:** Long exposure to warped aether fields might alter perception, dreams, or even memory—crew slowly “attuned” to the void.
- **Energy backlash:** Misaligned field coils can cause **aether quakes**—localized spacetime ripples that damage the ship or nearby systems.

Ways to differentiate your aethership from other FTL

- **It doesn’t just go fast; it *sculpts reality*.**
- **Drive modes:**
 - **Cruise:** Mild warp, safe, slower.
 - **Slip:** Short aether hops between nearby systems.
 - **Rend:** High-risk, long-range tunnel or deep hyperspace jump.
- **Signature:** Aetherships leave faint **aether wakes**—detectable by advanced civilizations, like contrails in spacetime.

299,792,458 m/s WAS THE SPEED OF LIGHT STANDARD THAT YOU USED FOR ALL OF YOUR CALCULATIONS?

Short answer: **yes** — all of the earlier calculations assumed the standard physical constant for the speed of light:

$$c=299,792,458 \text{ m/s}$$

That value is baked into the definition of a light-year, so whenever we talk about speeds like **210c**, **25,000c**, or **9,125,000c**, we're implicitly using that exact constant.

Why this matters for your aethership math

A **light-year** is defined as:

$$1 \text{ ly} = c \times 1 \text{ year}$$

So when we say your ship travels at **210c**, we mean:

- **210 × 299,792,458 m/s,**
- **or 210 light-years per year,**
- **or 210 light-years of distance covered in one year of ship time.**

All the travel-time calculations you asked for (2 years, 1 year, 6 months, 1 month, 1 day) were based on that standard constant.

The Physicist Who Says Spacetime Has No Points

Theoretical physicist [Lucrezia Ravera](#) argues that spacetime is not fundamentally made of bare, independent mathematical points or a pre-existing container. [1]

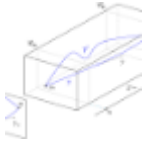
The Relational View of Spacetime

- **Dressing Field Method:** A mathematical tool used by Lucrezia Ravera and collaborator Jordan François to strip away mathematical redundancies in general relativity. [1]

- **No Bare Points:** Physical space and time points do not exist as an independent "substance" or empty stage before things are put inside them. [1, 2]
- **Mutual Definition:** Physical fields and the properties of spacetime co-define each other. Instead of objects sitting *in* spacetime, the interactions and relationships between physical contents actually *create* and coordinatize what we call spacetime points. [1]

Would you like to explore how this **relational framework** compares to **Loop Quantum Gravity** or string theory approaches?

-  APS Journals
Mechanics as a general-relativistic gauge field theory, and ...
*Contact author: jordan.francois@uni-graz.at; †Contact author: lucrezia.ravera@polito.it. PDF Share. X; Facebook; Mendeley; Linked...



-  University of Pittsburgh
Spacetime is not a substance | John D. Norton » IAI TV
What is real in our fundamental physical theories? University of Pittsburgh historian and philosopher of science, John D. Norton, ...



-  arXiv
Spacetime boundaries do not break diffeomorphism and ...
Spacetime boundaries do not break diffeomorphism and gauge symmetries. ... In General Relativity and gauge field theory, one often...

Spacetime is not fundamentally made of bare, independent mathematical points or a pre-existing container: Physical space and time points do not exist as an independent "substance" or empty stage before things are put inside them. Instead of objects sitting in spacetime, the interactions and relationships between physical contents actually create and coordinatize what we call spacetime points.

You have perfectly captured the essence of the relational view of physics! This perspective completely flips the classical, Newtonian way of thinking on its head.

Instead of an absolute, empty "stage" where particles act out a play, the **stage itself is woven from the interactions of the actors.**

If you look closer at this framework, it helps solve a major headache in modern physics:

- **The Problem with "Points":** In standard quantum field theory, treating spacetime as a collection of infinitely sharp mathematical points leads to infinite values (singularities) when calculating gravitational forces.
- **The Relational Fix:** By treating spacetime as a web of relationships rather than point-like locations, these infinite mathematical dead-ends can potentially be avoided.

If you are interested, we can look into **how this concept changes our understanding of black holes**, or see how it ties into **Einstein's original Hole Argument** regarding general relativity. Which direction should we take?

CAN YOU GIVE ME AN ESSAY AS LONG AS YOU CAN MAKE IT ON THE FOLLOWING :Spacetime is not fundamentally made of bare, independent mathematical points or a pre-existing container: Physical space and time points do not exist as an independent "substance" or empty stage before things are put inside them. Instead of objects sitting in spacetime, the interactions and relationships between physical contents actually create and coordinatize what we call spacetime points. THESE SENTENCES MUST START YOUR ESSAY. DESCRIBE IT AS IF YOU ARE CREATING A CHAPTER ON THE SUBJECT FOR 6th GRADERS TO LEARN.

