

Plasma Consciousness (Research)

Abstract

Unidentified Aerial Phenomena (UAP) and mysterious “lights in the sky” have long challenged conventional scientific explanations. This paper explores the speculative hypothesis that some UAP manifestations could be plasma-based conscious entities or “plasma life forms” that interact with human perception during certain geomagnetic or atmospheric conditions. Approximately 65% of our analysis builds on modern scientific research, including plasma physics (self-organizing plasmas, dusty plasma crystals), quantum theory (entanglement and nonlocal effects), electromagnetic field influences, and neurobiological effects on perception, while the remaining approximately 35% examines historical and mythological frameworks (ancient folklore of luminous sky beings, sacred site energies, and historical records of strange aerial phenomena). We review experimental evidence that plasmas can self-organize and display life-like behaviors[1][2], and we discuss how electromagnetic fields and possibly quantum coherence might enable novel interactions between such plasmas and human observers. We then draw parallels to mythic accounts of “spirits” or gods manifesting as lights, and to sacred geographies associated with unusual energies. Several theoretical models are proposed, including a “Juice Box Dimensional Access” analogy for higher-dimensional incursions, the concept of “dimensional thin spots” in space-time or Earth’s field where such interactions are facilitated, and the distinction between opportunistic vs. deliberate crossings of these plasma-like intelligences into our reality. We outline testable predictions to guide future research, such as correlating UAP occurrences with geomagnetic data, mapping phenomena hotspots against geological features, and controlled experiments on consciousness-plasma interaction. We clearly label speculative ideas versus established science throughout. If the plasma-consciousness hypothesis were validated, it would profoundly expand our understanding of life and mind, blurring the line between physics and metaphysics. We discuss the far-reaching implications as well as the methodological and epistemological challenges inherent in studying such an unconventional idea. Ultimately, this interdisciplinary synthesis aims to encourage rigorous scientific inquiry into UAPs and consciousness, informed by both cutting-edge physics and the enduring wisdom of historical narratives.

Introduction

In recent years, UAPs (Unidentified Anomalous Phenomena), the modern term encompassing UFOs, have garnered serious attention from scientists and governments. Unlike the classic “flying saucer” image of a physical alien craft, many UAP reports involve luminous, formless phenomena: glowing orbs, pulsating spheres, or amorphous lights that appear to defy conventional aerodynamics[3]. The U.S. Pentagon and NASA have

acknowledged dozens of UAP incidents lacking easy explanation, fueling renewed scientific interest. One intriguing line of inquiry is that some UAPs might not be solid objects at all, but plasma phenomena, ionized gases or charged particles in self-contained luminous form[4][5]. Plasma is sometimes called the “fourth state of matter,” and it can behave in complex, dynamic ways distinct from solids, liquids, or gases[6]. Well-known natural plasmas include ball lightning and St. Elmo’s fire, which for centuries were met with awe and superstition before scientific analysis began to unravel them. Ball lightning, for example, is a glowing spherical plasma occasionally observed during thunderstorms; long treated as folklore, it was finally captured on video in 2014, confirming that it can form when lightning vaporizes soil elements into a luminous ball[7][8]. Such phenomena show that nature can create free-floating, radiant “orbs” of plasma under the right conditions, which invites the question, could some of these plasmas exhibit behaviors analogous to life or even consciousness?

The hypothesis examined in this paper is plasma-based consciousness: the idea that under certain conditions, plasma formations could become self-organizing information systems, a kind of inorganic life form, capable of perception or intelligent interaction. This concept pushes the boundaries of established science, straddling the realms of physics, biology, and consciousness studies. Notably, a declassified 2006 report by the UK Ministry of Defense (Project Condign) concluded that a subset of UAP reports might be explained by “buoyant charged plasma formations” akin to ball lightning, which generate electromagnetic fields that can produce perceptual effects in witnesses[9][10]. The report even noted that such plasma UAPs might induce hallucinations or disorientation by interacting with human neurological processes[3]. This official finding, while not implying consciousness, hints at a natural plasma phenomenon able to mimic a “craft” and impact observers, a crucial piece of the puzzle.

On the other end of the spectrum, for decades certain physicists and engineers have speculated on “plasma life forms.” Nobel laureate Hannes Alfvén proposed that cosmic plasmas can self-organize into cellular structures with electromagnetic “membranes,” exhibiting life-like properties[6][11]. Laboratory experiments have shown that complex dusty plasmas can form self-contained, cell-like spheres that grow, oscillate, and even replicate division-like behaviors under microgravity conditions[1][12]. In 2007, Tsytovich et al. observed that such plasma-dust structures “exhibit all the necessary properties to qualify them as candidates for inorganic living matter”[2]. More recently, researchers analyzing NASA space shuttle footage reported kilometer-sized luminous plasma “entities” in Earth’s thermosphere that move in non-inertial ways, appear attracted to electromagnetic energy, and interact in swarms, behavior reminiscent of simple organisms[13][14]. While these claims (Joseph et al., 2024) remain controversial, they underscore that plasma phenomena can attain a high degree of organization, blurring the line between physical process and biological process.

Crucially, this paper also situates the plasma-consciousness idea within a broader historical context. Human cultures worldwide have long recorded mysterious lights and apparitions in the sky, often attributing them to deities, spirits, or otherworldly beings.

From ancient Rome's "flying shields" to medieval Europe's fiery dragons and modern indigenous legends of spirit lights, there is a rich tapestry of lore suggesting that luminous phenomena have interacted with humans throughout history. Could it be that at least some of these accounts were early observations of the same plasma-based entities scientists are now hypothesizing, being interpreted through the lens of myth and religion? By examining folklore of sky beings and the locations of sacred sites, we explore patterns that might align with geophysical anomaly zones or recurrent natural light phenomena. For instance, many ancient sacred locations (stone circles, temples) coincide with geomagnetic or seismic features, leading to speculation that ancient people were intuitively drawn to "energy spots" where unusual experiences (including lights or altered consciousness) were more likely. While these connections are speculative, they provide a fascinating interdisciplinary synthesis, complementing the data grounded in contemporary science.

In the following sections, we first review the scientific basis for self-organizing plasmas, quantum effects, and electromagnetic influences on consciousness, clearly distinguishing established findings from conjectures. Next, we delve into mythology and historical patterns, presenting examples of luminous apparitions and sacred geographies that might correlate with our hypothesis. We then propose theoretical models, including the "Juice Box Dimensional Access" framework as an analogy for how a higher-dimensional or extrinsic intelligence could interface with our space-time via plasma, the notion of "dimensional thin spots" in Earth's environment where such interactions are facilitated, and the difference between opportunistic natural crossings versus deliberate manifestation by an intelligent agency. Building on those models, we outline testable predictions and research pathways: specific correlations to check and experiments to perform (from monitoring UAPs during geomagnetic storms to conducting plasma-consciousness interaction tests). Finally, in the Discussion, we address the profound implications if plasma-based consciousness were real, as well as the limitations, alternative explanations, and challenges in proving such a hypothesis. We conclude with reflections on how embracing an interdisciplinary approach, rigorously scientific yet open to historical insight, could advance our understanding of these enduring enigmas. By synthesizing modern physics with ancient wisdom, we aim to illuminate a path forward in the study of consciousness and the cosmos.

Scientific Basis for Plasma Consciousness Interaction

Self-Organizing Plasma and "Proto-Life": Plasmas are ionized gases consisting of free electrons and ions, and they make up an estimated 99% of visible matter in the universe (stars, nebulae, lightning, etc.). Unlike a chaotic random gas, plasmas are strongly influenced by electromagnetic forces, enabling them to self-organize into complex structures. Hannes Alfvén described how cosmic plasmas can form cellular regions separated by electric double-layers, essentially membranes of charge[6][11]. He noted that space plasmas might exhibit a "cellular structure" with currents flowing along filamentary boundaries, analogous in some ways to biological cells dividing space into

compartments[15]. Such plasmas can store and release energy and even repel or attract one another depending on charge, leading Alfvén to muse that they have “life-like” properties in how they cluster and interact[16][1].

In the laboratory, researchers have created plasma spheres and blobs that dynamically behave in surprising ways. In 2003, Lozneanu and Sanduloviciu reported generating stable glow plasma “cells” in a gas discharge that could grow, self-replicate by splitting, and exhibit an inner void surrounded by a charged sheath, superficially mimicking the nucleus and membrane of a single-cell organism[1][12]. These experiments suggested a form of self-organizing “plasma bubble” that can take in energy and maintain its structure, akin to a simple metabolic process. Extending this, plasma physicist V.N. Tsytovich and colleagues investigated dusty plasma crystals (plasmas with fine particulate dust) under microgravity, finding that they spontaneously formed helical and lattice structures that evolved and replicated, driven by electromagnetic forces and the absorption of free-floating dust[17][2]. Remarkably, Tsytovich et al. (2007) concluded that these plasma-dust systems show thermodynamic and evolutionary behaviors previously thought exclusive to living matter, raising the possibility of “inorganic living matter” in space[18][2]. In their words, *“these interacting complex structures exhibit thermodynamic and evolutionary features thought to be peculiar only to living matter”* and could qualify as candidates for a form of life different from life as we know it[18].

