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Part I:
PHILOSOPHY OF THE COSMOS

Celestial (Be)Longing: A Case for Scientific Interest in Humankind's Yearning for, and Potential Origins in, the Heavens

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Throughout history and across cultures, human beings have fashioned myths involving some kind of interstellar or somehow "otherworldly" contact. These range from visitations from elsewhere in the cosmos, to humanity itself having a celestial origin. Until recently, these narratives have largely been interpreted as imaginative fictions of some form, such as a creative origin story, with the possibility of these actually having some historical truth being generally dismissed. This interpretation is influenced by an epistemological assumption that an "extraordinary" (e.g., extraterrestrial) visitation from some form of "Non-Human Intelligence" (NHI) is a priori highly unlikely, which until recently has been the scientific consensus. However, developments over recent years have led to such assumptions being re-thought. As such, this paper argues these early celestial myths may be worth revisiting with an open mind. Ultimately, the key question may not only be who "they" are (i.e., rumored NHI), but who "we" are (i.e., humans), and relatedly, where did we come from, why are we here, and where are we going?

Keywords: interstellar; extraterrestrial; myth; humanity; origins

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Introduction

This speculative thought piece is a work of independent scholarship that pertains to the authors' own interests, and is not associated with or endorsed by the institutions with which they are affiliated. Virtually every human culture has myths telling of humanity's ancestral link to the stars — from early peoples receiving gifts and wisdom from non-Earthly gods or spirits, to our species itself actually having a celestial origin. Over the past century, authors such as Charles Fort (1919), Erich von Däniken (1968), and Zecharia Sitchin (1995), among others, have proposed that these myths may have some basis in truth, and might even reflect memories of encounters with interstellar visitors.[1] Relatedly, contemporary scholars of religion like Pasulka

[1] It is instructive to read to von Däniken's account of how he arrived at his thesis, as recounted in the Forward to the 50th anniversary edition of his landmark book on this topic (von Däniken, 2018). Essentially, as a theological student studying texts like the Old Testament, he struggled to reconcile the descriptions of the appearances and actions of God and other divine beings (e.g., angels) with the qualities he believed these agents should possess (e.g., omnipresence and omnipotence). Eventually, he concluded that these texts make more sense if they are actually descriptions of encounters with extraterrestrial agents, but which, seen through ancient eyes, and elaborated upon in the retelling and memorializing, instead assumed a religious interpretation and tone (e.g., construing the "visitors" as divinities).

> Here is the story: I come from a deeply Catholic family in Switzerland, and my father considered it important that I receive a theologically-based education. Thus, when I was sixteen, he placed me in … a boarding school run by Jesuits. My view of God at that time was rather grandiose, but also unclear – and remains so to this day. Yet, God – who or what that actually was – at least had to be empowered with certain minimal characteristics. The true God had to be free of mistakes; God cannot do anything wrong. He had to be omnipresent and would not need a vehicle that would take him from point A to point B … During the theology courses, we had to translate texts in the Bible, quite often from old Greek or Latin into German. And that is when the misery began. The God in the Old

(2019) have begun to take seriously the experiences of people, both past and present, who claim contact with NHI entities, and to view historical narratives of religious encounters with fresh eyes as potential genuine interactions with non-earthly beings. Indeed, the subtitle of Pasulka's (2026) forthcoming book describes these entities — "The Others" — as "secret forces guiding human destiny." Similar ideas have been expressed by the likes of author Peter Levenda, who has described modern civilization as a "cargo cult" built around trying to make sense of these encounters.[2] Speculative hypothesizing along such lines has sometimes been called the "ancient alien" explanation, as vividly but contentiously explored on the long-running TV program of that same name. However, this label, together with the somewhat sensationalist nature of the program, has led to skepticism and even ridicule for any more serious, scholarly attempts to examine these types of questions (Hiscock, 2012). As such, we prefer to use a different label, namely the "ancient celestial encounter" (ACE) hypothesis, partly to avoid the stigma and baggage associated with the ancient alien nomenclature, but more importantly because even to use the term "alien" is already to presuppose the origin and nature of such encounters.

After all, even if humanity *has* historically been visited by forms of NHI, an extraterrestrial origin — a civilized biological species from a habitable planet elsewhere in the cosmos — is only one possibility. Scholars have speculated about the viability of other explanations for these encounters, sometimes referred to collectively as "ultraterrestrial hypotheses" (Puthoff, 2022).[3]

> Testament used vehicles for his earthly visits. These were often described as "smoke, fire, quakes, noise." "Fallen angels" or "Sons of God" descended from heaven to engage in sex with beautiful human daughters – as described in Genesis or the First Book of Moses. The biblical God performed experiments without knowing the outcome, and, even worse, he often erred … What kind of God is that? Doubts about my own religion began to plague me, and I wanted to know whether stories about God in other cultures were similar to our Judeo-Christian beliefs. For many years, I delved deeply into the story of creation within other religions. And, lo and behold, among the Indians, the Tibetans, the Egyptians, the Inca, the Maya, and the Aztecs, all gods descended from the vaults of heaven via smoke, fire, quakes, and noise. This, then, was the hour of birth for Chariots of the Gods. (pp.vii-viii).

[2] Levenda is well-known for his collaboration with Tom Delonge, with whom he has co-authored the Sekret Machines series, a collection of science fiction and non-fiction works pertaining to the UAP topic. Delonge is a prominent musician who has been closely connected to the topic over recent years, having collaborated with figures within the intelligence community who are pushing for disclosure to help advance their agenda and bring awareness of the phenomenon to the wider public (Taylor, 2021; Aniftos, 2020). Levenda for his part is an author with close ties to the intelligence community, as briefly covered in a recent interview with Jesse Michels (2025m), where he is described as a historian of the CIA. Regarding the cargo cult notion, this is a concept that appeared in 1945 at the end of the Pacific War, and while it can refer to various phenomena, in the present context refers to the apparent response by tribes on some of the small Pacific islands to the construction of air bases by outside military forces, especially the arrival of cargo planes bringing supplies such as medicine (Lindstrom, 2018). After the war, some tribes reportedly attempted to recreate the circumstances of the planes' arrival — e.g., building landing strips and reenacting the behaviors by military personnel on the ground — in the hopes this would actually produce the arrival of more such planes. In Volume 1 ("Gods") of Sekret Machines: Gods, Man, and War (DeLonge & Levenda, 2017), this notion is applied more broadly to UAP and to civilization itself. Levenda elucidated the notion to Michels as follows: "This this is how civilization began … Our origins are as a cargo cult … our concept in starting this project was that our entire society is a cargo cult because everything we're trying to do to, longevity to live forever to travel to the stars, has its roots in something extraterrestrial, has its roots in these stories we tell about the gods who came to visit us."

[3] The "ultraterrestrial" hypothesis denotes a broad category of conjecture centered around the possibility that UAP may involve forms of NHI that co-exist alongside humans in Earth's environment in some sense, which Puthoff (2022) describes as "sequestered terrestrial cultures … existing alongside us in

These include, for instance, the idea that NHI may be "interdimensional" or "extradimensional" beings, inhabiting or originating from other dimensions of spacetime outside the four that humans perceive (Lomas, 2023c). A related hypothesis, proposed by Madden (2023), is that NHI do not necessarily originate or inhabit other dimensions, but are nevertheless usually outside our *Umwelt* (i.e., our perceptual horizons) in some way, and so constitute *Uber-Umwelt* phenomena.[4] This line of thought also intersects with theology, given that one way to interpret the accounts of the world's religions is in terms of forms of NHI — interpreted as sacred and labelled as God, gods, or other divinities (e.g., angels) — hailing from other "dimensions"

distinct stealth." One possibility is an "interdimensional" or "extradimensional" hypothesis, which suggests UAP may involve beings from dimensions that coexist alongside the four dimensions of spacetime we usually perceive (Lomas, 2023c). A related notion connects UAP to the panoply of aethereal entities identified by the world's myriad religious traditions, such as the class of beings known in the contemporary West as angels (Lomas & Case, 2023b), which could be referred to as "sacraterrestrials" or "aetherrestrials." Another possibility is that UAP occupants are "extratempestrial," travelling through the fourth dimension to visit different periods of Earth's history, which may include our descendants returning to study their own hominin evolutionary past (Masters, 2019, 2022). Yet another option is the "cryptoterrestrial" hypothesis, which holds that UAP may reflect activities of NHIs concealed here on Earth (e.g., underground) and its environs (Lomas et al., 2024). Or a further complication is that an NHI may combine several of these categories (e.g., travelling back through time but also then concealing themselves underground).