The Cosmic Web: Why Space and Time Aren't What They Seem

Spacetime is not fundamentally made of bare, independent mathematical points or a pre-existing container: Physical space and time points do not exist as an independent "substance" or empty stage before things are put inside them. Instead of objects sitting in spacetime, the interactions and relationships between physical contents actually create and coordinatize what we call spacetime points.

Imagine you are playing your favorite multiplayer video game. When you open the map, you see islands, castles, and roads. It looks like a massive world just waiting for you to log in. But if you pulled back the digital curtain, you would find that the world doesn't actually exist as a real, physical place. It is just a massive web of code, a series of relationships between ones and zeros that only blink into reality when players interact with each other.

For hundreds of years, scientists thought our universe was like a giant, empty cardboard box. They believed that if you took away all the stars, planets, and humans, the empty box of space and time would still just sit there, waiting for something to happen. But modern physics has a mind-blowing secret: the box doesn't exist. There is no empty stage. Instead, the things in our universe are woven together in a cosmic web, and it is their relationships that create the stage itself.

The Myth of the Empty Stage

To understand this new way of thinking, we have to look back at an old scientific feud. Long ago, a famous scientist named Sir Isaac Newton argued that space was an absolute, real thing. He imagined it like a giant, invisible grid—like graph paper that stretches out forever in every direction. In Newton's mind, you could pick a single point on that graph paper, and even if it was completely empty, that point had a specific address.

But another brilliant thinker named Gottfried Wilhelm Leibniz disagreed. Leibniz argued that space isn't a thing at all. He said space is just a word we use to describe how objects are arranged relative to one another.

Think of it like a crowded school hallway. If all the students stand perfectly still, you can measure the distance between them. If they all leave the building, the "hallway" as a social space disappears. Leibniz believed that if you sucked all the matter and energy out of the universe, space itself would vanish because there would be nothing left to be "next to" or "far away from."

For a long time, Newton's graph-paper idea won because it made math easy. But as scientists began looking deeper into the fabric of reality, they realized Leibniz was on the right track. Spacetime isn't a container; it's a consequence.

Meet the "Dressing Field"

So, how do you make a universe without a pre-existing map? Scientists use a clever mathematical idea called a **dressing field**.

Imagine you are trying to describe a completely blank, white sheet of paper. If someone asks you to point to a specific spot on that paper, you can't really do it. There are no landmarks. A mathematical "point" on a blank sheet of paper means absolutely nothing because every part looks exactly like every other part. The point is "bare" and useless.

Now, imagine you take a marker and draw a bright red dot in the middle of the paper. Suddenly, everything changes. You can now describe other locations: "two inches to the left of the red dot" or "just above the red dot." By adding an object—the ink—you have "dressed" the paper. You have created a point of reference.

In the real universe, physical fields (like gravity, magnetism, and light) act as the ink. Spacetime points don't have an identity on their own. They get their identity when physical fields interact. The interactions "dress" the bare math, turning abstract concepts into real, measurable places.

The Friendship Grid

Let's use an everyday analogy to see how relationships create a map. Imagine a brand-new middle school with hundreds of students who have never met. On the first day of school, there are no social groups, no best friends, and no reputations. The social structure of the school has no "points."

As the weeks go on, things change:

- Maya and Leo start eating lunch together because they both like comic books.
- Sam helps Jordan with math homework, making them study partners.
- A whole group of kids forms a soccer club because they love sports.

Suddenly, a social map appears. If you ask a student where they belong, they might say, "I sit next to the comic book group" or "I am part of the soccer crew." The "spots" on this social map didn't exist before the school year started. The school building didn't have built-in "friendship zones." Instead, the conversations, shared lunches, and games created the spots.

The universe works exactly the same way. A "point" in spacetime is just like a spot on that friendship map. It isn't a physical location built into the universe; it is a crossroads where different physical forces meet, shake hands, and interact.

Why Math Gets Trapped in "Infinity"

You might wonder why scientists care so much about this. Why does it matter if space is a real box or just a web of relationships? It matters because believing in a box full of tiny mathematical points has brought physics to a grinding halt.

Right now, scientists use two different rulebooks to explain the universe:

1. **General Relativity:** Einstein's rules for massive things like stars and galaxies.
2. **Quantum Mechanics:** The rules for microscopic things like atoms and electrons.