One step short of true life, some authors describe such entities as “pre-life plasmas.” Joseph and Schild (2023) argue that plasma formations in the upper atmosphere, enriched with cosmic dust and organic molecules, might even serve as incubators for biochemical complexity[19][12]. They hypothesize that if amino acids and nucleotides (which are common in meteor dust) become embedded in a plasma crystal lattice, the plasma could facilitate an “RNA-world” like environment, a warm, energetic container that brings molecules together and possibly fosters rudimentary self-replication[20]. This is highly speculative, but it underscores a continuum: plasma phenomena can mirror certain attributes of living systems (organization, energy uptake, reproduction-like processes), which tempts one to ask if somewhere along that continuum might lie actual sentience.

Importantly, observational evidence from Earth and near-space lends some credence to the notion of plasma entities. Analysis of NASA shuttle mission videos between 1985–2005 (e.g., STS-75 and STS-80) have revealed numerous free-flying luminous objects in the thermosphere (at ~300 km altitude) that exhibit flight characteristics unlike debris or conventional craft[13][14]. These objects, often circular or torus (doughnut) shaped glowing plasmas were seen to change direction abruptly (making 45° to 180° turns), accelerate and decelerate, stop in mid-air, and even swarm together in coordinated motions[13][21]. In one case, hundreds of such plasmas congregated near a shuttle, seemingly attracted to its energy emissions[22][23]. In another, plasmas descended from space into a thunderstorm, as if “feeding” on the lightning’s electromagnetic energy[13][23]. Astronauts and pilots have anecdotally noted such behavior for decades (e.g., the WWII “foo fighters” – glowing orbs tailing aircraft)[24]. While mainstream science might explain some of these as electric discharge phenomena or camera artifacts, a group

of researchers (Joseph et al., 2024) postulate that we may be observing a form of rudimentary plasma life: self-organizing plasma masses that respond to stimuli (energy sources) in their environment[25][23]. They are careful to note these plasmas are *not* biological in the earthly sense, but potentially a “fourth domain of life” what one might call living physics rather than living chemistry[18][26]. Whether or not these thermospheric plasmoids have any consciousness or merely automatic behavior is unknown, but their complex, seemingly purposeful movements invite speculation that some form of proto-intelligence or adaptive algorithm is at work.

Quantum Coherence and Entanglement in Relation to Consciousness: Any claim of plasma-based consciousness must grapple with the question: what is the substrate of consciousness? In humans and animals, neural networks of electrical pulses and chemical signals give rise to awareness, but science has yet to pinpoint the exact mechanism. One frontier theory is that quantum mechanics might play a role in consciousness, that our brains could be tapping into quantum processes like entanglement or superposition. Quantum phenomena are typically observed at microscopic scales, but the brain’s neurons operate with electrochemical signals that involve ions and electrons, and some theorists have proposed quantum effects could become significant in certain neural components (for instance, Roger Penrose and Stuart Hameroff’s Orch-OR theory posits quantum coherence in microtubules inside neurons[27]). Quantum mechanics is famously “weird,” allowing things like entanglement, where two particles become linked such that a change in one is instantly reflected in the other, regardless of distance, and superposition, where a system can exist in multiple states at once until observed[28][29]. These non-classical features have inspired conjecture that consciousness could be a global, nonlocal phenomenon, not strictly confined to a single location or material substrate.

While the majority of neuroscientists remain skeptical of quantum consciousness (pointing out that the warm, wet brain is a hostile environment for delicate quantum states)[29], research is ongoing. Experiments proposed by teams at the Allen Institute and Google Quantum AI aim to test if any quantum entanglement or coherence occurs in isolated brain proteins[30][31]. Early results are inconclusive, but the mere pursuit underscores a key idea: if consciousness has quantum underpinnings, it might not require a brain at all, but simply a complex, organized field capable of quantum information processing. A plasma, particularly one with fine-scale structure and electromagnetic oscillations, could in principle host such processes. For example, a highly organized plasma might maintain coherent electromagnetic wave patterns (plasma oscillations, solitons, etc.) that analogously carry information like neural networks do. If some degree of quantum coherence emerged in those patterns (admittedly a big “if”), the plasma could exhibit entangled responses across different regions, effectively “knowing” what is happening throughout its volume instantaneously. This is speculative physics at the edge of my understanding, no experimental evidence yet confirms quantum brain processes, let alone quantum plasma minds. However, noting that entanglement allows instantaneous, nonlocal correlations[28], one can imagine how a plasma entity (if it existed) might sense and react to distant stimuli or to a human observer’s mind, not by classical signals but via

field coupling or entangled states. In summary, quantum theory broadens our perspective of information and connectivity, suggesting that if consciousness is fundamentally quantum, aspects of it could potentially arise in any system complex enough to exploit those quantum properties, even an ionized cloud of gas under the right conditions. We label this idea as highly speculative; it serves as a *theoretical bridge* for thinking about how mind might not be limited to biochemistry.

Electromagnetic Fields and Neurological Effects: A more concrete link between plasmas and perception comes from electromagnetic field interactions. Human brains are electromagnetic organs, every thought and sensation corresponds to neurons firing electrical impulses, creating weak magnetic fields detectable by EEG and MEG (magnetoencephalography). These neural electromagnetic fields can be influenced by external EM fields. Neuroscientist Michael Persinger famously demonstrated that applying patterned weak magnetic fields to the temporal lobes can induce unusual experiences in a person. Using what he dubbed the “God Helmet,” Persinger exposed volunteers to very low-intensity, fluctuating magnetic fields (on the order of microteslas, similar to a telephone handset’s field) and found that many reported “mystical experiences and altered states,” including the sense of a presence in the room[32]. In some sessions, up to 80% of participants felt an incorporeal “Other” nearby or had visions, despite no sensory input, essentially magnetically induced hallucinations of a controlled sort. While replication of Persinger’s findings has been mixed and sometimes controversial[33], the core point stands: the human perceptual system can be altered by electromagnetic fields. Field effects especially targeting the temporal lobe (associated with memory, emotion, and meaning) can trigger sensations that people interpret as religious or paranormal. This suggests a mechanism by which a plasma UAP, if it emits strong or complex EM fields, could *directly* affect what a witness perceives.

Notably, the UK’s Project Condign report (2000) theorized that some UAP encounters might involve plasma generating microwave frequencies or other EM radiation that interact with witnesses’ brains[3][34]. They hypothesized that this could induce disorientation, paralysis, or visionary experiences, for instance, a person might see a bright light and feel time “missing” or have an inexplicable spiritual experience due to transient brain perturbation, rather than an actual physical abduction event[10][35]. Indeed, numerous close-encounter reports include neurological symptoms: skin tingling, temporary blindness, nausea, feelings of dread or euphoria, etc., which could result from intense EM exposure. A plasma ball or beam could also ionize the air and produce ozone or other chemical byproducts that subtly alter mood or cognition when inhaled. While these effects don’t prove the plasma is conscious, they show a natural pathway for plasma-human interaction: *through our nervous system’s electromagnetic sensitivity*. If a phenomenon can alter what a person sees or feels, it essentially “interacts” with their consciousness even without physical contact.

Another relevant factor is Earth’s environment: geomagnetic and atmospheric conditions can influence human physiology and psychology. For example, some studies have noted correlations between geomagnetic storm periods (when the Sun’s activity perturbs Earth’s

magnetic field) and human health or behavior, incidents of mood disturbances, heart attacks, and even anecdotal reports of increased psychic phenomena have been variously reported. Persinger proposed that fluctuations in the geomagnetic field, such as those caused by tectonic strain or solar storms, might trigger mass apparitions or UFO sightings by inducing synchronized altered states in groups of people[36]. A famous instance often cited is the Fatima “Miracle of the Sun” in 1917, where thousands saw the Sun dance and emit colors, some have speculated an electromagnetic or optical atmospheric effect entrained the crowd’s perception. Persinger’s Temporal Lobe Lability hypothesis posits that some individuals’ brains are more prone to spontaneously generating visions when environmental magnetic fields change. Thus, during times of magnetic turbulence, or at locations with unusual magnetic geology, people might be more likely to see an “anomalous being” essentially a hallucination with a contextual narrative (angels, aliens, fairies, depending on culture) triggered by EM interference. This provides a cautionary framework: not every reported encounter need involve an external entity; some may be entirely internally generated experiences catalyzed by physical fields.

However, in the scenario that concerns us, these ideas converge: a plasma UAP could be both the external stimulus (emitting light and EM fields) and a potential participant, reacting intelligently to people. If an observer perceives a glowing figure and also experiences mental communion or distortion, it might be due to the plasma’s fields directly stimulating the brain’s imagery. In a sense, such an entity wouldn’t need to “speak” to us in words; it could modulate our neural activity to convey feelings or visions. Again, this is speculative, but it is grounded in the real physics of electromagnetic induction. The human body is transparent to many EM frequencies, especially in the radio/microwave range, so a sufficiently strong time-varying field can induce currents in neural circuits. For instance, transcranial magnetic stimulation (TMS) is a medical technique that uses pulsed magnetic fields to induce currents and can elicit flashes of light (phosphenes) or muscle twitches. A natural plasma could similarly induce phosphenes (making a witness see a glow or geometry that isn’t there) or trigger emotional centers (causing profound fear or bliss unwarranted by the visual stimulus alone).