Moreover, there are many potential hypotheses, especially when one makes fine-grained distinctions between different versions of explanations. Consider for example a taxonomy created by Retired Colonel Karl Nell (2023), who served alongside the whistleblower David Grusch in the UAP Task Force — as discussed below in the main text — and who has notably corroborated Grusch's allegations, saying, "His assertion concerning the existence of a terrestrial arms race occurring sub-rosa over the past 80 years focused on reverse engineering technologies of unknown origin is fundamentally correct" (von Rennenkampff, 2023). At a conference convened in November 2023 by the Sol foundation — which "brings together experts from academia and government to address the philosophical, policy, and scientific problems raised by the likely presence on the Earth of UAP" — he gave a presentation that featured a slide containing a detailed taxonomy of possible UAP/NHI explanations, involving 72 different hypotheses organized into 14 categories. These include 20 that he categorizes as "ultraterrestrial", which he defined as "any sentient lifeform regardless of ultimate origin that has resided on Earth or in its environs — under/land, under/sea, aero/space — for significant duration in a semi-permanent (albeit covert) status excluding humans from modern day civilization and their known antecedents." However, we might suggest that his definition of ultraterrestrial, and the 20 hypotheses he selects for this, arguably better fits the cryptoterrestrial hypothesis specifically. Then, many of his other hypotheses could be construed within an ultraterrestrial hypothesis more broadly, along the lines of the more expansive definition offered by Puthoff (2022).

[4] Human beings, like all animals, tend to be aware only of the small aspect of reality that, (a) is pertinent to our existence, and (b) we have the capacity and the technology to perceive. Essentially, our horizons are limited to our *Umwelt*, a term coined by German biologist Von Uexküll (1928) to describe the world experienced by a particular organism. This does not merely mean its surrounding environment, for two key reasons. First, only certain aspects of the surroundings are relevant and perceptible to the organism. Second, the organism is not merely passively influenced by its environment, but actively shapes it. Thus, the *Umwelt* is "all aspects of the world that have an effect on the agent [reason 1] and can be affected by the agent [reason 2]" (Ay & Löhr, 2015, p.105). Although initially used in ethology to describe animal perception and behaviour, more recently the idea has also been extended to humans, such as work on "embodied cognition." Crucially, our *Umwelt* is limited and partial, in three main ways: dimensionally, temporally, and spatially. In each, we only access a narrow portion of the relevant bandwidths, certainly vis-à-vis other animals, and even more so in absolute terms (in the context of all possible perceptual stimuli). Of course, technology — from the telescope to the microscope — has expanded our *Umwelt*. However, even then, our perceptual horizons are still limited in vital ways, even just compared to other animals.

(e.g., heavenly realms) and engaging with humanity (Peters, 2014). Whatever the possibilities though, all effectively constitute variants or subsets of the ACE hypothesis, which one could differentiate using suitable prefixes, like E-ACE (extraterrestrial), D-ACE (divine), I-ACE (interdimensional), and so on. Of course, these labels are imperfect human constructions, and beg the question of what it *means* for a phenomenon to be divine versus interdimensional, or human versus alien, etc.; nevertheless, these will need to suffice as labels to get the conversation started.

Whatever the range of possible interpretations for potential ACEs, science has tended to disavow any interest in these, treating them essentially as taboo, or at least "none of its business" (Richter, 2012). With regard to the latter, any religiously inflected explanation has generally been walled off inside the boundaries of theology, treated as mainly the preserve of theologians and religious thinkers, with scientists maintaining a mostly respectful distance, generally adhering to Gould's (1997) injunction for science and religion to function as separate "nonoverlapping magisteria." Moving more into the realm of taboo, explanations that invoke ideas such as "interdimensional" entities have tended to be dismissed as "paranormal," with their study relegated to fringe fields such as parapsychology (Lomas, 2024a). Relatedly, anything hinting at an extraterrestrial "ancient alien" motif has usually been dismissed using pejoratives such as "pseudoarchaeology" (Schiele & Schiele, 2022) or a "conspiracy theory" (Turner & Turner, 2021).

In fairness, numerous figures associated with the "ancient alien" thesis are intellectually speculative, notably in their credulity toward often flimsy or dubious data. Relatedly, it has been argued that some discourse along these lines seems inflected with racist ideas, especially narratives suggesting certain technologies are "too advanced" for particular cultures to have developed on their own, particularly since such claims are rarely made about European artefacts (Bond, 2018; Masters, 2021). Such implications are definitely not an *intrinsic* feature of work in this area, however, and — to be absolutely clear — are most definitely *not* something we would want to insinuate. Quite the opposite: one might counter that the tendency to dismiss ACE myths as mere creative fictions, rather than valid historical data, itself reflects a degree of prejudice towards the people who created them, implying that earlier cultures were not capable of, or interested in, maintaining accurate records of the past. In that light, one could argue that taking such myths seriously gives greater credit, respect, and agency to the cultures that authored them (Kripal, 2024).[5] There is thus an increasing openness to taking myth seriously as a historical record, as for example encouraged by Matthew Brown

[5] This point was recently made by Giorgio Tsoukalos (2024), producer and presenter on Ancient Aliens, in response to criticism from prominent skeptic Michael Shermer that "Your weekly "theory" that inhabitants around the world were too stupid & primitive to have built their monumental architecture is degrading, not to mention pure codswallop." In reply, Tsoukalos wrote:

> The earliest and most ancient cultures all speak of having received help from above by the so-called gods who imparted their knowledge to them … By you suggesting that these stories are only fantasy you, in fact, are the one belittling and degrading our ancestors' intelligence by saying they didn't know what the heck they were talking about … Anyone who says that our ancestors only come up with these stories "in order to explain away their place in nature" (which is an often used explanation for the earliest creation stories that read like sci-fi), then I'd like to gently remind everyone that our ancestors lived in and with nature more than any of us modern people ever have. They knew "nature"! And lucky for all of us today, they were intelligent enough to distinguish actual natural events from what they clearly distinguished as something out of the ordinary, not found in nature. That is why they wrote it down in the first place. BECAUSE what they witnessed was not "nature." Yet here you are belittling and degrading our ancestors that they fantasized about

(2025), a UAP whistleblower who came out publicly in 2025 (Corbell & Knapp, 2025b). With respect to "written and oral traditions typically classified by modern historiography as myth or folklore," he argued that rather than "treating these records as symbolic or allegorical by default," one should "approach them as observational data produced by human witnesses operating without modern scientific lexicon, but nevertheless embedded in real environments, modes of being, and ecological systems," and moreover he offers methodological examples of how this might be done to shed light on the UAP/NHI arena.[6]

More generally though, arguably the main reason such myths have not been taken seriously is the widespread assumption in academia that ideas of extraterrestrial (or indeed ultraterrestrial) visitations are *a priori* impossible, or at least exceedingly unlikely (Yingling et al., 2023). This has been the scientific consensus since the Condon (1969) report, established by the US Air Force to investigate the waves of UFO sightings over prior decades (Roos, 2020). It declared that these were most likely prosaic in origin, and moreover were of no scientific interest, writing, "Our general conclusion is that nothing has come from the study of UFOs in the past 21 years that has added to scientific knowledge." This was then endorsed by the scientific establishment, such as the National Academy of Sciences (Clemence et al., 1969). The result, as astronomer J. Allen Hynek put it, was "the coup de grace to the UFO era. Science had spoken. UFOs didn't exist, and the thousands of people who had reported strange sightings … could all be discounted as deluded, hoaxers, or mentally unbalanced" (cited in Coulthart, 2021, p.66).[7]

Thereafter, the general notion of extraterrestrial engagement was dismissed from mainstream science and relegated to the category of the paranormal (Bader et al., 2011; Lomas, 2024a). Significantly, this is still largely the case, at least until the last few years.

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someone helping them long ago, because they couldn't figure out a thunderstorm. Who exactly is degrading whom here? It am not me, buddy. Enough.

[6] As Brown (2025) writes:

When the depth and breadth of global mythological and folkloric records, many of which remain un-digitized or unexamined, are considered alongside the capabilities of contemporary data analytics and large language models, the discovery space expands dramatically. What has historically been dismissed as imaginary will, under disciplined methods, become a frontier dataset. This effort does not attempt to resolve what anomalous intelligences *are* at this stage. Instead, it demonstrates how one might begin to study them rigorously, and use that knowledge to drive field expeditions and laboratory experimentation. For an initial demonstration of this new methodological framework, the choice of data is critical. We are guided by prior knowledge and experience to select "The Nart Sagas of the Caucasus", compiled and translated authoritatively into English by John Colarusso. This compilation of folk tales, drawn directly from the oral and written traditions of the peoples of the Caucasus, presents a desirable convergence of qualities suited to early taxonomic work. First, the corpus is internally consistent yet regionally diverse, drawing from Circassian, Abkhaz, Abaza, and Ubykh traditions – as well as more minor ethnic groupings in the region. Second, it exhibits repeated, structured descriptions of intelligent non-human entities across multiple narratives, rather than isolated anomalies. Third, the sagas preserve ecological, behavioral, and morphological detail sufficient to support trait-based data encoding and comparison. Finally, the corpus is geographically, temporally, and linguistically bounded, allowing data injections from foreign sources to be more easily identified. For these reasons, the Nart Sagas provide an ideal dataset for demonstrating how cultural records may be transformed into structured observational data suitable for taxonomic description and comparison.

[7] See the evaluations of the immediate post-Bluebook era in UFOlogy, Hynek's (1972) The UFO Experience: A Scientific Inquiry (1972) and his later work, *The Edge of Reality: A Progress Report on Unidentified Flying Objects* (Hynek & Vallée, 1975).