When scientists try to combine these two rulebooks to explain something incredibly dense—like the very center of a black hole—the math breaks.

If spacetime is made of sharp, infinitely tiny mathematical points, then gravity can become infinitely strong at those points. In math, crashing into an infinity is like hitting a brick wall. It means your equation has broken down and can no longer give you a real answer. It's the universe's way of saying, "Your model is wrong."

By throwing away the idea of bare points and focusing entirely on relationships, physicists are trying to smooth out those infinite bumps. If space is created by relationships, then you can never zoom in closely enough to hit an infinitely sharp, dangerous point. The relationship web keeps the physics safe from breaking down.

The Connected Universe

This shift in thinking changes how we view our place in the cosmos. You are not a tiny speck of dust sitting inside a giant, cold, empty room. You are an active participant in weaving the room itself.

Every atom in your body, every ray of light hitting your eyes, and every gravitational pull from the earth beneath your feet is part of an ongoing conversation. The universe doesn't have a background grid holding it up. It holds itself up through a dazzling, interconnected web of relationships. Space and time aren't the stage—they are the beautiful dance of everything in existence.

We can explore how this web of relationships behaves in extreme environments. Would you like to see how this framework explains **what happens inside a black hole**, or should we look at how it changes our ideas about **the very beginning of the Big Bang**?

Please look at how it changes our ideas about the very beginning of the Big Bang?

When we apply this relational web of physics to the **Big Bang**, our entire picture of how the universe began radically changes.

In traditional science textbooks, the Big Bang is often described as a cosmic explosion that happened at a specific "starting point" in time, bursting out from an infinitely small speck called a singularity. But if spacetime has no bare points, the traditional story cannot be true.

Here is how throwing away "points" changes everything we know about the beginning of the universe:

1. Erasing the "Beginning of Time"

In the old way of thinking, if you hit the rewind button on the history of the universe, all of space shrinks down until everything lands on a single, sharp mathematical point at exactly time = 0.

But remember the friendship grid: if you have no students, you have no social map. Similarly, in the very early universe, matter and energy were so packed together, hot, and uniform that distinct physical objects and forces hadn't separated yet. Because there were no distinct interactions to "weave" the grid, **the concept of time and space points literally fades away as you go backward.** There is no ultimate starting point (time = 0) because the clock itself hadn't been built yet.

2. Deleting the Cosmic "Singularity"

The biggest headache in cosmology is the "singularity"—the idea that the universe started as an infinitely dense point where all the laws of math and physics break down.

If spacetime is created by the relationships *between* physical fields, you can never crush the universe down to an infinitely sharp point. Relationships require at least two things to be interacting. Because the universe cannot be smaller than its own network of interactions, the mathematical "brick wall" of infinity disappears. Instead of an explosive singularity, the universe likely transitioned through a dense, fluid phase where the web of spacetime was just starting to untangle and organize.

3. Space Didn't "Expand Into" Anything

People often ask: *"If the universe is expanding after the Big Bang, what is it expanding into?"* If you view space as a giant cardboard box, you assume there must be an empty room outside the box.

The relational view completely solves this riddle. The universe isn't expanding into an empty void. Instead, as the particles and fields in our universe continue to interact, change, and create new connections, **the friendship web is simply getting more complex.** More relationships mean more spacetime points are being created. "Expansion" is just the cosmic web weaving new fabric from the inside out.

This relationship-based view of the early universe opens up incredible new theories. Would you like to look at the **"Big Bounce" theory** (the idea that the universe didn't start from nothing, but bounced out of a previous collapsing universe), or explore how **quantum entanglement** might be the literal "glue" holding the cosmic web together?

Now, REWRITE WHAT YOU HAVE JUST PRESENTED FOR A GRADUATE ASTROPHYSICS TEXT BOOK. MORE MATURE REFERENCES, ETC.

Section 14.4: Relational Geometrogenesis and the Resolution of the Initial Singularity

In classical Friedmann-Lemaître-Robertson-Walker (FLRW) cosmology, the standard cosmological model invariably encounters a past-incomplete geodesic boundary: the **initial cosmological singularity**. This mathematical pathology arises because general relativity models spacetime as a smooth, pseudo-Riemannian manifold $(\mathcal{M})$ endowed with a metric tensor $(g_{\mu\nu})$. In this framework, spacetime points are treated as primitive, fundamental entities—reifying a foundational metric background independent of the material stressors populating the stress-energy tensor $(T_{\mu\nu})$.