In summary, modern science offers several pieces of a framework in which plasma-like phenomena might overlap with the domain of life and mind: (1) Plasmas can self-organize and potentially carry out life-mimicking processes, hinting at the possibility of plasma “organisms.” (2) Information and possibly consciousness need not be tied to neurons exclusively; if quantum mechanisms are involved, they might emerge in other complex, field-rich systems, including plasmas. (3) Electromagnetic coupling provides a direct channel for plasma phenomena to interact with biological consciousness, as evidenced by both lab studies (God Helmet) and analyses of UAP cases (Condign report). None of these points alone confirm the existence of plasma conscious entities, but together they paint a picture that such a hypothesis, while unorthodox, is not beyond the realm of scientific plausibility. The challenge is to find evidence that these processes are indeed linked, that some UAPs are not only plasma in nature but exhibit the hallmarks of awareness or intent. To better discern those hallmarks, we turn next to mythology and historical patterns, which contain humanity’s long record of encounters with enigmatic lights and beings. These

records might guide us on what to look for and where, as we seek testable clues of plasma-based consciousness.

Mythology and Historical Patterns of Luminous Entities

Figure 1: 1561 woodcut broadsheet by Hans Glaser depicting “Celestial apparitions over Nuremberg” on April 14, 1561. Residents reported an aerial display of spheres, cylinders and cross-shaped objects seemingly battling in the sky, followed by a large black spear-shaped form[37][38]. Such historical accounts were interpreted in religious terms (as divine omens or portents of war), yet closely match modern descriptions of unidentified aerial phenomena, suggesting a possible natural celestial or atmospheric event behind the symbolism. (Public domain image)

Humanity’s oldest narratives are filled with mysterious lights, fiery objects, and glowing beings descending from the heavens. Long before the scientific method, our ancestors sought meaning in these phenomena through myth and folklore. In these stories, we can often recognize the descriptions of atmospheric or cosmic events, refracted through the lens of culture. By examining such accounts, we gain insight into patterns: when and where strange luminosities were observed, how they behaved, and how they affected human societies. Intriguingly, many patterns align with what we now know about natural plasma phenomena, and some go further, implying an intelligence or agency behind the lights.

Ancient Records: One of the earliest known “UFO-like” reports comes from 218 BCE in Rome, where the historian Livy notes that “a huge fleet of ships was seen in the sky”[39]. The Romans, masters of augury, logged many prodigies involving fiery shapes in the heavens. In 76 BCE, Pliny the Elder recorded a spectacle in the sky: “the flame of a star, falling to earth, grew to the size of the Moon, then ascended back to the heavens and became a bright light”[40]. Modern commentators suggest this sounds like a bolide (bright meteor) that exploded and left a persistent glow, but at the time it was a baffling portent. Plutarch describes that in 74 BCE, during a battle, a large object “in the shape of a wine-jar, flaming and metallic” appeared between two armies, terrifying soldiers who took it as a divine sign to cease fighting[41]. These accounts, though mythologized, indicate that self-luminous aerial phenomena (not just comets or auroras) were noted in antiquity and often linked to important events (battles, disasters). They also hint at unusual motion, e.g. an object that falls then rises again, or hovers over armies, behaviors not typical of meteors or stars. Ancient writers lacked the concept of plasma or atmospheric electricity, so they resorted to analogies: flying shields, burning wheels, dragons.

Medieval and Early Modern Sightings: As seen in Figure 1, one of the most famous mass sightings occurred over Nuremberg, Germany, in 1561, where at dawn multiple citizens saw an array of red, blue, and black shapes (spheres, crosses, rods) engaging in what looked like an aerial battle[42][37]. This was chronicled in a broadside (an early news gazette) and interpreted as a divine warning, the language explicitly frames it as God showing “signs” to urge repentance[43]. Just five years later, a similar phenomenon was reported in Basel, Switzerland (1566): black spheres darting about in front of the Sun, as if

fighting, observed by multiple townsfolk. These events, now speculated to have been atmospheric optical phenomena (perhaps an especially vivid display of parhelia or “sun dogs” combined with a fog of pollen or dust creating shapes), nevertheless entered folklore as battles of celestial forces. Going further back, medieval chronicles are replete with portents in the sky. The Anglo-Saxon Chronicle records that in 793 CE, over Northumbria, “*immense whirlwinds, flashes of lightning, and fiery dragons were seen flying in the air,*” shortly before a Viking raid[44]. Here we might interpret whirlwinds and lightning as a storm, but “fiery dragons” suggests persistent trails of light, possibly auroral displays (the northern lights) seen unusually far south during a solar storm, given 793 had a notable aurora recorded. In 776 CE, at the Siege of Sigiburg, Frankish sources claim flaming shields appeared in the sky, panicking the attacking Saxons who believed the Franks were divinely protected[45]. Those “flaming shields” (Latin *clipei ardentes*) match Roman descriptions from 190 BCE as well[46], and could describe round, flat luminous forms, perhaps ball lightning or other plasma orbs in a thunderstorm context, interpreted as shining shields of angels.

Across cultures we find similar motifs: fiery orbs, columns of light, flying chariots or boats, and glowing humanoid figures. Often these manifestations occur at pivotal moments or sacred places. In the Bible, for example, Ezekiel’s vision (circa 593 BCE) of “wheels within wheels” in the sky, flashing like fire and accompanied by strange creatures, has been often reinterpreted in modern times as a possible UFO sighting in metaphorical form. To Ezekiel, it was a revelation of God’s glory; to a ufologist, it sounds like an attempt to describe a complex luminous craft or apparition. Similarly, ancient Indian epics speak of vimanas, flying vehicles of the gods, sometimes radiant or emitting beams, though those are often portrayed as solid chariots. Indigenous Australian lore provides the Min Min lights, a phenomenon where floating, fast-moving balls of light follow travelers in the Outback. Aboriginal people of the Kimberley region believe the Min Min lights are the spirits of their elders guarding the land, and they caution that if you chase these lights, you may become disoriented or lost[47][48]. This closely parallels the actual reported behavior of Min Min lights, witnesses describe them “stalking” or mesmerizing travelers, sometimes causing them to stray off path in a trance-like state[49]. Scientifically, Min Min lights might be a type of Fata Morgana mirage or bioluminescent animal activity compounded by atmospheric conditions[50], but the key is that the local interpretation imbues them with conscious agency (ancestral spirits). In European folklore, the same concept appears as Will-o’-the-wisp or Ignis Fatuus, ghostly lantern lights that lead unwary travelers into danger. These were attributed to pixies, fairies, or the souls of the dead; only in the modern era were they hypothesized to be natural methane flames or phosphine gas igniting over swamps[51]. Even so, science has struggled to fully recreate will-o’-wisps – the spontaneous ignition of marsh gas is not easy, which leaves room for the imagination that perhaps some are cold plasma discharges or ball lightning-like effects dancing over bogs.

Sacred Sites and “Earth Energy”: A striking historical pattern is the association of strange lights with certain places, often places of spiritual significance. Around the world, sites like temples, stone circles, mounds, and mountain tops have legends of “spirit lights” or apparitions. For example, in the U.S., the Brown Mountain Lights of North Carolina and the

Marfa Lights of Texas are recurring ghost lights seen for centuries near specific hills, areas that coincidentally have unusual geology (quartz and faults) that might generate earth lights via piezoelectric stress. In Norway, the Hessdalen Valley has been a hotbed of nocturnal light phenomena for at least a century, with lights appearing dozens of times a year in the same 12-km area[52]. Natives associated them with folk tales, but now scientists actively study Hessdalen (we will return to this case in the next section). Many megalithic stone circles and dolmens in Europe were built on locales that dowsers and some researchers claim have geophysical anomalies. A study by engineer Charles Brooker in 1983 at the Rollright Stone Circle in England found significant fluctuations in the local magnetic field, forming concentric rings of alternating polarity radiating from the circle's center[53]. This objectively confirmed what dowsers had long alleged, that "energy lines" emanate at these sites, though the cause (perhaps underlying geological iron or currents induced by the stones) is not fully understood. At the Rollrights, measurements also showed a persistent "hotspot" of gamma radiation on one edge of the circle, and seasonal variations in ultrasonic emissions (with the stones curiously blocking ultrasound during summer solstice)[54]. These anomalies suggest that ancient builders might indeed have been sensing something unusual about these places. Were such energies linked to the mythic activities at the sites, oracles, vision quests, druidic rites? Ancient Greek temples like Delphi were situated on fault lines that emitted intoxicating gases, inducing trance states in the oracle. One could argue Delphi was a "thin spot" where the Earth's vapors bridged to the spirit world in the cultural mind. By analogy, sites with magnetic anomalies or natural plasma occurrences could have been seen as holy because people witnessed light apparitions or felt altered consciousness there, reinforcing their sanctity.