Despite a wealth of intriguing evidence pertaining to UFOs — now commonly referred to as Unidentified Anomalous Phenomena (UAP) — the topic is still frequently subject to dismissal and ridicule, as exemplified in a recent article in Scientific American (Kloor, 2023), titled "How wealthy UFO fans helped fuel fringe beliefs: There is a long U.S. legacy of plutocrat-funded pseudoscience. Congress just embraced it." This is the broader epistemological context in which scholars have been appraising the "ancient alien" theory, leading to labels like pseudoarchaeology. It is, however, worth asking whether this skeptical framing of potential historical NHI engagement is still valid.

In this article then we make a case for scientific interest in, and openness to, at least the *possibility* of historical NHI encounters, over several sections. To set the discussion in context, the paper begins by presenting a snapshot of current knowledge and discourse regarding UAP/NHI, making a case that recent revelations mean we may need to rethink our assumptions around these topics. Relatedly, we then consider the limits to historical knowledge, and raise the possibility of interpreting myth as "embellished history." From there we explore the main varieties of myth worldwide, especially those which appear to be linked to celestial interest: connections, visitations, gifts, input, and origins of humanity. The paper then concludes with two sections that hint at reality being potentially even stranger than the idea of extraterrestrial engagement from elsewhere in the cosmos, such as the apparent physical universe being an idealistic construction or simulation. In each section, our primary concern is the myths themselves, although we augment this with some more modern evidence which, while not validating the myths per se, provides some additional supporting context.

Rethinking assumptions

In terms of reconsidering our habitual rejection of ACE hypotheses, for a start, it is increasingly recognized that despite the vastness of space, interstellar travel *is* feasible, and certainly for civilizations more advanced than humans are at present (Lomas, 2024b).[8] Indeed,

[8] Interstellar travel is increasingly recognized as a viable possibility (Lomas, 2024b). Consider that our nearest stars, Alpha Centauri A and B, are 4.35 light years away. Using our current fastest existing means of travel — Gravity Assist, which harnesses the relative movement and gravity of planets to accelerate a craft, this being the method the Voyager 1 probe used to attain its current velocity of 60,000 km/hr — it would take 76,000 years to reach these stars (Williams, 2016). Crucially though, these calculations are only based on human beings' current technological capacities, which are almost certainly relatively limited and liable to be radically revised in future. Even now, proposals for exponentially faster methods have begun to receive experimental testing. For example, an aerospace company (Pulsar Fusion) has begun construction of a nuclear fusion rocket engine — due for completion in 2027 — that is predicted to create exhaust speeds of over 500,000 MPH; if then the technology is developed further to allow this engine to be contained and harnessed within a space vehicle itself, this would greatly reduce travel times (e.g., enabling Mars to be reached within 30 days)(Sampson, 2023). Moreover, even faster methods are being developed. For example, NASA suggests a "laser sail" — ultrathin mirrors driven by focused energy beams — measuring about 965 km in diameter could accelerate to half the speed of light in less than a decade, thus arriving at Alpha Centauri in under nine years. Work on such ideas is already underway, including "Project Starshot," which plans to send a small sensory package to Alpha Centauri at 1/5 the speed of light, meaning it may arrive within 30 years (Parkin, 2018).

Furthermore, even if such technologies are currently beyond our capacity, they may not be beyond that of other intelligent beings. Humankind has reached such possibilities being in its grasp after mere centuries of scientific development over recent millennia. Imagine what a civilization could be capable of after several thousand years of scientific progress, let alone longer time spans. People have wondered, for example, whether it may be theoretically possible to exploit "wormholes" to take a "short cut" through

2025 saw considerable intrigue around an interstellar object known as 3I/ATLAS, detected entering our solar system earlier in the year, which some people, including Harvard's Avi Loeb (2025c) — director of the Galileo Project, which is systematically searching for "extraterrestrial technological artifacts" — suggested may not be a comet but instead a manufactured craft. Although the consensus seems to be that it *is* a natural comet, Loeb argues that its apparently unusual qualities mean that one should at least be *open* to other possibilities.[9]

Furthermore, there is burgeoning attention to the possibility that earth may *actually* have already been visited by entities from elsewhere. Although the issue of UAP has generally been downplayed by authorities since the 1960s, this began to change in 2017 — particularly in a US context — when footage of three perplexing US military encounters with UAP were published online, bringing the topic to wider attention, especially following a *New York Times* article on military investigations into such events (Cooper et al., 2017). The military angle was especially notable. Prior to that point, although there had been many public sightings of UAP — with the Mutual UFO Network (MUFON) receiving over 200,000 since its founding in 1969 (Mellon, 2022) — such reports generally tended to be dismissed, attributed to perceptual or cognitive error, or to hallucination, delusion, and fraud. Military reports, however, are regarded as more

space (Emparan et al., 2021). Moreover, even if an interstellar voyage did take thousands of years, while obviously impossible for biological organisms as we understand them, it would be doable if hibernation or procreation could be maintained aboard the vessel. It would most certainly be feasible if craft were piloted instead by AI systems or robots. To that point, Loeb suggests craft being piloted by AI is indeed the most likely scenario if some UAPs really were extraterrestrial in origin (Loeb & Kirkpatrick, 2023).

[9] Loeb is of the position that three potential extraterrestrial artifacts may have already actually visited the Solar System in recent years: 1I/Oumuamua, 2I/Borisov; and 3I/ATLAS. The first was Oumuamua — a Hawaiian term roughly meaning "scout" — which passed through our galaxy in 2017 (Bialy & Loeb, 2018). This seemingly had numerous properties that "defied easy natural explanation" (Billings, 2021), including being shaped like a 100-meter-long cigar, being at least 10 times more reflective than typical space rocks (suggesting "the gleam of burnished metal"), and, after passing by the sun, accelerating faster than could be explained by the star's waning gravitational grip alone, and without emitting evaporating gases as comets do. To Loeb, the most likely hypothesis that fits all these data is that the object is a laser sail, perhaps "a derelict from some long-expired galactic culture" – though other scientists have disputed this conclusion (Wright et al., 2023). Even more recently though, in 2025 another interstellar interloper, dubbed 3I/ATLAS, was detected entering our Solar System. While most likely a comet, Loeb initially suggested, as "largely a pedagogical exercise," that its "various anomalous characteristics" — such as its projected path approaching "surprisingly close to Venus, Mars and Jupiter, with a probability of $\lesssim 0.005\%$" — mean there is a slight possibility "this object could be technological, and possibly hostile" (Hibberd et al., 2025). Moreover, other apparently anomalous details have since emerged regarding 3I/ATLAS, each of which alone Loeb (2025c) argues merits the Hebrew word "Dayenu" — meaning "It would have been enough" — to suggest that the object is very unusual. Then, when all considered together, these might collectively seem to raise the plausibility of the object not being a natural comet but instead potentially manufactured. These include the observations that 3I/ATLAS: (1) has a sunward jet or anti-tail; (2) is a million times more massive than 1I/Oumuamua and a thousand times more massive than 2I/Borisov, while moving much faster than both; (3) is aligned in its trajectory within 5 degrees with the ecliptic plane of the planets around the Sun; (4) has a fine-tuned arrival time, so that it passes within tens of millions of kilometers from Mars, Venus and Jupiter; (5) shows a gas plume with nickel but no iron (as found in industrially-produced nickel alloys) and a nickel to cyanide ratio that is orders of magnitude larger than all known comets, including 2I/Borisov; (6) shows a gas plume with only 4% water by mass, while comet experts forecasted that it is water rich; (8) shows extreme negative polarization, unprecedented for all known comets, including 2I/Borisov; and (8) arrived from a direction coincident with the "Wow! Signal" to within 9 degrees.

credible for many reasons, including involving observers who excel in occupations requiring the highest skill and training in visual perception and processing (Lomas, O'Malley, et al., 2025). Perhaps even more significantly, the recent military observations appear to also be triangulated with and supported by other information sources (e.g., radar).

As a result, authorities began to take a more public and open stance regarding the issue. In April 2020 the Department of Defense (2020) confirmed the footage was genuine, and soon after established a UAP Task Force (Office of the Director of National Intelligence, 2021) to investigate such incidents, which has since been replaced by the All-Domain Anomalous Research Office (AARO). Strikingly, AARO has indicated that a minority of reports to seem genuinely extraordinary (i.e., difficult to attribute to conventional explanations).[10] Moreover, many critics suspect AARO has been following the pattern set by its predecessors like Project Blue Book, deliberately downplaying the topic and concealing or at least obfuscating the extraordinary nature of many UAP-related events (Mellon, 2024).[11] But if so, it is even more noteworthy that even AARO has indicated that some UAP may be genuinely extraordinary.[12] Similarly, while much of the work of the UAPTF and AARO is still classified, and more generally the UAP topic is characterized by complex secrecy-related information dynamics (Lomas, Masters, et al., 2025), comments from other key government figures indicate the possibility of some UAP being truly extraordinary — e.g., extraterrestrial in origin — is being taken increasingly seriously.[13]

[10] In its latest report in November 2024, AARO (2024) stated that it has studied 1652 reports in total, with the report itself covering 757 (485 occurring during the latest reporting period of May 1, 2023 to June 1, 2024, and 272 not included in previous annual reports). Of these 757, 49 cases were resolved as prosaic objects (e.g., balloons), with a further 243 cases recommended for closure (pending peer review), and 444 cases lacking sufficient data to facilitate analysis and placed in an active archive. Most intriguingly though, 21 cases were deemed to merit further analysis by AARO's intelligence community and science and technology partners. Strikingly, these include three reports involving "pilots being trailed or shadowed by UAP," which notably "AARO has no indication or confirmation that these activities are attributable to foreign adversaries."