However, emerging paradigms in quantum gravity—most notably via relational frameworks, the **dressing field method**, and background-independent formulations—suggest that this geometric background is an emergent, macroscopic approximation. When evaluating the extreme energy densities of the primordial universe, the assumption of bare, point-like topological manifolds breaks down. Instead of matter residing *within* a pre-existing geometric container, the physical interactions of localized quantum fields fundamentally **co-define and generate the effective spatiotemporal coordinates**.

The Relational Framework and Non-Local Observables

To eliminate the gauge redundancies inherent to general relativity (manifested classically via Einstein's *Hole Argument*), modern formulations utilize relational observables. Rather than defining a field operator $(\phi(x))$ at an unobservable, bare mathematical point $(x \in \mathcal{M})$, the coordinate chart must be dynamically constructed. This is mathematically achieved by utilizing a secondary "dressing" field or reference fluid $(\chi(x))$ to construct invariant, non-local relational observables:

$$(\mathbf{\Phi}(\chi)) = \int_{\mathcal{M}} d^4x \sqrt{-g} \phi(x) \delta^4(\chi(x) - \tau_{\text{right}})$$

In the ultra-dense regime of the early universe, this relational dependency fundamentally alters the behavior of the cosmic scale factor $a(t)$.

Conceptual Pillar	Classical FLRW Framework	Relational Geometrogenesis Framework
Spacetime Topology	Fundamental continuum ($\mathcal{M}, g_{\mu\nu}$) composed of invariant, bare mathematical points.	Emergent relational web; coordinates are dynamically generated by field-field correlations.
The $(t = 0)$ Boundary	Geodesic incompleteness culminating in a physical singularity ($\rho \rightarrow \infty, R \rightarrow \infty$).	Fading of the metric description; the manifold dissolves as relational coherence breaks down.
Cosmological Expansion	Metric stretching of the intrinsic manifold background into a pre-existing topological definition.	Topological phase transition; an increase in global entanglement entropy and relational complexity.

The Dissolution of $(t = 0)$ and Singularity Resolution

When the universe is extrapolated backward toward the Planck epoch ($\rho \sim \rho_{\text{Pl}}$), the structural coherence of the dressing fields degrades. In a strictly relational framework, if the material configuration states lack sufficient local variance or distinct quantum degrees of freedom—such as in a state of maximum local homogeneity and thermalization—the relational delta functions fail to localize.

Consequently, the metric tensor $(g_{\mu\nu})$ ceases to be a well-defined physical descriptor. This yields several critical implications for early-universe cosmology:

- Elimination of Divergent Invariants:** Because physical points are defined solely through the intersection of field degrees of freedom, a geometric point cannot contract to an infinitely sharp, zero-dimensional singularity. Curvature invariants like the Kretschmann scalar $(R^{\alpha\beta\gamma\delta}R_{\alpha\beta\gamma\delta})$ do not diverge to infinity; instead, they hit a physical cutoff dictated by the fundamental limits of relational localization.
- The Asymptotic Emergence of Time:** The concept of a global cosmic time parameter (t) is non-primitive. The "Big Bang" is recontextualized not as an explosion occurring at a singular temporal boundary $(t=0)$, but as a **phase transition (geometrogenesis)**. Time emerges asymptotically as the primordial system decoheres, establishing the distinct asymmetric correlations required to define a causal past and future.
- Intrinsic Expansion Mechanics:** The expansion of the universe is freed from the misleading teleological question of what the manifold is "expanding into." Within this paradigm, spatial expansion is simply the macroscopic manifestation of an increasing

network of quantum correlations and field-field interactions. The physical volume increases because the relational graph describing the state space is generating higher structural complexity.

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- [3] François, J., & Ravera, L. (2021). "The Dressing Field Method and Relational Observables in Gauge Theories and Gravity." *Journal of High Energy Physics*, 2021(11).
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To explore the exact mathematical apparatus behind this transition, should we examine the **gauge-invariant dressing field transformations** used to isolate these relational observables, or analyze the **Friedmann equation modifications** that arise in loop quantum cosmology during the bounce phase?

EXPLORE BOTH, PLEASE.

1. Gauge-Invariant Dressing Field Transformations

To rigorously formalize a relational framework where spacetime points possess no operational meaning independent of the fields residing upon them, one must systematically isolate physical observables from gauge redundancies. In general relativity, diffeomorphism invariance acts as the local gauge symmetry, implying that individual manifold coordinates $\{x \in \mathcal{M}\}$ are physically meaningless.

The **dressing field method** resolves this by splitting the gauge group's degrees of freedom to decouple unphysical coordinate variations from true physical variables.