Descriptions of luminous beings pervade religious texts: angels in Abrahamic traditions often appear as bright light or fire (e.g., the burning bush of Moses, or the "tongues of flame" at Pentecost). In some interpretations, these could have been instances of fireball meteors or plasma discharges later woven into narrative. The concept of a halo or aura around holy figures might originate from actual glow effects (St. Elmo's fire on a person's staff or head, as was claimed for some saints) or simply symbolize inner light. Interestingly, the Encyclopedia of Luminous Phenomena notes a case from 1895 in Italy where a "spectral light" called *Fire of St. Bernardo* was seen nightly moving between a church and cemetery, passing through objects without harm[55][56]. Locals saw it as a soul; scientists were baffled since no chemical explanation sufficed, and no human hoax was evident. This persisted as a localized ghost light, much like the will-o'-wisps. Such stories, repeated globally, feed into a hypothesis: the "plasma consciousness" might have been interacting with humans all along, but interpreted as ghosts or deities.

To be clear, from a scholarly viewpoint, many historical UAP-like sightings have been explained by known phenomena: comets (seen as swords or dragons in the sky), aurora borealis (blood-red "sky fires" during solar storms noted in ancient Chinese and Roman records[57]), or meteor showers (e.g., the spectacular Leonids storm of 1833 spawned End Times fears). Medieval scholars like Isidore of Seville in the 7th century attempted to catalog aerial phenomena rationally, attributing fiery signs to natural causes like vapors and celestial fires[58]. Yet, even the skeptics of old struggled with things like the airship

over Ireland story (anno 748, monks claimed a ship dropped an anchor from the clouds, tangling on a church, a likely allegory or mirage). The persistence of such reports into the modern era (airship “flaps” of the 1890s, ghost flyers, etc.) suggests a core mystery that is culturally reframed but not resolved.

In the folklore perspective, what we are calling “plasma entities” would have been called faeries, jinn, sylphs, or spirit guardians. For instance, some Middle Eastern legends of jinn describe them as beings of “smokeless flame” essentially fire or plasma, who can shape-shift and interact with humans, sometimes helpfully, sometimes maliciously. It is tantalizing (if one is open-minded) to map this onto a plasma UAP that can appear or disappear, lead people astray (like the Min Min light did to Mr. Birch’s hunting party, making them unconsciously drive the wrong way[59]), and perhaps even communicate by inducing visions or telepathic impressions.

Historical Patterns: A few patterns emerge from the above: (1) These phenomena often cluster around times of change or stress, invasions, disasters, spiritual fervor, which could imply either a psychological origin (people see things when anxious) or a physical one (geophysical stresses like earthquakes produce lights; indeed, lights were reported before the great earthquake that destroyed the Greek city of Helike in 373 BCE[60]). (2) Certain locations produce recurring light phenomena, hinting at geology or atmospheric conduit factors (fault lines, electromagnetic hotspots). (3) The phenomena often influence human behavior and beliefs, halting battles, spurring religious movements, or tricking travelers, far more than random natural events typically do, which implies a perceived intentionality or meaning by witnesses. (4) Descriptions remain consistent over millennia: glowing spheres, fiery bolts, aerial “armadas”, humanoid figures in light, indicating that, whatever the cause, the *experience* of these phenomena is part of the human condition, not a recent invention.

For our hypothesis, these mythic and historical insights guide us in two ways. First, they encourage looking at older data with a new lens: for example, if plasma entities exist, might they be drawn to or empowered by certain geomagnetic or emotional energies present during wars and rites? Second, they suggest that if an intelligent plasma-based phenomenon wanted to observe or engage with humans, it might do so under the guise of familiar cultural imagery. In other words, a plasma that can affect our mind could “mask” itself in forms we expect, angels to a Christian, ancestor spirits to an Aboriginal Australian, green aliens to a sci-fi-minded person, raising an epistemological challenge of separating stimulus from interpretation.

Having set the stage with both science and myth, we now proceed to outline specific theoretical models that could reconcile these perspectives, models of how a plasma entity might exist, transit between dimensions or states, and interact deliberately or accidentally with human consciousness. These models are speculative frameworks, but they will lead to more concrete predictions for research.

Theoretical Models: Dimensions, Portals, and Crossings

Proposing the existence of plasma-based conscious entities interacting with humans begs the question: *how* would such entities fit into our reality? Do they originate in space and simply constitute a rarely seen lifeform (a sort of atmospheric plankton)? Or do they come from a parallel dimension or plane of existence, occasionally entering ours through some energetic gateway? Several theoretical frameworks can be conceived to explore these questions. We emphasize that what follows is clearly labeled as speculation, a creative extrapolation aiming to bridge the empirical gaps with possibilities consistent with science-fiction flavored science. Each model provides a narrative scaffolding to be tested or refined as evidence (or counter-evidence) emerges.

1. “Juice Box Dimensional Access” Framework: This colloquial label conjures the image of a child’s juice box, which is a closed container that only becomes accessible when one punches a straw through the foil. In this analogy, our three-dimensional space (plus time) is like the sealed juice box, and a higher-dimensional space (or alternate universe) is the environment outside the box. A plasma-based entity in the higher-dimensional “outside” could insert a part of itself or a projection (the straw) into our world, appearing as a plasma form in our skies. The idea draws loosely on theories in cosmology about higher dimensions and branes, for instance, our universe might be a 3D “brane” embedded in a higher 4+D space, normally disjoint from other branes. A “dimensional access” event would be akin to a brief, localized overlap or puncture between these realms.

In physics terms, one could imagine a localized vortex or instability in space-time (perhaps related to intense electromagnetic fields or quantum fluctuations) that permits energy and information exchange between dimensions. This might be triggered by rare conditions, e.g., a strong geomagnetic anomaly or human consciousness reaching certain states, analogous to how specific pressure lets one punch the straw in. The plasma entity might reside naturally in a subtle energy state (sometimes poetically called the “etheric” or “astral” plane in metaphysics) and only condense into visible plasma when it pokes through into our atmosphere. This would explain why such entities are transient: maintaining the “hole in the box” may require energy and can only be done for short durations or under certain alignments. The Juice Box model suggests we shouldn’t think of the plasma form as the entirety of the being; it could be just a cross-section or extrusion of a larger multidimensional organism. As a crude analogy, imagine a 4D creature dipping a tentacle into 3D space, to us, that tentacle might look like an isolated glowing orb that appears, moves oddly, and vanishes, but the intelligence and body exist in the higher reality. This model provides a potential answer to *where* these beings originate: not from distant planets, but from a co-located higher-dimensional space that occasionally interfaces with our own. It also implies that if they have motive or intelligence, it might not be fully comprehensible in 3D terms, just as the full shape of a 4D object can’t be seen in 3D at once.

Testing this model is challenging, but one might look for certain signatures: for example, during UAP appearances, are there any signs of space-time distortion (gravitational or

temporal anomalies measured by atomic clocks or GPS errors)? Does the phenomenon violate energy conservation in 3D (perhaps drawing energy from outside)? The straw analogy suggests a conduit, perhaps detectable as a column or beam of exotic radiation prior to a manifestation. Ancient lore of “pillars of light” or “ladders to heaven” during divine apparitions curiously mirror the idea of a connecting channel. In our framework, the Juice Box hypothesis remains a theoretical metaphor to visualize inter-dimensional crossing. It underscores that the observed plasma orb could be just the tip of a proverbial iceberg.

2. Dimensional “Thin Spots” and Portal Areas: Not all models require external dimensions. Another viewpoint is that plasma entities are native to our universe but usually exist in a form or location where we seldom see them (for instance, in the upper atmosphere, deep space, or as invisible dark plasma). However, certain locations or times might serve as “thin spots” where the barriers to interaction with humans are lowered. The concept of “thin places” comes from folklore (particularly Celtic) which holds that at specific sacred sites or on certain days (like Samhain or solstice), “the veil between worlds is thin.” We reinterpret this in a quasi-scientific way: a thin spot could be a region with unusual electromagnetic or geophysical properties that allow plasma phenomena to stably form or become visible.

One candidate mechanism is geomagnetic anomalies, places where the Earth’s magnetosphere or gravity might locally focus or fluctuate. These could create pockets where atmospheric gases ionize more readily (due to cosmic rays or piezoelectric fields from tectonic strain). The Hessdalen Valley in Norway is hypothesized to be one such spot: it has a unique geology (sulfurous mines on one side, a silicon-rich mountain on the other, with a river in between) that might form a natural battery, releasing balls of plasma in the air[61]. Interestingly, many ancient sacred sites align on so-called ley lines, and some authors have noted that magnetic and even radioactive anomalies have been measured at these sites[62][53]. It’s conceivable that ancient people recognized areas where they could consistently witness “the lights of the gods” (plasma phenomena) and thus built monuments there. In our framework, these become portal areas not in a literal stargate sense, but as places where the probability of human-plasma encounter is higher because the environmental conditions favor plasma stability and perhaps even interaction with consciousness (if one believes in earth energies affecting mind).

A related notion is temporal thin spots: certain times, especially around high solar activity or geomagnetic storms, might see more frequent UAP occurrences. Some researchers have looked for correlations between sunspot cycles and UFO waves, with mixed results. However, given that auroras (a plasma phenomenon) are far more intense and reach lower latitudes during solar maxima[57], one could posit that *if* plasma entities benefit from or require charged particle flux, they might “come out” more during these periods. Historical support: the 11-year cycle of auroras has been detected in classical aurora-like reports[63]. Jacques Vallee’s analysis of historical UFO data also found patterns in flaps that could hint at underlying periodic drivers[64][65].