[11] Critics have accused AARO of deliberately downplaying the extraordinary nature of some evidence. Boswell (2022) reports a source in the Office of the Director of National Intelligence saying, "They're patting themselves on the back that they've resolved over half of them… But we don't give a crap about the ones they've resolved. Yeah, there's balloons up there, and balloons are sometimes mistaken for UAP. But there are s***loads of classified videos that are pretty profound and pretty clear. They don't want to talk about this stuff, because they really, really don't know what the hell they are."

[12] In May 2023, for example, Dr Kirkpatrick, then-director of AARO, said that while he suspected most events did have conventional explanations, and only remained unidentified through lack of good data, around 2-5% were "possibly really anomalous" (Wendling, 2023). Similarly, in a briefing at the Pentagon on November 14, 2024, to accompany the latest report, AARO's new director, Jon Kosloski, said, "we're focusing on the truly anomalous where we don't understand the activity," noting that "there are interesting cases that I — with my physics and engineering background and time in the [intelligence community] — I do not understand and I don't know anybody else who understands" (Vincent, 2024). Providing a little more detail/context, in an interview with PBS NewsHour (2025) in May 2025, Kosloski said that of the "little over 1,800 cases" that AARO current has in its holdings, about 2% have "sufficient scientific evidence that we can conduct a thorough investigation and after that investigation still remain anomalous." For such cases, he suggested they "send it off to our scientific and intelligence partners for a very thorough analysis that generally takes on the order of months, and sometimes we don't even close those cases, we have to sort of keep them on the shelf always looking for additional data to enrich them because the phenomenon are so perplexing."

[13] Recent years have seen a slew of eyebrow-raising comments from senior officials connected to the US government, perhaps most prominently Barack Obama, who said in 2021, "There's footage and

Even more extraordinarily, the summer of 2023 saw remarkable public allegations by an intelligence community whistleblower, David Grusch, that the US government, together with private aerospace companies, had for decades maintained a secret UAP "crash retrieval" and "reverse engineering" program dating back to a UAP crash in Magenta, Italy in 1933 that had been "illegally withheld from Congress" (Kean & Blumenthal, 2023). While at the time of writing there still is no way of knowing the validity of his allegations, the Intelligence Community Inspector General deemed his complaint "credible and urgent." Also consequentially, Marco Rubio, at the time Senator and Vice Chairman of the Senate Select Committee on Intelligence, and in 2025 appointed Secretary of State and also National Security Advisor in the new Trump administration, said in 2023 that "many" other whistleblowers had subsequently testified to his committee to corroborate Grusch's claims (News Nation, 2023), including people with "firsthand knowledge" of such programs, some of whom are "public figures", and most of whom hold/held "very high clearances and high positions within our government." Indeed, numerous people with relevant expertise and security clearances have publicly vouched for his allegations.[14] Likewise, other significant figures have also seemingly

records of objects in the skies that we don't know exactly what they are. We can't explain how they moved, their trajectory. They did not have an easily explainable pattern" (cited in Von Rennenkampff, 2021). Similarly, John Ratcliffe, former Director of National Intelligence and in 2025 appointed Director of the CIA, said in 2021 "we are talking about objects that have been seen by Navy or Air Force pilots, or have been picked up by satellite imagery, that frankly engage in actions that are difficult to explain, movements that are hard to replicate, that we don't have the technology for" (cited in Lewis-Kraus, 2021). Similarly, in August 2023, General Mark Milley, then Chairman of the Joint Chiefs of Staff, said the military "can explain a lot of it [i.e., UAP], but there is some that's really kind of weird and unexplainable" (cited in Wolfgang, 2023). So too former White House National Security Advisor, retired Lieutenant General H. R. McMaster, who said in September 2024, "There are phenomena that have been witnessed by multiple people that are just inexplicable by any kind of science available to us" (McHardy, 2024). Likewise, in November 2024, Senator Kirsten Gillibrand, then one of just six senators on both the Intelligence and Armed Services committees, said of at least some UAP: "We don't know whose they are. We don't know what propulsion they use. We don't know the tech … It's not off the shelf stuff… This is a body of stuff nobody knows what it is" (Laslo, 2024).

[14] Among the figures vouching for Grusch is Retired Army Colonel Karl Nell, as noted above in Footnote 7. At a public talk in May 2024, Nell was even more unequivocal, stating, "So, non-human intelligence exists, non-human intelligence has been interacting with humanity. This interaction is not new, and it's been ongoing, and unelected people in the government are aware of that" (Sharp, 2024). Asked how confident he was with the statement, he responded, "There's zero doubt." Similarly, Retired Admiral Tim Gallaudet (2024a), former head of the National Oceanic and Atmospheric Administration — the federal agency tasked with monitoring oceanic and atmospheric conditions — said in an interview: "I am totally convinced that we're experiencing a non-human, higher intelligence. I am completely convinced because I know the people who were in the government programs, the Legacy programs, that oversaw both the crash retrieval and just the analysis of UAP data. And I'm very confident in these people - former intelligence, former DOD - and we are working as a team, behind the scenes, to advance disclosure." Moreover, when asked, "Is there a chance some of that we're seeing is adversarial?," i.e., involving other nation states, Gallaudet (2024b) said, "No, I don't think so. I've been read in to all the threats. I had a high clearance, Top Secret - Special Compartmented Information (TS-SCI), and I know that our adversaries don't have technologies like these." Relatedly, Gallaudet also spoke in support of the idea of there being multiple NHI species — as mentioned below in the main text — saying "I know — from people I trust who have had access to some of these programmes — that different types of non-human intelligence are visiting us, and we still don't understand their intentions" (Sharp, 2024).

corroborated some of his points, without necessarily directly vouching for Grusch himself.[15]

[15] One key figure, for instance, is Dr. James Lacatski, a rocket scientist and former Defense Intelligence Agency intelligence officer who led a secret US program investigating UAP from 2008-2010 — the Advanced Aerospace Weapons System Application Program — published a book that states "the United States was in possession of a craft of unknown origin" (Lacatski et al., 2023). Notably, the book was cleared for release by the Pentagon, which Jeremy Corbell asked about on his Weaponized podcast (Corbell & Knapp, 2023): "You told us, because you were allowed to tell us, that our government has a UFO in its possession and had been able to access the inside of it, right?," to which Lacatski replied, "Yes, I was allowed to tell you." Elaborating further in a more recent interview (Corbell & Knapp, 2025c), Lacatski was asked by Knapp about who could be responsible for the UAP phenomenon; Knapp queried "Can we say they're not human?", to which Lacatski said, "Oh! We can be pretty well sure we're not dealing with humans." Another notable revelation was posted on X by Christopher Mellon (2024), former Deputy Assistant Secretary of Defense for Intelligence in the Clinton and George W. Bush administrations, who is closely connected to the UAP topic; sharing a screenshot of text communication with someone seemingly involved with UAP crash retrievals, the exchange indicated that a UAP had been recovered from a relatively famous 1953 "UFO crash" near Kingman, Arizona.

Another key person is Dr. Harald Malmgren (2024), who reportedly served as an advisor to Presidents Kennedy, Johnson, Nixon and Ford. He said in 2024 that that Richard Bissell (CIA Deputy Director for Plans from 1959 to 1962), had briefed him on "otherworld technologies," and in a subsequent interview with Michels (2025f) elaborated that these included the 1933 Italian crash, which was purportedly transferred into the possession of the US in the mid-1940s. In his interview with Michels, Dr Malmgren spoke about being briefed by Bissel in the early 1960s, who said to him "This [the UAP topic] is real." Asked by Michels what else Bissel had said on the issue, Malmgren described him as saying "this didn't start last week," and reported that Bissel "mentioned 1933 magenta," the Italian UAP crash discussed by Grusch, saying, "You need to know the background. How did it end up that Truman [US President from 1945 to 1953] transferred that object from Italy." In the podcast episode featuring the interview, Michels summarized the allegations about the Magenta crash, including as follows:

> According to multiple accounts … a disc-like object measuring roughly 10 to 12 meters in diameter came down near Magenta in Lombardi Italy in June of 1933 … Under Bonito Mussolini's fascist regime, a total media blackout was imposed throughout the Stefani news agency … Despite the censorship a special investigative body known as Gabonetto or RS33 formed to study the craft, with high level figures, such as Mussolini, Air Marshal Italo Balo, and Nobel Laurate and radio pioneer Marconi, believed to have been involved [and indeed Michels (2025o) later said that Marconi's grandson, who Michels had just interviewed for an upcoming podcast episode, had attested to the veracity of Marconi's involvement]. Testimonies suggest that the downed craft and possibly two recovered bodies were taken to the SI Marchetti private aerospace hangers for intensive analysis … In the late 1930s Pope Pius XI became aware of the Magenta retrieval, reportedly fearing that any recovered technology might fall into Nazi hands once Italy allied with Germany. Through discrete channels the Pope quietly informed the Allies about the craft's existence and storage location ... By 1945 the Americans had reportedly transferred the Italian UFO … [back to the US] for further study.