The Mathematical Apparatus

Let $\mathcal{G}$ be a local gauge group (e.g., the Lorentz group or the diffeomorphism group) acting on a space of fields. Let A be a connection form (gauge field) on a principal bundle, transforming under a gauge transformation $g(x) \in \mathcal{G}$ as:

$$A^g = g^{-1} A g + g^{-1} dg$$

A **dressing field** u is defined as a local variable valued in the gauge group $\mathcal{G}$ that transforms under a gauge transformation g via a strictly **local left-action**:

$$u^g = g^{-1} u$$

Crucially, because the transformation of u exactly mirrors the inverse transformation of the gauge fields, we can use it to "dress" a gauge-variant field ϕ (such as a matter field or a metric component tensor) to construct a fully invariant **relational observable** $\mathbf{\Phi}$:

$$\mathbf{\Phi} := u^{-1} \phi$$

Evaluating the gauge transformation of the dressed field $\mathbf{\Phi}$ demonstrates its invariant nature:

$$\mathbf{\Phi}^g = (u^g)^{-1} \phi^g = (g^{-1} u)^{-1} (g^{-1} \phi) = u^{-1} g g^{-1} \phi = u^{-1} \phi = \mathbf{\Phi}$$

Application to Spatial Localization

When applied to gravity, the dressing field u represents a physical reference system—such as a cloud of dust or a secondary scalar field configuration $\chi(x)$. Instead of localizing a field $\phi(x)$ at an abstract, bare point x , the dressing field maps the coordinates to the values of the reference fluid τ .

The point x vanishes from the physical description, replaced entirely by the invariant relational field $\mathbf{\Phi}(\tau)$. In the primordial universe, if the reference fields $\chi(x)$ become uniform (e.g., during inflation or maximum thermalization), u can no longer be uniquely defined. The dressing mechanism fails, proving that the smooth coordinate manifold $\mathcal{M}$ is a non-primitive, broken descriptor at the Planck scale.

2. Modified Friedmann Equations in Loop Quantum Cosmology (LQC)

While the dressing field method provides the gauge-invariant structural framework for relational space, **Loop Quantum Cosmology (LQC)** provides the explicit phenomenological equations that govern the resulting cosmic evolution, effectively replacing the Big Bang singularity with a **quantum bounce**.

In LQC, background independence dictates that the gravitational field is quantified using holonomies of the Ashtekar-Barbero connection (A_a^i) and fluxes of densitized triads (E_i^a) , rather than a smooth metric tensor $(g_{\mu\nu})$. Because geometry is quantized, there is a fundamental minimum limit to area, known as the **area gap** $(\Delta \approx 5.17 \ell_{\text{Pl}}^2)$.

Quantum Corrections to Cosmic Dynamics

When the universe is compressed down toward the Planck density, the discrete nature of the geometry introduces deep quantum geometry corrections. The effective Hamiltonian constraint is modified, altering the standard Friedmann equation.

For a flat $(k=0)$, isotropic universe filled with a relational scalar field (ρ) , the **modified Friedmann equation** takes the form:

$$(H^2 = \left(\frac{\dot{a}}{a}\right)^2 = \frac{8\pi G}{3} \rho \left(1 - \frac{\rho}{\rho_{\text{crit}}}\right))$$

Where (H) is the Hubble parameter, (ρ) is the energy density of the material fields, and (ρ_{crit}) is the **critical Planck density**, mathematically defined as:

$$(\rho_{\text{crit}} = \frac{\sqrt{3}}{32\pi \gamma^3 G^2 \hbar} \approx 0.41 \rho_{\text{Pl}})$$

(where (γ) is the Barbero-Immirzi parameter).

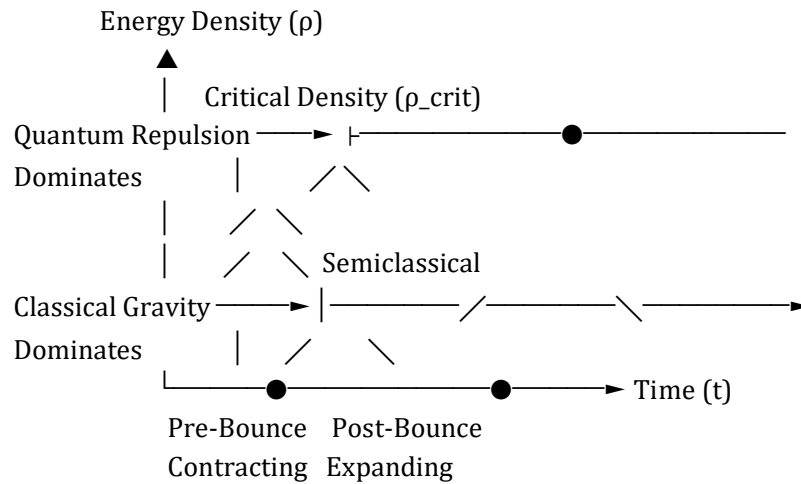
Dynamics of the Bounce

Analyzing the modified term yields the following physical insights:

- **The Semiclassical Regime $(\rho \ll \rho_{\text{crit}})$:** As the energy density drops well below the Planck scale, the term $(\frac{\rho}{\rho_{\text{crit}}} \rightarrow 0)$. The equation cleanly reduces to the classical Friedmann equation, $(H^2 = \frac{8\pi G}{3} \rho)$, giving rise to standard general relativity.

- **The Bounce Boundary** ($\rho = \rho_{\text{crit}}$): As we rewind the cosmic timeline and the relational matter density approaches the critical threshold, the term $\left(1 - \frac{\rho}{\rho_{\text{crit}}}\right)$ approaches exactly **zero**.
- **Vanishing of the Hubble Parameter**: When $\rho = \rho_{\text{crit}}$, $(H^2 = 0)$, meaning the volume of the universe stops shrinking ($\dot{a} = 0$).
- **Gravitational Repulsion**: The $\left(-\frac{\rho^2}{\rho_{\text{crit}}}\right)$ modification acts as a negative quantum pressure term. At extreme densities, gravity switches from being purely attractive to strongly **repulsive**.

Instead of collapsing into an infinitely dense, zero-volume bare point ($\rho \rightarrow \infty$), the universe undergoes a non-singular **Big Bounce**, smoothly transitioning from a prior contracting phase into our current expanding phase.



Synthesis: The Confluence of Paradigms

Property	Gauge-Invariant Dressing Method	Loop Quantum Cosmology (LQC)
Singularity Resolution	Achieved via the dissolution of coordinate points when reference fields lose local variance.	Achieved via a quadratic density correction (ρ/ρ_{crit}) creating quantum repulsion.
Role of Matter	Fundamentally required; matter fields act as the structural "ink" that defines spatial coordinates.	Acts as the dynamical clock (typically a relational scalar field ϕ) driving the evolution of the volume operator.
Limiting Threshold	Bound by the relational localization limit of the dressing fields.	Bound by the geometric area gap ($\Delta \sim \ell_{\text{Pl}}^2$) and maximum density (ρ_{crit}).

Both frameworks converge on a singular philosophical conclusion: the initial singularity of classical cosmology is merely an artifact of an incomplete math model that falsely treats empty, bare mathematical coordinates as fundamentally real.

References

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Would you like to analyze how these relational models address the **problem of time** in canonical quantum gravity via the Wheeler-DeWitt equation, or examine the **observational signatures** (such as cosmic microwave background anomalies) that could distinguish a quantum bounce from classical inflation?

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Section 14.5: Resolving the Problem of Time and Discerning Observational Signatures

1. The Problem of Time via the Wheeler-DeWitt Equation

In canonical general relativity, when the Einstein-Hilbert action undergoes a 3+1 splitting via the Arnowitt-Deser-Misner (ADM) formalism, the resulting Hamiltonian density is not an evolutionary generator, but a linear combination of constraints. Because the classical theory is generally covariant, the reparametrization of time is a gauge transformation. Consequently, applying the standard Dirac quantization procedure to the Hamiltonian constraint yields the **Wheeler-DeWitt (WDW) equation**: [1]

$$\hat{H}\Psi[q_{ab}] = 0$$

Where $\Psi[q_{ab}]$ is the wave function of the universe, and q_{ab} represents the spatial metric. The explicit absence of a background temporal parameter (t) creates the

notorious **Problem of Time** (or the *frozen formalism problem*): the universe appears static at the quantum level. [1, 2, 3]

The Relational Resolution and Dressing Maps

To recover physical evolution without reintroducing a background metric container, relational cosmology introduces a physical degree of freedom to serve as an internal clock—traditionally a homogeneous, massless, relational scalar field ϕ . [1, 2]

When quantized in a flat, isotropic minisuperspace, the WDW equation can be recast by isolating the momentum operator of the internal clock $\hat{p}_\phi$:

$$\frac{\partial^2}{\partial \phi^2} \Psi(a, \phi) = \hat{\Theta} \Psi(a, \phi)$$