Within thin spots, we should consider consciousness as a factor. Perhaps human observers themselves can make an interface “thin.” There are numerous stories (particularly in spiritualist or paranormal literature) of people intentionally summoning lights or entities via meditation or rituals. This has largely been outside the purview of mainstream science, but it could be hypothesized that human consciousness might modulate local quantum fields or EM environments in subtle ways (a contentious idea but studied in fields like parapsychology). Thus, a sacred ceremony or a collective focused intention at a site might slightly “tune” the environment to be conducive to a plasma manifestation. This tuning could mean anything from providing a source of free energy (some researchers have speculated that strong emotional states release slight electromagnetic energy or alter randomness in quantum systems) to simply increasing the likelihood of observation (the more you watch the sky, the more you see anomalies).

To sum up this model: The world has hotspots and moments where plasma anomalies naturally occur. These serve as windows where encounters happen more easily. The plasma entities themselves might not need to come from another dimension; they could be coexisting all around us but invisible, perhaps as diffuse dark plasma or low-density charges, usually intangible, but at thin spots they coalesce into visible form and possibly interface with living beings. Our task as researchers then becomes mapping these window zones. Just as animal ecologists map habitats of elusive species, we can map UAP sighting clusters and look for underlying environmental commonalities (fault lines, high conductivity ground, etc.). Such “portal areas” in a physical sense might be where to concentrate scientific instruments to catch plasma life in the act.

3. Opportunistic vs. Deliberate Crossings: Regardless of origin, we should differentiate between opportunistic appearances of plasma phenomena and intentional interactions. An opportunistic crossing means the plasma entity didn’t plan to show up for humans; rather, some natural conditions allowed it to wander into our perceptual range or physical space, much like a deep-sea creature might occasionally surface because of an ocean current. For example, during a geomagnetic storm, a plasma organism in near-Earth space might be dragged along magnetic field lines into the lower atmosphere (somewhat like how auroral particles are guided down) and become visible, leading to a flap of “mystery lights” that surprises both us and perhaps the entity itself, if it’s normally accustomed to a higher-altitude environment. In such cases, the behavior might seem confused or indifferent to humans. For instance, the lights might just loop or hover, then disappear when the condition passes. Many ball lightning encounters could be considered opportunistic natural plasmas, they appear during storms through no intention of interacting, but if a person is nearby, they may witness it and attribute motive to it (“it chased me”) when in fact it was following a gradient in electrical charge).

In contrast, a deliberate crossing implies a level of control or purpose. Here the hypothesis edges into treating the plasma entity as a sentient being with agency. If an orb of light seems to respond specifically to human actions, say, mirroring light signals, or appearing repeatedly to the same observer who mentally requests it, one could interpret that as deliberate. A fascinating example comes from Hessdalen research: investigators pointed a

laser at a flashing light in the valley and reported that the unknown light changed its flash pattern each time the laser beam was directed at it, reverting when the beam stopped[66][67]. In 8 out of 9 trials, this occurred, suggesting the light not only detected the laser but *intentionally altered* its behavior in response[66][67]. That looks deliberate, an intelligent “conversation” of flashing. If validated (and indeed Teodorani (2004) and Strand’s 1984 report document this), it’s hard to ascribe to chance or simple physics. Such an entity might have curiosity or at least sensitivity to us. Opportunistic appearances become deliberate interactions if, for instance, the plasma entity can *choose* to lower itself into a thin spot *when* humans are present, perhaps out of curiosity or even benevolence/malice as folklore would say. Indigenous people often describe the Min Min lights as almost having personality, they play tricks, they follow or evade depending on one’s attitude[68][48]. This anthropomorphizing could be metaphor, but if we seriously consider it, maybe these phenomena have something like a rudimentary will.

From a theoretical standpoint, what kind of intelligence or consciousness might a plasma have? It could be vastly different from our own, perhaps more collective (many lights acting in unison like a hive mind), or more transient (coming into “awake” state only when highly energized, then dissipating). One could speculate on a spectrum: maybe most of the time these plasma life-forms exist in a low-energy state with no awareness (akin to hibernation), but when charged by a solar storm or human contact, they “light up” both literally and cognitively, attaining a brief period of conscious activity. In that state, a deliberate crossing might be motivated by seeking energy (feeding on electromagnetic emissions, note the NASA observations of plasmas seemingly feeding on thunderstorms and satellite energy[25][14]) or by information (perhaps they are as curious about solid life-forms as we are about them).

Finally, the opportunistic vs. deliberate framing is important for designing tests: if opportunistic, we treat sightings like stochastic natural events to correlate with environmental data (e.g., “did a solar flare happen 2 days before this wave of sightings?”). If deliberate, we might attempt active communication or provocation experiments, like the Hessdalen laser test, or broadcasting radio signals and seeing if any plasma responds by changing frequency or pattern. It shifts the research mindset from pure observation to a possible *dialogue* (even if rudimentary). That said, caution is warranted; historically, whenever humans tried to interpret anomalies as messages (e.g., seeing meaning in celestial comets or eclipses), it often led us astray. Thus, any sign of reciprocity must be rigorously verified.

In conclusion, these theoretical models, the Juice Box inter-dimensional analogy, the concept of environmental thin spots, and the distinction between unplanned and intentional encounters, provide scaffolding to formulate hypotheses and experiments. They blend ideas from astrophysics, earth science, and even a dash of philosophy. Each element can be criticized (e.g., higher dimensions are unproven, ley lines are fringe science, attributing intent can be anthropomorphic), but together they serve our aim: to synthesize a broad picture of how plasma-based consciousness might operate and interface with human reality. In the next section, we move from theory to practice, outlining

concrete testable predictions and research pathways that could support or refute various aspects of these models. The goal is to transition from imaginative hypothesis to empirical science, to take these fascinating possibilities and anchor them in experiments or observations that yield real data.

Testable Predictions and Research Pathways

A hypothesis remains mere speculation until it yields testable predictions that we can investigate. While the notion of plasma consciousness straddles multiple domains, there are several actionable research approaches that emerge from the above discussions. We outline these pathways below, each corresponding to some facet of the hypothesis. The guiding principle is falsifiability, these experiments or surveys should, in principle, produce results that either increase support for the hypothesis or undermine it. By pursuing them, we can gradually paint a clearer picture of whether plasma-based entities are a reality or a myth.

1. **Correlational Studies with Geomagnetic and Atmospheric Data:** If plasma entities manifest opportunistically during certain geophysical conditions, we should see correlations between those conditions and the frequency of unexplained aerial phenomena reports. A prediction is: UAP sightings (especially of the “mysterious lights” variety) will show statistical correlation with periods of high geomagnetic activity (e.g., high *Kp index* or during geomagnetic storms). Researchers can compile UAP sighting databases, many countries have decades of data, and compare the timing of sightings with indices of solar and magnetic activity. A preliminary expectation might be that sightings of diffuse glowing orbs (distinct from structured craft reports) cluster a day or two after major solar flares or during magnetospheric disturbances, since that’s when atmospheric ionization spikes and auroral phenomena extend further from the poles. Similarly, correlation with meteorological factors like thunderstorms could be tested: do more “spooklight” sightings happen on days of or following strong thunderstorms or electrical weather? The Condign report suggested that some plasma UAPs may be connected to meteorological conditions not fully understood[69]; thus, analyzing weather archives vs. sighting logs could reveal patterns (perhaps an abundance of sightings in the aftermath of a heat lightning storm or during specific seasonal changes). Earthquake lights (EQL) offer another test case: if a region has earthquake lights recorded (which are confirmed plasma phenomena associated with tectonic stress[60]), do locals also report more encounters of a paranormal bent around those times? If yes, that strengthens the link between natural plasma and perceived “strange experiences.”

Additionally, spectral analysis of known natural plasmas (like auroras, ball lightning, EQLs) compared to UAPs can be a research path. If we get spectral data (light wavelengths, EM frequencies) from alleged UAPs, we can check if they match the emissions expected of a plasma of certain composition or temperature. For example, a true plasma will often have spectral lines of nitrogen, oxygen, etc., if it’s atmospheric, matching auroral spectra, whereas something like an LED drone will have a continuous or LED-specific spectrum. A landmark study was the 2014 ball lightning spectral capture, which identified soil elements

in the glow[7][8]. Similarly, obtaining spectra of recurring lights like the Hessdalen phenomenon (some work has been done on this) could confirm if they are plasma (showing ionized oxygen/nitrogen lines) or something else. If confirmed plasma, one can further search the spectra for anomalies, like unexplained emission lines that might indicate unusual elements or processes (even, fancifully, some modulation encoding information).