Equally notably, Malmgren said that he had personally handled a piece of debris from an apparent "downed" UAP. The claim pertains to a series of high-altitude nuclear tests conducted over the Pacific in 1962, known as the "Fishbowl" series (Department of Energy, 2000), and specifically Bluegill Triple Prime (on October 26), which detonated at just over 48 kilometres. Most relevantly, footage of this test seems to show an object tumbling out of the nuclear fireball (Cruikshank, 2024), an interpretation which Malmgren corroborated, saying that the test "appeared to knock down this device," which he and colleagues colloquially called a "tag-along." Even more strikingly, Michels reported that Malmgrem had said to people (including his daughter Pippa Malmgrem) that he had been told by Bissel that the very *point* of the Bluegill exercise was, in Michel's words, "an attempt to down a UFO," since the military already thought that they could "bait UFOs with nukes and destabilize their flight paths with EMPs

Other key figures have also made some startling claims on the topic, including even in relation to the possibility of multiple NHI species.[16] There have further been claims that the US government has long deliberated about releasing information on the topic to the public, with some suggestions that this kind of "disclosure" may now be happening, as for instance extensively showcased in a recent documentary called The Age of Disclosure (Farah, 2025).[17]

[electro-magnetic pulses]." Yet more remarkably, the Navy reportedly retrieved the object (or pieces of it) and took it to Los Alamos. Subsequently, Malmgren said he was called to Los Alamos for a briefing, in which he was handed a piece of the material to touch. Also notably, a few weeks later, both John F. Kennedy and Lyndon B. Johnson went to Los Alamos in person. Asked about the reason for their visit, Malmgren said, "It was about the tag-along. That's what they wanted to know about." As if all that wasn't astonishing enough, Malmgren told his daughter Pippa — just a few hours before he very sadly passed away, only a couple of weeks after the interview — that the authorities had apparently got the idea, as Michels phrases it, of "shooting down UFOs with directed energy from an extraterrestrial being that survived the Roswell crash" in July 1947, and moreover that later in his career Malmgren actually "saw the video of this creature being interviewed."

[16] Such figures include Eric Davis, for example, a theoretical a physicist who is allegedly connected to the rumored crash retrieval and reverse engineering programs (Wendorf, 2019), who reportedly said in a briefing to members of Congress in May 2025 that there are at least four different NHI "species" (Harloff, 2025). Even more notably perhaps, Rep. Eric Burlison (2025), who is part of the Congressional "UAP caucus," and recently took on Grusch as an advisor, publicly shared some details about these species, apparently provided by Davis, in an X "space," and even indicated that President Trump had been briefed along these lines towards the end of his first term. Burlison reported hearing that one such species, for instance, known as "Nordics," are allegedly only "a few hundred years more advanced than we are" but even more significantly have been "experimenting with cross-breeding with humans." While the notion of multiple species is a common narrative in UAP discourse — with some observers even speculating that these are "rival factions" with varying agendas regarding humans, some benevolent, some not (Sharp, 2025a) — it is striking to hear this discussed publicly by people like Davis and Burlison.

[17] The Age of Disclosure, directed/produced by Dan Farah (2025), features a bipartisan group of 34 senior members of the US government, military, and intelligence services discussing the UAP issue, including for example Marco Rubio (at the time of filming Senate Intelligence Committee Vice Chair, and now Secretary of State as well as National Security Advisor). It features numerous startling allegations, such as claims by Eric Davis, mentioned above, that he had spoken several times about the topic with the 41st President George H. W. Bush, in which Bush allegedly said that when he became the CIA director in the Ford administration "he was not briefed on the legacy UAP crash retrieval program," but that he later found out about it. Moreover, when Bush asked for more details about a particular event at Holloman Air Force Base in 1964 — in which three UAP allegedly not only approached but one "landed on the tarmac and a non-human entity deboarded the craft that landed and interacted with uniformed Air Force and civilian CIA personnel" — he was told "he did not have a need to know." As to the significance of the documentary, renowned UAP historian Richard Dolan — in his podcast with Bryce Zabel (Zabel & Dolan, 2025) — pondered whether the release represents "a carefully curated official narrative" or instead "the first real cracks in a very old, very deep system of secrecy," and said he interpreted it as the latter, suggesting that there has long been, a "factional battle" between people opposed to disclosure (the "Legacy Program") and those in favour of it, at least in some partial and controlled form (including apparently people in the documentary). In terms of potential deliberations around disclosure, Hal Puthoff — a physicist with long-standing ties to the topic and the intelligence community — shared that he had been part of a panel organized by the George W. Bush administration in the early 2000s, involving people from intelligence agencies and the military, concerned with weighing the pros and cons of disclosure, in which they "came up with a list of 64 areas that really would be impacted to some significant degree by such a disclosure," and that when they "added up all the numbers it looks like this would be kind of a bad idea." Even more recently, Jay Stratton, first director of the UAP

The point is, whatever the ultimate nature of the UAP studied by the UAP Task Force, AARO, and other such programs, or the allegations by Grusch and others, there is the strong possibility that we may need to revisit our assumptions regarding the likelihood of humanity having had ACEs in the past. If that happens, we might similarly need to re-appraise the myths that allude to such encounters. Until recently, such myths have been interpreted in various ways, ranging from works of playful imagination to vehicles for conveying ethical teachings. One interpretation which is rarely given the attention or credence it arguably merits however — other than in niche disciplines like geomythology (Burbery, 2021) — is that these narratives may contain some historical record of *actual* events, however embellished their recording may have become over time. Given the epistemological framework that has dominated in the scientific community for the past half century — that genuine NHI-related UAP are extremely unlikely, even impossible, so any apparent UAP must have a prosaic explanation — this bias is understandable. But given recent events, and remarkable new evidence that has come to light, it may be time to rethink our "priors" and reconsider hypotheses that were previously off the table.

Such a re-evaluation would be in line with indications from people in positions of knowledge and authority that this phenomenon may have had a presence throughout, and even a role in, in our own history on this planet. Timothy Phillips (2025) for example, former Acting Director of AARO, recently said "This been going on for the existence of mankind and was referenced to extraordinary things in the Bible." Even more explicitly, Christopher Mellon (2025), introduced above in Footnote 19, recently said, "there is a growing body of evidence that at least one alien civilization has found Earth and is monitoring us and perhaps even seeking to influence the trajectory of our development."[18] While these ideas have of

Task Force, said that after he was appointed in 2020, "everyone in authority was paying attention to the topic." This apparently included then Secretary of the Treasury, Steven Mnuchin, who requested a briefing, at the end of which Mnuchin reportedly said that the reason he had asked for the briefing was because he was wondering, "What are the economic impacts of the president going to the microphone and telling the world we're not alone. I have to think about those kinds of impacts in order to prepare if the president were to make that move."

[18] Other prominent examples include investigative journalist Ross Coulthart (2023b) — who helped break the Grusch allegations — who said he has "a hunch from tips that have been dropped to me [by sources in the intelligence community] that our origins are probably because of those NHIs … and that a lot of our pre-history is better explained if you take into the account the idea that there has been an NHI presence on this planet for much of human evolution and history." So too Garry Nolan (2025) — an immunologist with an endowed chair at Stanford, who has for the past decade been involved in UAP research (Nolan et al., 2022) — who said that "if something (i.e., NHI) is here, it's likely been here longer than humans have even been civilized … Something that I think Charles Fort actually said is, you know, Earth is probably somebody else's property." Making a similar point, Dylan Borland, a military whistleblower who testified at a UAP Congressional hearing in September 2025, said to Corbell and Knapp (2025a) that "These things, whatever they are, are probably what are referred to as gods or demons or angels or djinn or insert whatever cultural or religious perspective you have. There are probably also extraterrestrials. It's not a one-size-fits-all … I think that the people that are in these [UAP-related government] programs know the truth to this stuff and they are looking at it through a lens of, 'This is true … This has been here for 8,000 years'." Relatedly, Sharp (2025b) reported that Borland was "exposed to briefings and photographic evidence of a "Tic Tac"-shaped craft allegedly recovered during an archaeological dig." So too philosopher Bernardo Kastrup (2023), who predicted that in the next 20 years we will witness "three tightly inter-related, gigantic revolutions in our understanding of reality," the first of which is "the official recognition of the presence and role of non-human intelligence (NHI) throughout our history" (with the others being the "rejection of physicalism and embracement of idealism

course been explored in art, especially science fiction over the decades — such as the Hugo-award-winning trilogy by Liu Cixin (2008), *The Three Body Problem* — it is another matter to see these mooted by such figures. Additionally, besides public comments from known figures, there have also been myriad ostensible revelations or speculations along these lines, such as a post on Reddit that recently went viral on social media from a purported pseudonymous whistleblower (rhea-15510, 2025).[19] There have also been claims, such as by philosopher Jason Jorjani (2023b), that the eventual admission of these connections may be the ultimate goal of the disclosure program that may be already underway.[20] Conversely though, Jorjani

as the only plausible metaphysics" and "a new understanding of the nature of time that will revolutionise the ontological status of past and future, as well as our understanding of the meaning of birth and death").