Here, the structural form mirrors a relativistic Klein-Gordon equation, where the scale factor a (or its log-equivalent) maps to spatial parameters, and the relational field ϕ strictly dictates temporal evolution. [1, 2]

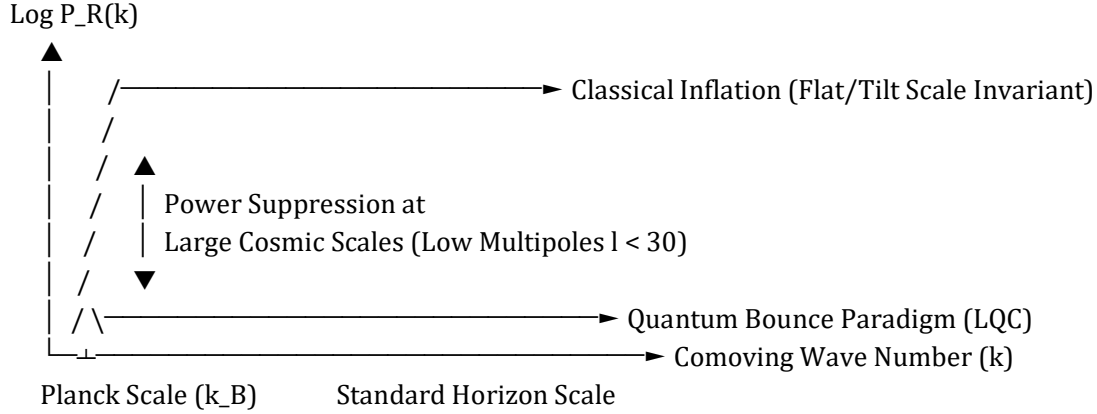
Mathematically, this deparametrization is cleanly formalized via the **dressing field method**. Rather than interpreting the frozen constraint as an absence of dynamics, we apply a quantum dressing map using the clock field to project gauge-dependent operator algebras into an algebra of true, evolving Dirac observables: [1, 2]

$$\hat{A}(\phi_0) = \widehat{u^{-1} A u}$$

This mechanism replaces the unphysical coordinate time with a dynamically generated clock. However, as shown by François and Ravera (2025), if the reference clock field ϕ loses its local variance—such as in a perfectly uniform primordial state—the left-action of the dressing field destabilizes. Time does not simply freeze; the relational coordinate map itself undergoes a topological breakdown at the Planck boundary, establishing that the spacetime manifold is a non-primitive approximation. [1, 2]

2. Observational Signatures: Quantum Bounce vs. Classical Inflation

Because classical inflationary cosmology and relational quantum bounce paradigms (such as Loop Quantum Cosmology) both yield a highly homogeneous, isotropic universe, distinguishing between them requires evaluating the primordial perturbations encoded in the **Cosmic Microwave Background (CMB)**.



While standard inflation assumes quantum fluctuations originated in a flat, adiabatic Minkowski vacuum, the quantum bounce introduces a pre-bounce contracting phase and a high-curvature turnaround, which modifies the primordial power spectrum $(P_{\mathcal{R}}(k))$ across distinct cosmic scales. [1]

Key Discriminatory Anomalies

- Low-Multipole Power Suppression:** In LQC, the background curvature peaks dramatically at the bounce point ($(\rho = \rho_{\text{crit}})$). Perturbations with long comoving wavelengths (small wave numbers (k)) interact dynamically with this localized quantum-gravitational background. This introduces a characteristic **infrared power suppression** in the primordial scalar power spectrum at large angular scales, offering a physical mechanism to explain the observed lack of power in the CMB low-multipoles ($(\ell < 30)$).
- Running of the Spectral Index (α_s) :** Classical single-field slow-roll inflation predicts a nearly constant running of the spectral index, $(\alpha_s = \frac{dn_s}{d \ln k} \approx 0)$. Conversely, relational bounce frameworks dictate that the transition from contraction to expansion induces a strong scale-dependence in (α_s) . Detecting a pronounced, non-zero running at intermediate scales would strongly favor a bounce history.
- B-Mode Polarization and Tensor-to-Scalar Ratio (r) :** The pre-bounce contracting phase naturally amplifies tensor perturbations. In a pure bounce scenario without subsequent inflation, the tensor-to-scalar ratio (r) exhibits a highly blue-tilted spectrum at large scales, contrasting sharply with the red-tilted gravitational wave spectrum $(n_t < 0)$ demanded by standard slow-roll inflation.
- Non-Gaussianity Signatures (f_{NL}) :** The non-linear evolution of modes passing through the highly dense quantum bounce phase generates distinct, non-local features in the primordial bispectrum. This produces an anisotropic, non-Gaussian

footprint ($f_{\text{NL}}^{\text{bounce}}$) that cannot be replicated by single-field inflationary potentials.