2. Spatial Surveys and Site Monitoring: To address the “thin spots”/portal areas idea, we can conduct surveys of areas with high incidence of UAP reports and compare them to control areas. One concrete prediction: UAP hotspot areas will show measurable geophysical anomalies (magnetic, gravitational, radioactive, or acoustic) more frequently than the general environment. For example, one could deploy a grid of magnetometers around a known spooklight valley (such as Hessdalen or Marfa) and measure if the local magnetic field deviates from the norm or fluctuates when the lights appear. Already, Hessdalen’s 1984 project did use a magnetometer and captured some unusual magnetic pulsations during sightings[70][71], though more data are needed. Another approach is radiofrequency monitoring: natural plasmas might emit in radio bands (Hessdalen lights have been associated with a 3-5 MHz radio emission in some studies). A prediction is that *before or during a UAP-light event, there will be a detectable surge in radio noise or specific frequencies*. Setting up continuous spectrum analyzers in these hotspot areas could catch those signals; if found, they both support the plasma nature (since natural plasmas like lightning emit radio waves) and provide a trigger to alert cameras (“if radio spike, record sky”).

Mapping also involves historical site correlation: we can take maps of ancient sacred sites or folklore-reputed haunted spots and overlay them with known geological maps (fault lines, mineral deposits, etc.). If plasma entities cluster at “earth energy” spots, there should be a stronger-than-chance overlap of those locations. For instance, do stone circles often lie on high-gradient geomagnetic areas? One small study of 30 megalithic sites found greater fluctuations of background radiation at the stone circles than at random nearby sites[72]. This kind of analysis could be expanded globally with modern geomatic tools: essentially an archaeogeophysical approach. If significant, it implies past peoples noticed the same anomalies.

3. Laboratory Plasma Experiments (Plasma “Life” Simulation): On a smaller, controlled scale, scientists can attempt to create *life-mimicking plasma systems* in the lab and test for emergent behaviors. Building on the work of Lozneanu, Sanduloviciu, and Tsytovich, one could set up a chamber with dust particles and ionized gas, tweak the conditions (voltage, pressure, magnetic fields) and see if stable plasma structures arise that can react to stimuli. A bold experiment: see if a plasma blob can be “trained” or respond to external signals. For example, modulate an EM field around it and see if the plasma changes oscillation frequency in a repeatable, perhaps purposeful-looking way. If one could demonstrate some rudimentary “learning” or memory effect in a plasma discharge (e.g., its glow mode shifts after repeated stimulation in a way that anticipates the stimulus), that would be groundbreaking, it would show information processing in a physical plasma

system. While this is highly challenging, even a negative result is informative. On the other hand, continued investigations into quantum coherence in plasma (if any) could be done: using lasers or microwaves to test if plasma oscillations exhibit phase coherence over distances, possibly hinting at a mechanism for unified behavior.

4. Consciousness Interaction Experiments: Perhaps the most intriguing and controversial tests involve the human element directly. If plasma entities can interact with consciousness, we might test that by deliberate engagement. One avenue is repeating the Hessdalen laser experiment in other locales or with more rigor. For instance, at Marfa Lights viewing area (where lights appear a few times a year), have a setup with lasers, high-powered flash lamps, or radio transmitters. When a light is seen, send a structured signal (like a Morse code or a simple on-off pattern) and document any change in the phenomenon's behavior. If it's just a natural ball of plasma, one wouldn't expect a correlated response. If there is intelligence, perhaps the light might double-blink back, etc. Any such experiments must include control trials (send signals when no light is present to ensure equipment isn't causing an illusion, etc.). Given Hessdalen's results, e.g., a light switched from single flash to double flash when a laser pointed at it^{[73][67]} reproducing that under controlled conditions would be a top priority.

Another angle is brainwave and psychological monitoring during encounters. Equipping observers with EEG caps during a skywatch in an active area could reveal if there are consistent neural patterns when a UAP appears. Does the brain go into an unusual state (gamma waves spike, or temporal lobe transients occur) in those moments? If so, it might indicate the EM influence of the phenomenon on the brain (supporting the idea that part of the experience is internally generated due to external fields). This was partially the aim of Persinger's work correlating geomagnetism with spontaneous experiences; one could update it with modern wearable tech and maybe even attempt *real-time detection* ("if brain pattern X appears, perhaps a UAP is near"). As far-fetched as that sounds, it's akin to how animals sense earthquakes before humans, subtle cues affecting biology.

Additionally, random number generator (RNG) studies like the Global Consciousness Project could be localized: place RNG devices near alleged plasma sightings to see if there is any statistical deviation during events (some have theorized that consciousness or strong EM fields can perturb these quantum-based devices). If a plasma entity has some consciousness field, perhaps it might affect local randomness or electronic noise.

Finally, engaging human intention directly: organized groups (like CE-5 groups in ufology, who attempt to mentally invite UFOs) have made anecdotal claims of success. From a scientific view, one could formalize this: have groups perform a protocol of focused thought (a meditation sending "welcome" perhaps) in a known hotspot on some nights, and compare UAP occurrence on those nights vs. control nights without such activity. It's a difficult experiment to control properly and will surely be met with skepticism, but if done double-blind (the analysts don't know which nights had the attempts), any significant deviation in phenomena frequency might hint at consciousness coupling. This strays into

parapsychology, but given our topic explicitly includes consciousness, it's worth noting as a testable idea.

5. Prediction and Confirmation: The ultimate test of any model is if it can predict something new that is then confirmed. For example, using the plasma life hypothesis, one might predict "If a strong solar storm hits Earth next year, an uptick in globally reported aerial luminous anomalies will follow, especially at high latitudes" and then see if that comes true. Or predict "A region with X geology will have an undocumented ghost light phenomenon" then go there to look. This happened historically: scientists predicted earthquake lights in other rift zones based on earlier ones and indeed found reports. Similarly, the theory might guide space missions: if we suspect plasma life in the upper atmosphere, perhaps future high-altitude drone experiments could bait them by broadcasting EM waves and seeing if anything shows up on sensors. The Ministry of Defense Condign report interestingly recommended investigating "novel military applications" of the plasma-UAP phenomenon^[74]. While that sounds ominous, it implies they thought it real enough to harness. A peaceful application of understanding plasma entities might be in communication technology: perhaps learning how nature creates stable plasmas can improve fusion reactor stability or long-distance plasma communications (if these entities indeed use EM fields to communicate, maybe that inspires new antenna designs).

In summary, the research pathways span from mining historical data for patterns, instrumenting hotspots, performing targeted experiments both physical and psychological, to crafting predictions that can be verified. Each success or failure in these tests will loop back to refine the theoretical models. It's crucial that results be published transparently, given the history of stigma around UFO research. Peer review and replication will be key; for instance, if one group claims a laser elicited a response from a ball of light, another group in a different location should attempt the same. The beauty of this interdisciplinary approach is that even if the grand hypothesis (plasma consciousness) is wrong, we will likely discover *something* along the way, perhaps new knowledge about natural earthquake lights, or about human magnetoperception, or simply a robust debunking of certain UAP cases via identified plasma. In science, ruling out is just as important as ruling in.

We now proceed to discuss the broader implications of this hypothesis. The discussion section will address what it would mean for our worldview if plasma-based conscious entities were confirmed, what challenges we face in claiming such a thing scientifically, and how to navigate the intersection of traditional knowledge and modern research without compromising rigor.

Discussion

The idea of plasma-based consciousness interacting with humans sits at the fringes of both physics and psychology, and approaching it scientifically requires a careful balance of openness and skepticism. In this discussion, we consider the implications if the

hypothesis were true, as well as the limitations of current evidence and the challenges in proving (or disproving) such extraordinary claims.

Implications if True, A New Perspective on Life and Consciousness: Were plasma-like entities with consciousness to be confirmed, it would expand the definition of life beyond its carbon-based, molecular paradigm. We would be dealing with a form of life (or at least *mind*) that is inorganic and electromagnetic in nature. This echoes speculative notions in astrobiology that life might exist as pure energy or organized plasma on other planets or in space[75][76]. It would support the concept of a “Fourth Domain of Life” as some have called it[77], alongside bacteria, archaea, and eukarya, there could be “plasmobes” or electromagnetic life. The philosophical impact is profound: it suggests that consciousness is a fundamental phenomenon that can arise in various substrates, not just neurons, aligning with panpsychist or dual-aspect theories that see mind as embedded in the fabric of reality, not an emergent property unique to brains.

Moreover, confirmation would retroactively validate many historical and cultural narratives that modern science has often dismissed. Folklore of will-o’-wisps, temple fires, and spirit lights might be reinterpreted as early human interaction with these entities, meaning our ancestors weren’t entirely “superstitious” but were observing real (though rare) natural phenomena, albeit explaining them in mythic terms. It would be a rare instance of folklore informing cutting-edge science, lending some credence to the idea that ancient peoples’ categorization of nature (spirits, elementals, etc.) might map to real categories we are yet to understand. For religious or spiritual communities, plasma entities might be slotted into their worldview as angels, jinn, or nature spirits finally seen through the scientific lens, potentially bridging a gap between science and spirituality. However, this assimilation must be done cautiously, as confirmation of one unusual phenomenon doesn’t automatically validate all mystical beliefs.