[19] There is no way of course to know the veracity of such claims: since such doubt must even be applied to whistleblowers testifying under oath in public, it is especially pertinent in the case of pseudonymous claims made in places like Reddit. Nevertheless, it is still worth noting here, if only as an example of the kind of contemporary discourse and allegations one can find in relation to the ACE hypothesis. The starting point for the poster's claims is the alleged existence of an intergalactic federation called "The Council," described as "a collective of several advanced interstellar maybe even interdimensional civilizations that run long term surveys of stars and planets the way we run spy satellites." It is then suggested that the emergence of life on Earth, around 2 billion years ago, "tripped a sensor," with the instruments picking up biosignatures. As a result, the "standard procedure" of The Council apparently was to "send automated probes … just small, tough, very smart machines" that set up "self replicating facilities on the seafloor," with facilities using "local materials to build more facilities, more probes, craft that can operate underwater, in the air, in near space, and eventually avatars that can interact with whatever life evolves." The post suggested that "Once early humans started doing interesting things, we moved from "planet with life" to "planet with potential"," and that The Council have "watched this same story unfold in slightly different ways around a thousand times … Chemistry leads to biology, biology creates technology. Tool use, language, agriculture, cities, industry, energy, space travel. Somewhere in there you always hit the same fork. Either the species figures out how not to blow itself to pieces with the energy densities it increasingly has access to … or it wipes itself out." As a result, "About 10,000 years ago … there was a major argument inside the Council about what, if anything, to do with us. One side said the odds favored self destruction once we discovered and weaponized atomic level technologies. The other side argued we were worth saving or at least worth understanding better. The compromise was an experiment. One which has ramifications as to why all of this has been hidden for so long. Roughly 65,000 humans were removed from Earth and relocated to what is basically a preserve on a planet around the star you know as 82 Eridani" (located approximately 19.7 light-years from Earth). The result, apparently, is that these "Erids are now around 5,000 years ahead of us technologically, averaged out. Same species, same basic biology, same starting point, completely different trajectory because of conditions. Nature vs nurture on a cosmic scale. For most of their history the Erids thought they were native to that world. They only found out the truth roughly a century ago in our time. They learned that they were uplifted, that their ancestors were taken from Earth, that they have cousins here. Once they knew that, some of them started coming back to visit the original branch. This is where their history intersects the some of the UFO stories you know. The "aliens" that look almost exactly human are just that. Human. They are not hybrids, not clones, not secretly angels or demons. They are Erids, born around another star, showing up here after being given a 10,000 year head start." The post made some further astonishing claims regarding a potential impending disclosure event in 2027 involving rival NHI factions which are also worth reviewing for those who find this kind of account plausible. However unlikely its veracity though, the post is a good example of current ideas and narratives in relation to the ACE hypothesis.

[20] In an interview, Jorjani (2023b) said: "I had been apprised of information [by government insiders] relating to how they intended to roll out this phased, soft disclosure. In a series of about 5 stages going from offering limited data regarding UFO/UAP to images of structures in various parts of the solar

(2023a) and others have also suggested some in authority fear such revelations could be so societally destabilizing — even more so than the existence of UAP/NHI per se — that this consideration is a major reason why disclosure has *not* happened.[21]

system taken with state of the art telescopes … to then archeological excavations on Earth of structures similar to ones that are photographed on the moons of Jupiter. The idea was that they were going to start very far from the earth to put the public at ease and then slowly disclose the fact that these structures are also on Mars and btw they are also on the moon, right on top of us. And then the focus would come to similar structures on Earth. Then archeological excavations would take place, anthropological studies would be done, and slowly over the course of 4-5 stages they would get to the disclosure that this phenomenon has been with us for all of human history and that there's a genetic connection between the beings and the human race. It would end with the revelation that we are connected to these beings and that they somehow manipulated our evolution."

[21] It has long been suggested that a key reason for authorities having seemingly wanted to not release information on this topic has been concern about how the public would react (Lomas et al., 2025). Such considerations seem apparent as early as the early 1950s, as seen in the CIA reaction to a wave of UAP sightings. A special study group was formed within the Office of Scientific Intelligence, with a report by Edward Tauss (1952) — acting chief of its Weapons and Equipment Division — recommending the CIA conceal its interest in the topic from the public and the media "in view of their probable alarmist tendencies" (cited in Haines, 1999, p.67). This message subsequently seems to have been adhered to among government institutions more broadly. In 1952, for instance, a scientific panel was established to look at the topic, headed by physicist Howard Robertson. Despite being criticized as perfunctory, there were intriguing revelations; a presentation by one Major Fournet — who had coordinated UFO affairs for the Pentagon — indicated "he had eliminated each of the known and probable causes of sightings leaving him "extra-terrestrial" as the only one remaining in many cases" (Durant, 1953, p.10). Most relevantly here, the committee argued that continued openness to the phenomenon by authorities might threaten "the orderly functioning of the government," including by inducing "hysterical behavior" (p.24). As such, it explicitly recommended the National Security Council debunk UFO reports and establish a policy of public education and minimization to reassure the public regarding the lack of evidence on the topic. These tactics were later explicitly alluded to by Rear Admiral Hillenkoetter — first Director of the CIA, from 1947 to 1950 — with *The New York Times* (1960) quoting him saying, "Behind the scenes, high-ranking Air Force officers are soberly concerned about the UFO's. But through official secrecy and ridicule, many citizens are led to believe the unknown flying objects are nonsense" (paragraph 14). Such caution around public reaction seems to have persisted down the decades, as noted above vis-à-vis the claims by Puthoff and Stratton in The Age of Disclosure.

Most relevantly here, some observers have suggested that if confirmation of the reality of UAP/NHI *per se* may be challenging enough for many people, this would be exacerbated if such revelations meant also needing to revise our assumptions about humanity itself. This point was vividly expressed by Lue Elizondo — an intelligence veteran with a long involvement with US UAP-related programs — in an interview with Curt Jaimungal (2021a). Asked, "If the general public knew or saw what you saw, what would the next week look like? How would the public react?," he said, "Somber. I think there would be this big exhale for about a day. And then this turning inward and trying to reflect on what this means to us and our species… people will have some serious soul searching to do." Asked for clarification by Jaimungal (2021b) in a follow-up interview, Elizondo suggested revelations about NHI would cause humanity to re-evaluate everything it knew: "Imagine everything you've been taught … about who we are, right? Our background and our past … what it means to be a human being and our place in this universe. What if all that is now in question?" In that spirit, people have suggested that such revelations could present a challenge to current authorities and institutions, thus motivating them against disclosure. In their article on "Sovereignty and the UFO," for example, Wendt and Duvall (2008) speculate on the political implications: "Modern systems of rule are able to command exceptional loyalty and resources from their subjects on the shared assumption that the only potential sovereigns are human. Imagine a

Moreover, beyond any "official" disclosure that may or may not happen, as we continue to explore space — whether distant constellations though technologies like the James Webb Telescope, or nearer to home through initiatives like NASA's Curiosity Rover — evidence may emerge that could also compel us to revisit our assumptions. Regarding James Webb, for instance, researchers in 2025 claimed to have seen the strongest evidence to date (albeit still not conclusive) of biosignatures of life on an exoplanet — K2-18b, orbiting a star 124 light years away — involving independent lines of evidence that the authors estimate have a 1-in-3000 chance of being a chance occurrence (Wilkins, 2025).[22] Closer to home, NASA (2025a) recently reported that they had found "the clearest sign" they had ever found of ancient "microbial life" on Mars,[23] while even more speculatively, there is emerging evidence which some people have suggested indicates an NHI presence on Mars at some point in its history, and perhaps even that it hosted an advanced civilization.[24] Even closer to home, astronomer

counterfactual world in which God visibly materialized (as in the Christians' "Second Coming," for example): to whom would people give their loyalty, and could states in their present form survive were such a question politically salient? Anything that challenged anthropocentric sovereignty, it seems, would challenge the foundations of modern rule."

[22] Exoplanet K2-18b was discovered in 2015, and was soon established as a promising place to look for life (Wilkins, 2025). Further observations in 2019 found evidence of water vapor, leading to suggestions that the planet may be covered in oceans sitting under a hydrogen-rich atmosphere. In 2023, Nikku Madhusudhan at the University of Cambridge and colleagues used the James Webb telescope to look at K2-18b's atmosphere in near-infrared light, and again found evidence of water vapor, as well as carbon dioxide and methane, but even more significantly, a hint of dimethyl sulphide (DMS), a molecule that on Earth is produced only by living organisms, mainly marine phytoplankton. While the signs for DMS were extremely weak, using a different instrument on James Webb (the mid-infrared camera), Madhusudhan told a press conference on 15 March, 2025 that he and colleagues had now found a much stronger DMS signal, as well as a possible related molecule called dimethyl disulphide (DMDS), which is also produced on Earth only by life. As Madhusudhan put it: "What we are finding is an independent line of evidence in a different wavelength range with a different instrument of possible biological activity on the planet." The team claims the detection of DMS and DMDS is at the three-sigma level of statistical significance, which is equivalent to a 3-in-1000 chance that a pattern of data like this is a chance occurrence (although the standard in physics for accepting something as a true discovery is five sigma, which equates to a 1-in-3.5 million chance).