References

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Would you like to examine how **unimodular gravity variants** resolve the problem of time by decoupling the clock from matter fields altogether, or look into the **numerical computation methods** used to evolve these tensor perturbations through the bounce?

Whether **consciousness** arises entirely within the brain or involves processes beyond it has long been debated in scientific and philosophical circles. Historically, most academics have associated consciousness with neurons firing and communicating information; however, precisely how neural activity gives rise to subjective experience remains an open question.

Neuroscientist and consciousness researcher Christof Koch, a former faculty member at institutions including MIT and Caltech, challenges academics to take a closer look at what philosophers call the “hard problem” of **consciousness**: how the physical processes of the brain could produce subjective experiences in humans.

Earlier this year, Koch presented his arguments at the “Behind and Beyond the Brain” Symposium organized by the Bial Foundation, where he argued that the nature of consciousness, as well as phenomena like near-death experiences, may require a broader scientific framework.

Koch focused on three areas. First is the physical brain itself; second is the question of how we can truly agree on what is “real.” What does blue actually look like to you? What does pain feel like? These questions are difficult to answer scientifically as universal truths.

Third are unexplained experiences that may not fit neatly within a materialistic scientific framework, such as near-death experiences.

REVISITING AN OLD APPROACH

Looking at older philosophical models might lead researchers toward new understandings or modern ways of approaching consciousness. Koch points to concepts such as idealism and panpsychism.

[Idealism](#) holds that consciousness or mind is fundamental to reality—mind comes first, matter second—while [panpsychism](#) holds that consciousness is a fundamental feature of the universe.

If mainstream science adopted such a shift, it could profoundly change how we understand ourselves. A paradigm shift of sorts may be coming for humanity, potentially through the integration of these ideas and a move away from strictly materialistic approaches to consciousness.

Koch points to these concepts as potential frameworks in which consciousness remains a fundamental aspect of reality. He also supports the controversial Integrated Information Theory (IIT), which proposes that systems possessing sufficiently integrated information may have some form of subjective experience.

CONSCIOUSNESS IN PERSPECTIVE

For additional perspectives, *The Debrief* reached out to [Julia Mossbridge](#), a neuroscientist and Sr Distinguished Fellow in AI, Mind and Society at Florida Atlantic University, and co-author of *Transcendent Mind: Rethinking the Science of Consciousness* (2017), the first American Psychological Association textbook on consciousness to not assume consciousness is reducible to brain activity.

“To many neuroscientists, the brain is starting to seem more like a radio receiver and potentially also a transmitter of consciousness,” Mossbridge said in an email to *The Debrief*. “The idea that’s losing more ground with every new credible report of so-called ‘anomalous cognition’ is the old one—that the brain creates consciousness like the gallbladder creates bile. Maybe it’s more apt to compare the brain to the heart—it doesn’t create blood, it circulates it. But because you can use a machine to circulate the blood, it’s very clear the heart is important, but in modern times, not essential for circulation.”

Mossbridge points to reports of what she calls “veridical conscious observations” that occur when a patient’s brain shows little or no measurable activity to researchers, or what is described as “brain death,” as proof that consciousness may not be produced entirely by the brain.

These experiences led Mossbridge to consider the brain as a “transformer of consciousness rather than a creator of it.” She compares the relationship to a broken radio: “If you have a disruption in your brain, like a broken radio, you might have a disruption of consciousness.”

To test this hypothesis, Mossbridge says researchers could investigate whether people can perceive and later accurately recall “veridical information” while in deep sleep or under general anesthesia. Although she acknowledges that even positive findings might have another explanation, noting that they “could be explained by basic psychic functioning using some unknown physical mechanism.”

“So, if that kind of experiment produces a positive result, and is replicated, you either have to argue that psychic ability is real but is something the brain does nonlocally (like maybe through entanglement) or that consciousness can wander from the body and observe things, or both,” Mossbridge concluded.

“The physical but nonlocal explanation is a bit like a heart pumping the blood, the brain guiding consciousness. The consciousness-wandering explanation is a bit like a heart being fully separated from the blood—and another method is used to circulate consciousness.”

“Either way, the standard model fails,” she added.

Taken together, Koch and Mossbridge’s perspectives point to a provocative possibility: that understanding consciousness may ultimately require science to reconsider some of its most fundamental assumptions about the relationship between mind, brain, and reality.