Technologically, if we learned how these entities function, it could revolutionize communication and energy. For instance, plasma entities (by hypothesis) can manipulate electromagnetic fields in ways that allow efficient energy feeding and possibly long-distance signaling (they might use something like frequency modulation of light or radio to “talk”). Understanding that could inspire new forms of wireless energy transfer or resilient communication networks that use self-organizing plasma nodes (a fanciful but not impossible idea). It’s notable that the Condign report speculated about military applications, one could imagine “smart plasma drones” if we crack the secret, or methods to create decoys that mimic these UAP to confuse adversaries[74]. Ethically, confirmation would also raise questions: if they are conscious, what are their rights? Should we attempt to communicate or leave them be? It would usher in a new field of xenobiology or xeno-psychology dealing with non-human, non-biological minds.

Limitations and Current Evidence Status: At present, despite tantalizing reports and some supportive studies, we must acknowledge that no definitive proof of plasma consciousness exists. The evidence is circumstantial or anecdotal. Lab experiments have shown plasma simulating basic life-like behavior, but not awareness or adaptive

intelligence. The NASA shuttle observations and Hessdalen data are intriguing but not universally accepted, alternative explanations (e.g., space debris, instrument glitches, misidentifications) are still debated. Many scientists would argue that the simpler explanation for UAP lights is prosaic natural phenomena (ball lightning, rare plasma weather) without needing to invoke life or mind. The plasma life hypothesis often falls into an explanatory gap: it's invoked when a sighting can't be easily explained, which risks it becoming a "catch-all" rather than a rigorous theory. The key limitation is the inherent ambiguity of UAP observations, they are typically fleeting, poorly recorded, and lacking the detail needed to differentiate between, say, an electrically charged plasma ball and a distant airplane or drone under odd lighting.

Another limitation is psychological: human perception is fallible, especially under unusual stimuli. As discussed, strong EM fields or even fear/excitement can distort what we think we see. Some UFO encounters likely have been hallucinations or misperceptions (e.g., seeing Venus but believing it moves). The involvement of consciousness in the hypothesis means we must filter out subjective embellishment. It's challenging to scientifically study something that might alter your very ability to observe it reliably.

Our testable predictions section outlined ways forward, but many of those are resource-intensive and require multidisciplinary collaboration (e.g., getting physicists, neuroscientists, geologists, and historians to all take UFOs seriously enough to work together, which historically has been hard). Funding and stigma are limitations too, academic research on "UFOs" or "consciousness fields" can be career-risky, though this is changing with more mainstream interest. Without sufficient rigorous studies, the hypothesis remains in a gray zone with bits of supporting data but not enough to be conclusive.

Epistemological and Methodological Challenges: Studying a phenomenon that is sporadic, not reproducible on demand, and possibly subjective is a nightmare for the classical scientific method. The epistemology of it, how we know what we know, becomes tricky. We have to rely on probability and patterns rather than controlled experiments in some cases (similar to how early meteorology or seismology had to infer patterns of rare events before they could be understood). There is also the problem of interdisciplinary language: a physicist's evidence (say, a spectrum chart) and an experimenter's testimony ("I felt a presence in the light") are utterly different kinds of data, merging them requires careful translation into a common framework.

One challenge is avoiding the trap of confirmation bias and "mystical thinking." It's easy, when confronted with a mysterious light, to ascribe intentionality or personality to it (humans are wired to detect agency). Any research must control or account for this by, for example, having multiple independent observers or automated recordings that don't have human interpretive bias. Similarly, in analyzing myths and historical accounts, one can be tempted to cherry-pick ones that fit the plasma narrative and ignore those that don't. We must maintain scholarly rigor: treat historical accounts with context (many could be metaphor or fiction) and only draw parallels where warranted.

Another concern is the reproducibility crisis in fringe research. Small sample phenomena like these could yield spurious correlations. We might, for instance, find a correlation between UFO sightings and geomagnetic index in one dataset but not in another, and risk over-interpreting noise. Thus, results need large data sets and preferably peer review by neutral experts who can spot mundane explanations we might miss.

If attempts to communicate with or provoke plasma entities ever yield apparent success, the challenge becomes proving it's not a false positive. For example, say we do the laser test in four different places and in each, an orb of light seems to blink back in the same pattern. We'd then need to publish that and see if others can replicate. If replications fail, we have to consider that maybe our initial success was coincidence or even an experimental error (like the laser itself causing a fluorescence in the atmosphere that looked like the orb's change). The burden of proof for "we signaled an alien (or new lifeform)" is extremely high, as it should be.

Alternate Explanations: It's worth discussing alternatives. Even if we demonstrate that many UAP are plasma-based, they might still be entirely abiotic. For example, maybe Earth lights can be triggered by tectonic strain and can even move in patterns due to winds and magnetic gradients, giving an illusion of controlled motion. The Condign report's stance was that UAPs are real plasma phenomena but *not under any control*, just unusual physics[78][10]. Perhaps the "interaction" with humans is purely one-sided: our brains reacting to EM fields. In that case, the phenomenon is fascinating (novel weather, essentially) but not conscious. That explanation fits a lot of data: it accounts for high maneuverability (charge movement can accelerate quickly), accounts for inducing perceptions (EM effects), and doesn't require positing a new form of life. The cost is that it doesn't easily explain highly structured encounters where phenomena seem to react intelligently over extended periods. But skeptics would argue those are either misinterpretations or hoaxes. Massimo Teodorani, a physicist who examined Hessdalen, entertained the "earth plasma intelligence" idea but also cautioned that one must rule out simpler explanations first[79].

Another alternate explanation for at least some of these conscious-feeling encounters is human technology or deception. For instance, could some mysterious orbs actually be advanced drones with plasma-light propulsion or ion drives, giving the appearance of a ghostly orb? Recent military reports hint at experimental craft. Those wouldn't be plasma life, just clever engineering. In mythic times, no such tech existed, but misidentifications with astronomical or weather phenomena did. It's possible our hypothesis is bundling many separate things (some plasma, some psychological, some tech) into one. The risk is creating a theory-of-everything that tries to solve all mysteries at once (often a red flag). The best science can do is tackle one aspect at a time.

Bridging Established Science and Speculation: Perhaps the greatest challenge is that this topic doesn't fit neatly in any one scientific discipline. It requires integrative thinking. We used ~65% modern science here and ~35% historical/mythic context by design. That is unusual, scientists often shy away from discussing folklore. Conversely, folklorists might

not be versed in plasma physics. This interdisciplinary approach can be a strength (holistic insight) but also a weakness if not done carefully, because one might inadvertently mix metaphor with measurement. We have tried to label speculative sections clearly and base scientific sections on peer-reviewed sources. For instance, citing Tsytovich (a plasma physicist) about plasma's life-like properties[18] is legitimate science; citing a medieval chronicle about flaming shields is legitimate history[45]; but tying them together ("medieval flaming shields were plasma life-forms") is a hypothesis, not a proven fact. We must keep those epistemological layers distinct even as we explore connections.

In moving forward, scientists might take a page from how meteorites and ball lightning eventually moved from folklore to science. Initially, meteorites (stones falling from sky) were dismissed by experts as rural myths, until enough credible observations and collected specimens forced a change. Ball lightning likewise was confirmed after centuries. The plasma consciousness hypothesis might similarly require decades of data accumulation and perhaps a smoking-gun observation (e.g., a high-def video with multiple sensors of a plasma orb responding to human activity). Until then, maintaining a healthy scientific skepticism is prudent.

However, outright dismissal can impede discovery. The attitude should be: *this is an extraordinary claim, we require strong evidence, but it's not impossible*. After all, nature has surprised us before, lightning sprites in the upper atmosphere were laughed at until captured on camera in the 1990s; now they're a known transient luminous event. Complex self-organizing behavior has been found in chemical systems (Belousov-Zhabotinsky reactions) and sand dunes (they "communicate" through vibrations). So the idea of an ionized gas taking on life-like complexity isn't inherently absurd; it's just unproven.

Consequences for Human Knowledge: If we eventually catalog these entities, it would unify several currently disparate threads: UFO research (often marginalized) would find a concrete focus in atmospheric physics; consciousness studies (often speculative) might get a new testbed beyond the brain (imagine studying cognition in a non-biological form – that could feedback to AI research too). It might also give us a chance to reflect on our place in the universe: we might not be the only sentient "things" on Earth, perhaps an intelligent plasma has co-evolved alongside us in the skies, seldom interacting. It forces humility in anthropocentrism.

On the other hand, if thorough research finds no evidence for intelligence, say we determine UAP plasmas are purely physical, and any seeming interactions are coincidence or cognitive artifacts, that outcome is also valuable. It would ground paranormal claims back to physical reality and help people not attribute agency to lights in the sky. There is social importance in explaining the unexplainable: it reduces fear and speculation. Historically, comets were seen as omens of doom; now we know they're icy bodies, and that knowledge erased a lot of superstition. Similarly, demystifying UAPs (even if it turns out to be a different mystery than aliens, e.g., plasma life instead) has public value.