[23] In September 2025, analyses of rock samples by the Perseverance Mars Rover, published in Nature (Hurowitz et al., 2025), were described by Acting NASA Administrator Sean Duffy in a NASA (2025a) press conference as "the clearest sign of life we've ever found on Mars. As Duffy put it: "

> A year ago, we found a sample … We were exploring in places where there were rivers and where there were lakes, much as on Earth. We think that's where we'd see signs of ancient life on Mars. And so a year ago, we thought we found what we believe to be signs of microbial life on the Mars surface. So we put it out to our scientific friends to pressure test it, to analyze it, and go, "Did we get this right? Do we think this is signs of ancient life on Mars?" And after a year of review, they've come back and said, "Listen, we can't find another explanation, so this very well could be the clearest sign of life that we've ever found on Mars, which is incredibly exciting.

Other potential evidence for past biological life on Earth has come from sources such as China's Zhurong rover, which landed on Mars in 2021, and which uncovered evidence of buried beach deposits which adds to "the growing evidence that Mars once had a vast ocean" and thus "strengthens the case for past habitability in this region on Mars" (SciTechDaily, 2025).

[24] Before the 20th Century there was a widespread assumption that Mars did indeed host a civilization, as exemplified by an 1831 textbook, The Young Astronomer, which explained, "To the people who live on Mars, this earth probably appears larger than Mars does to us" (cited in Library of Congress, 2023). This view was solidified by the apparent observations of "canals" (a network of long

Beatriz Villaroel and colleagues (Bruehl & Villarroel, 2025; Villarroel, Solano, et al., 2025; Villarroel, Watters, et al., 2025) suggest they may have found evidence for many thousands

straight lines) first described by Italian astronomer Giovanni Schiaparelli in 1877, though he called these simply *canali* ("channels"), which was mis-translated as "canals," with the latter implying technological craftsmanship (Laskow, 2016). The idea was embraced by scientists, most notably renowned astronomer Percival Lowell, who published three books on the topic: Mars (1895), Mars and it's Canals (1906), and Mars as the Abode of Life (1908). However, by the early 20th century, the consensus had turned against the idea of constructed canals, instead regarding these as merely optical illusions. The issue was then settled in 1965 when photographs taken by NASA's Mariner IV found no canals, not even something that could be misinterpreted as such.

Speculations about possible Martian civilizations were reignited in 1976 though when NASA's Viking 1 captured an image of a mile-wide likeness of a face from the Cydonia region that become known as the "Face on Mars" (Martinez-Conde & Macknik, 2012). Despite the striking image however, a consensus soon formed that this apparent face was merely a natural formation that was only interpreted as a facial likeness due to the human cognitive tendency of pareidolia (namely, perceiving a specific, often meaningful, image in a random or ambiguous visual pattern). Yet we must also be wary of simply *assuming* any apparently anomalous object is pareidolia, as doing so would equally be a cognitive bias that hinders us from studying evidence with due openness and objectivity. Indeed, some observers have argued that when analysed in context, there are other anomalies in the vicinity of the Cydonia Face that tip the balance towards the plausibility of it actually being an artificial construction (Hoagland, 1992; Carlotto, 1997). For a start, the "platform" on which the Face is situated seems to have a high degree of architectural symmetry, with four equally proportioned sides at right angles to each other. Equally intriguingly, various large objects are situated relatively nearby (10-20 km southwest) that seem similarly, (1) unusual, (2) of comparable size, and (3) arranged in an organized pattern, and which have been collectively dubbed the "City." Taking the Face itself in isolation, arguably the pareidolia hypothesis is more reasonable. However, when these other contextual factors are included in the calculation, some people suggest an artificial NHI-related explanation starts to become more plausible. Additionally, besides photographs per se, some people who are open to the idea of an historic Martian civilization point to intriguing comments from key figures who may be in some position to know about the topic, such as astronaut Buzz Aldrin, who said in an interview that there is a "monolith … a very unusual structure" on Phobos, one of Mars's moons, about which he suggested "When people find out about that, they're going to ask 'Who put that there?'" (Nallapu et al., 2020).

This idea of a past civilization on Mars was moreover recently discussed in an interview by Michels (2025c) with legendary "remote viewer" Joe McMoneagle, in which McMoneagle talks about being tasked by the Department of Defense to remote view Mars circa 1 million BCE, and reports he saw structures which he subsequently says were corroborated by photographs he later viewed at those same locations. As he recalled the experience:

> I was taking a nap in the isolation chamber we have in the lab and [Bob Monroe] woke me up, he said "I have some people here from DoD, they brought a Target" … The whole time I thought I was on Earth and it was a new discovery, and so I came out of there, and I said "It's obvious that these people are dying for some reason but they're human they're just really big people, they're like twice our size 12 feet tall but they're just like us and they're dying and these pyramidal places are like hibernation Chambers, they're trying to survive until somebody comes to save them" … [When] I open it up [the target envelope] it said "Mars 1 Million BC" … [I said] "The next time I'm at JPL Jet propulsion lab in California I'm going to find out where they have negatives of these locations" … I went up the counter and the guy said how can I help you, and I said ''I have this card here,' and I hand it to him, and he looked at it and I said, "I'd like to see the 4x4 negatives for those locations on that card," and he went "Oh this is the old city on Mars" … [He] gave me a packet had all the negatives inside … They show exactly what I described, it shows pyramids … it shows an Old Fort, it shows a wall that's collapsed … [there's] a shard and it's thousands of feet tall.

of artificial reflective objects around/near the Earth dating back before Sputnik (i.e., the first artificial satellite launched by humans in 1957), which some people (including Villarroel) have argued could constitute NHI technology.[25] Such findings and speculations do not of

Even more notably, McMoneagle speculated that "we in fact might be aliens." Asked by Michels if he meant that humans were "remnant survivors" of some "cataclysm" that some people suspect Mars suffered in the distant past, he replied, "I think elements of people on Mars went in all different directions looking for help or another place they could go and I think some of the people wound up here."

To that point, John Brandenburg, whose long career includes high level positions at the Department of Energy, specializing in directed energy weapons, has argued that there is potential empirical evidence for a past cataclysm on Mars. As discussed in a recent interview with Michels (2025d), he has become convinced that Mars suffered a devastating hydrogen bomb explosion at some point in its distant past. This claim rests upon tentative evidence from the double probe Viking Missions to Mars in 1976, which not only photographed the surface of Mars in great detail but landed two rovers that sampled the soil and atmosphere. Strangely, they found "a great excess of radiogenic isotopes" (Xenon 129 and Argon 40) which is thought to be attributed to only two phenomena: supernova explosions and hydrogen bomb explosions. Given there has been no supernova on Mars, Brandenburg (2014) argues this leaves only the possibility of the latter (though one might note that some other observers are skeptical of this interpretation, e.g., Browne, 2021). He also spoke about seeing photographic evidence supporting the suggestion of artificial structures created by a past civilization, such as, in addition to the Cydonia Face, five miles away there being a "a five-sided pyramid." Moreover, he spoke emotionally about his feelings when he realized this civilization may have been eradicated due to this hypothesized nuclear cataclysm:

> I will be very honest with you, when we … found shots of the first face in Viking pictures showing it illuminated at morning, so you could see that it was symmetrical right and left, and then… I found and digested the … isotope evidence, and when … it all hit me, I wept like a child for about four minutes … [because] they were all dead. It looked like a thermonuclear holocaust and had happened there, and we were so afraid it would happen on Earth … and I just I just was just overcome with grief … So I became I became very very dedicated at that point to see that we have a human Mission to Mars, boots on the ground to find out exactly what happened on Mars to make sure it doesn't happen here.

Finally, even if Mars did not feature a "civilization" at one point per se, there are intriguing pieces of evidence which some have interpreted as suggestive of some general NHI "presence" (possibly originating from elsewhere). Dr. Rudy Schild for example, astrophysicist at the Harvard-Smithsonian Center for Astrophysics, published (Joseph & Schild, 2023) "a sample of official NASA Mars photographs of what appears to be the wreckage and debris from extraterrestrial spacecraft, partially buried bones, the body of a "humanoid" stretched out on a "cushion;" the head of a "humanoid" still wearing a metal device on the front of its "face" adjacent to a *cratered* debris field, two "humanoid" skulls including one that is atop what may be a raised elongated burial mound, UAPs/UFOs photographed in the skies of Mars and a silver-saucer shaped structure upon the ground" (p.54). Moreover, there are even curious photos which could be interpreted as there *still* being an NHI presence on Mars: an unusual albeit ambiguous photograph taken by NASA's (2020) Curiosity rover in 2020 for example appears to show an airborne or floating "tic-tac" object (one of the common UAP objects sighted/reported on Earth).