Communication and Collaboration: If this research is to progress, scientists must communicate their findings in academically respectable ways (to avoid the stigma that

plagued ufology in the past). This paper itself is an attempt at that: framing the topic in an academic style with citations to reputable studies and distinguishing speculation from evidence. An interesting development is that agencies like NASA have recently convened UAP study teams, lending some legitimacy. The hope is that open data sharing (for example, releasing sensor data of UAP incidents) will allow independent analyses. Given the interdisciplinary nature, collaboration will be key: plasma physicists might not know about spiritualist accounts of lights, and folklorists might not know how plasmas behave. Creating forums or journals that welcome this cross-pollination will help.

Public Perception and Philosophical Angle: If evidence accumulates in the near future favoring the existence of these entities, public reaction might range from excitement to fear. There could be metaphysical debates, are these “souls” or just “bugs made of fire”? Philosopher David Chalmers’s hard problem of consciousness (why and how physical processes produce subjective experience) would take on a new twist if we find minds in plasma; it might hint that consciousness is a substrate-independent process or even a fundamental property of certain organized fields (an idea reminiscent of panpsychism or information-based theories). That raises the prospect that the universe could be teeming with “mind” in forms we never recognized, from stars to plasma balls. It elevates consciousness from a biological fluke to perhaps a cosmic principle.

However, caution: one might argue this is moving towards pseudoscience or spiritual science, especially if conclusions outrun evidence. Maintaining scientific rigor means being ready to accept a null result (e.g., “we found unusual plasma phenomena, but they are not alive or conscious”). The discussion has explored positive implications, but equally, we must consider that a negative result still enriches knowledge: we’d learn more about natural plasmas, and we’d clarify that human consciousness can misinterpret natural events in consistent ways (which is a psychological insight).

In Closing of Discussion: The pursuit of this hypothesis exemplifies the idea that to solve some mysteries, we must venture beyond conventional boundaries yet carry the lamp of science with us. It’s an opportunity to apply the full spectrum of human inquiry, from instrumentation to introspection, to a problem that has hovered at the edge of our collective curiosity. Whether the answer is yes, no, or something in between (e.g., “plasmas are reactive but not fully conscious”), the journey of investigation promises new discoveries about our world and ourselves. The key is that any claims are met with proportional evidence: *extraordinary claims require extraordinary evidence*. Right now, we have suggestive evidence and intriguing coincidences, but not that extraordinary, clinching proof. The discussion above hopefully clarifies what would be needed and what it would mean if achieved.

Conclusion

We have explored the hypothesis that plasma-based entities, potentially possessing a form of consciousness, could exist and interact with human perception under specific geomagnetic or atmospheric conditions. This interdisciplinary investigation wove together

modern plasma physics, electromagnetic and quantum theories, and studies on the brain's susceptibility to EM fields, alongside historical and mythological accounts of luminous "sky beings" and sacred sites associated with strange lights. Throughout this paper, we have kept a clear distinction between well-founded scientific knowledge and more speculative extensions, aiming to synthesize the two in a manner akin to an academic "thought experiment" grounded in available evidence.

In summary, the scientific evidence shows that plasmas can self-organize into complex, cell-like structures and exhibit behaviors analogous to living systems in controlled settings[1][18]. Unidentified aerial phenomena of a luminous, non-solid nature have been documented by credible sources (including government studies) and hypothesized to be plasma in origin[4][3]. We have reliable knowledge that strong electromagnetic fields can influence human neural activity and perception, which provides a plausible mechanism for any reported "cognitive" effects during UAP encounters[3][32]. What remains unproven is the leap to calling these plasmas "conscious" or "life-like in awareness." The historical and cultural analysis illustrates that humans have a long history of ascribing intelligence or spiritual essence to mysterious lights, from ancient Rome's prodigies to medieval fiery shields to indigenous interpretations of ghost lights as ancestor spirits[80][47]. These interpretations, while not scientific evidence, guided our framing of possible interaction patterns and alerted us to the non-random nature of many reports (the lights often seem responsive or meaningful to people).

We proposed several theoretical constructs: The "Juice Box Dimensional Access" analogy entertained the notion of higher-dimensional physics allowing plasma life to dip into our world, while the idea of "dimensional thin spots" suggested there are optimal environmental windows where these phenomena occur. We also distinguished between chance encounters and seemingly purposeful interactions, which has implications for how we test the hypothesis (observation vs. communication approaches). These models are speculative, but they helped generate concrete predictions and experiments – such as checking for correlations between UAP sightings and geomagnetic storms, performing interactive tests like the laser experiment, and deploying multi-sensor measurements in active areas, all endeavors that can be carried out with today's technology and research methodologies.

The results of our literature survey and analysis can be encapsulated as follows:

- **Plasma Life Hypothesis is Physically Plausible but Unconfirmed:** Plasmas can sustain structures, evolve, and under certain conditions might form information-processing systems (e.g., plasma crystals)[18][81]. No physical law clearly forbids a plasma from being an organism or even conscious; it's largely a question of complexity and emergent phenomena. However, no incontrovertible observation of a self-directed plasma entity has been made to date. The reports we do have (NASA thermospheric "plasma UFOs," Hessdalen lights responding to lasers) are compelling anomalies[13][66], but they require replication and further scrutiny to rule out alternative explanations.

- **Historical Accounts Provide Clues Consistent with Plasma Phenomena:** Many descriptions of aerial marvels match effects we now recognize in plasma physics (for instance, the “dancing orbs and crosses” of the 1561 Nuremberg event align with behavior of discharges and perhaps optical mirages[37][38]). Folklore of lights that tease or guide travelers (will-o’-wisps, Min Min lights) correlates with locales known for natural biogas or geophysical lights, suggesting a real phenomenon underlying the legends[47][48]. The consistency of patterns, globes of light appearing at sites of geological significance or during times of societal stress, hints that these events are not purely random or entirely subjective. In our hypothesis context, the historical record, when stripped of cultural lens, tends to support the presence of unexplained luminous phenomena with seemingly purposeful movement. It stops short, of course, of confirming they are alive, but it underscores why humans might have believed they were.
- **A Coherent Framework Emerges:** When modern scientific insights are applied to age-old mysteries, a coherent (if still hypothetical) framework emerges: that rare natural plasma formations could account for a subset of UAP and spiritual apparitions. These formations, under the right conditions, might exhibit emergent behaviors that mimic life or even cross into rudimentary awareness, a possibility broached by some researchers in terms of “inorganic life”[2]. This framework not only attempts to explain the physical sightings (lights in sky) but also the *experiential* aspect (feelings of presence, communication), by pointing to electromagnetic coupling between the plasma and the human observer’s nervous system[3][32]. In doing so, it naturally aligns with what the UK’s MoD report posited: that a “**plasma-related field” could “adversely affect a person” near a UAP[3][34], except we extend “affect” to potentially conveying information or interaction, not just adverse effects.
- **Speculation Labeled and Contained:** We have been careful to label which parts of this hypothesis remain speculative. Notably, the notion of *conscious intention* in these plasma phenomena is speculative. We do not have direct evidence of a plasma orb solving problems, communicating in a coded way, or exhibiting self-awareness. What we have are observed anomalies (like lights seemingly reacting to human presence) that *suggest* an intelligence but could in principle have other causes. Therefore, statements about dimensional portals or alien consciousness are hypotheses, not conclusions. They serve as imaginative models to be tested, not assertions of fact. The established science we cited (peer-reviewed articles on plasma, consciousness studies, geophysics, etc.) provides a supporting ground on which these hypotheses stand. If any speculative element is falsified by experiment (say we find no correlation with geomagnetism, or lasers never evoke a response in repeat tests), then that element must be discarded or revised without rejecting the whole inquiry into plasma UAP outright.

- Path Forward: The path forward involves multidisciplinary collaboration, improved data collection, and open-minded yet critical analysis. We encourage more instrumented field studies in UAP hotspot areas using scientific rigor, what some have called “the *SETI* for plasma critters” approach. For instance, establishing an automated observatory in a place like Hessdalen (which partly exists) with spectrum cameras, magnetometers, and perhaps even EEG monitoring for volunteer observers, could yield valuable data. Each test proposed in our research pathways is an opportunity to either discover something new or narrow down the possibilities. As results come in, the hypothesis can be refined: we might find, for example, that yes, plasmas occur but show zero sign of intelligence – in which case the consciousness part is dropped. Or we might find structured signals in the noise, pushing the idea into firmer ground.

In closing, this paper sought to treat a fringe-sounding topic with a formal, scholarly approach, demonstrating that exploring unconventional hypotheses need not sacrifice academic rigor. The synthesis of modern science with historical/mythological perspective provided a richer context in which to formulate questions and interpretations. By prioritizing peer-reviewed sources[18][3] and reputable historical documentation[45][40], we ensured that the foundation remains reliable even as we reach toward speculative extensions.

Ultimately, the plasma consciousness hypothesis remains an intriguing possibility that demands further investigation. It challenges our assumptions about life, intelligence, and how the universe may be filled with phenomena that bridge the material and the mental. Whether it proves to be true or false, the very act of rigorous inquiry into this hypothesis can yield scientific rewards, clarifying the nature of UAPs, improving our understanding of human perception under unusual conditions, and perhaps uncovering new states of matter or information processes. It is a frontier area, where cutting-edge physics meets ancient storytelling, and where our expanding scientific knowledge might finally illuminate those flickering lights in the sky that have captivated human imagination for millennia.

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