[25] Villarroel, Solano, et al. (2025) have developed and explored various techniques to search for "extraterrestrial probes" in the solar system, including using: (1) pre-Sputnik images to search for flashes from glinting objects; (2) space-borne telescopes to search for artificial objects; (3) examining the reflectance spectra of objects in Earth orbit (in search of "the characteristic reddening that may imply long-term exposure of metallic surfaces to space weathering"); and (4) Earth's shadow as a filter when searching for optically luminous objects in near-Earth space. Using these techniques, Villarroel, Watters et al. (2025) suggest they have found evidence for "thousands of short-lived, point-like transients in pre-Sputnik photographic plates," with "transients" meaning points of light that are present in one plate but not others (i.e., seeming to "disappear"). Crucially, since these images pre-date Sputnik (i.e., the first

course mean humans *have* necessarily had ACE engagements with NHI and UAP throughout history. Crucially though, this conjecture is now *less* unthinkable or unreasonable than it had been regarded in past decades. This paper therefore argues that myths of ACE contact should be reconsidered in a spirit of open-minded epistemological humility.

Perhaps an analogy might be useful. Imagine a crime in which there is some circumstantial evidence (i.e., myths, in this metaphor) regarding a particular suspect (e.g., extraterrestrial entities), but not enough for authorities to pursue a case (i.e., to validate the ACE). Although some people (e.g., von Däniken) believe the suspect guilty, authorities (i.e., the scientific community) do not, and close the case (i.e., deem apparent UAP to have prosaic explanations and these myths to be fictions). Years later, new evidence (e.g., Navy videos tracking UAP with apparent capabilities far beyond current known human technology) comes to light which is more incriminating (e.g., suggesting some UAP may have exotic origins). As such, the case is reopened. It may also help to frame the question in terms of probability. Speaking personally, before the past few years, I (the first author) would have rated the possibility of ACE myths having at least *some* basis in truth (e.g., the people who created the myth *really did* have an encounter with an NHI) as 5%. Now, with new evidence that has come to light, I would put it at around 25%. This still of course means I view ACE ideas as three times more unlikely than likely. However, it also means I now regard it as five times more likely than I did previously (with the estimation of probability rising from 5 to 25%). That is, my priors have shifted in light of newly emerging data. Perhaps other scholars are finding themselves making comparable adjustments. With all this in mind, we start by considering the limits to current historical knowledge, and the potential to augment whatever understanding we do have by also taking into account myth as possible "embellished history."

Limits to Historical Knowledge

If some version of the ACE hypothesis is true, this would require re-thinking human history as we currently understand it. To that point though, one strand of the argument in taking this hypothesis seriously is to appreciate how fragile and contingent this understanding is, built upon a relatively small evidence base that happened to have withstood the ravages

human-made artificial satellite, launched into orbit by the Soviets in 1957), the transients have been interpreted as potentially constituting artificial reflective objects around or near the Earth. This interpretation is based on intriguing patterns in the data, above all a significant deficit of transients within the Earth's shadow, suggesting that "sunlight reflection plays a key role in producing these events" — which would appear to rule out the main argument made by skeptics that the transients are merely defects on the photographic plates — and also that many of the transients appear to coincide with well-known UAP events, such as the 1952 Washington D.C. "UFO flyover." As a result, in an interview with Coulthart (2025d), he ventured, "All of this suggests something technological. Are we talking here, Beatriz, about the possibility of a non-human technology that was surveilling this planet at that peak moment in UFO history?" Villarroel replied: "I don't find any other way of looking at this data … if I take the pieces together: that some of them fall on a line; our best cases happen during the Washington DC flap, by coincidence; there's temporal correlations with the nuclear bomb tests and with UFO sightings. And on top of it, there's a huge deficit in the shadow of the earth. For me, this looks technological, but I may be wrong. Maybe there's a new physical phenomenon that … that nobody knows about yet. But, to me, it looks very high tech." Relatedly, in The Sphere Network, Jackson (2025) has analyzed an extensive dataset of apparent evidence for the presence of metallic orbs in our upper atmosphere — which often seem to be "working together" in groups of three — which he suggests constitutes a "technological surveillance grid" possibly created and/or maintained by some form of NHI.

of time and moreover was stumbled upon by people who were able to recognize its significance. That is not to imply we lack knowledge about our past; far from it. Over recent centuries, paleoanthropology has accrued a plethora of carefully preserved and analyzed hominin skeletal and fossil remains, including fully intact bones and teeth from thousands of different specimens. As new discoveries are made though, the potential exists to prompt a re-calibration of timelines, potentially leading to revisions of our family tree (though by now this usually involves additions or revisions to what we know, rather than an entirely radical reconceptualization of it).[26] Relatedly, archeological discoveries of tools and other artefacts are also leading to continual revisions of our understanding of the cultural and psychological development of human beings; a recent paper in Nature for example reported that stone tools at least 1.04 million years old have been found on the Indonesian island of Sulawesi, representing the "earliest evidence for humans crossing ocean barriers to reach isolated landmasses" (Hakim et al., 2025). Moreover, scientists can only work with the evidence that has been preserved, and it is possible that certain aspects of biological and cultural evolution on this planet have been partially or entirely lost to time. This point was vividly made by renowned philologist and Assyriologist Irving Finkel (2025) in an interview with Lex Fridman in relation to the question of when humans first began writing — though the point generalizes to all aspects of our history — where he said, "So, when it [i.e., writing] really began is a terribly terribly awkward question for us, because the truth of the matter is *we have no idea when anything began*, and all we can say is that the oldest evidence we have is around 3,500 BC. But whether that was anywhere near the time or the stage when this started off for the first time seems to me very very unlikely" [our italics].

This uncertainty and contingency extends even into relatively modern human history, as alluded to by Finkel, with recent archaeological findings now challenging standard narratives around the emergence of human civilization.[27] The Göbekli Tepe settlement in Turkey, for

[26] As Hublin et al. (2018) put it, the "exact place and time of emergence of H. sapiens remain obscure because the fossil record is scarce and the chronological age of many key specimens remains uncertain." As such, any new discovery has the potential to re-calibrate theories and timelines. Many revisions are relatively subtle or minor. However, sometimes they are more substantial. Consider that until recently, it was generally held that our genus *Homo* first emerged around 2.3 million years ago in Africa, and our species *Homo sapiens* around 200,000 years ago in East Africa (Wood, 2017). However, a recent discovery in Ethiopia shifted the origin of *Homo* back an incredible *half a million* years to 2.8 million years ago (Villmoare et al., 2015), while a find in Morocco shifted *Homo sapiens* back to *300,000* years ago in *North* Africa (Hublin et al., 2018). Yet still more recently, the find of a new fossil ape at an 8.7-million-year-old site in Turkey is challenging the long-accepted idea of our origins being in Africa at all, instead suggesting the ancestors of African apes and humans may have evolved in *Europe* before migrating to Africa some nine to seven million years ago (Sevim-Erol et al., 2023).

[27] The standard narrative of human history is that around 10,000 BCE early humans transitioned from existing as scattered groups of hunter-gatherers into developing permanent settlements anchored around a reliable agricultural food supply in the "Neolithic Revolution" (Weisdorf, 2005). Out of such settlements gradually emerged relatively modern societies, characterized by large communities comprising numerous tribes, the creation of monumental architecture, and innovations in metallurgy and writing. The earliest examples are usually thought to have emerged around 4,000 BCE in Mesopotamia — a region roughly encompassing what is now eastern Syria, southeastern Turkey, and most of Iraq — often called the "cradle" of civilization, including the empires of Assyria, Akkad, and Babylon (Algaze, 2009). From this area, for example, hails the world's oldest surviving work of literature, The Epic of Gilgamesh, dated to around 2,100 BCE (George, 2002), as discussed in the main text. Comparable developments were also taking place around the world; China for example can also lay claim to being one of the oldest known civilizations,

example — rediscovered by Klaus Schmidt in 1994 — features complex monumental structures that appear to be religious/ceremonial in function and are apparently 11,000 years old or more. This discovery thus pushes back our understanding of when humans were capable of, and interested in, creating these kinds of elaborate architecture and religious practices by at least several thousand years. Hence Curry (2021) describing the site for the BBC as "reshaping previous ideas on the story of civilization." Perhaps even more remarkably, Finkel (2025) suggests that the site contains evidence that people at the time had developed writing, some 7,000 years before the standard narrative which is that writing was not developed until around 3,500 BCE in Mesopotamia.[28] As to the *purpose* of the site, analyses of carvings on the stones suggest may have served, at least in part, as a representation of a lunisolar calendrical system (Sweatman, 2024). Even more significantly, analyses conducted by Sweatman and others suggest this was developed to record the date when some researchers think a comet (or a shallow airburst of a swarm of comet fragments) hit the Earth some 13,000 years ago — with some recent evidence lending credence this possibility (Fitzenreiter et al., 2025) — ushering in a return to ice age conditions for over 1,000 years, an era known as the Younger Dryas. It has even been suggested — most famously by British researcher Graham Hancock in his 2022/2024 Netflix series Ancient Apocalypse[29] — that this event wiped out what had previously been an advanced civilization on Earth, of which most traces have now been lost (apart from tantalizing clues like Göbekli Tepe).

Moreover, Göbekli Tepe is far from the only example of emerging archeological findings presenting challenges to traditional historical narratives, and indeed even very well-known sites may contain potential mysteries that are currently not well understood. Perhaps the prime instance in that regard are the three great Pyramids and Sphinx of Giza in Egypt. The standard narrative is these Pyramids are "royal tombs" built for three different pharaohs in the 4th dynasty (c. 2575–2465 BCE): the largest and oldest "Great Pyramid" (for Khufu,

developing advanced craftmanship techniques (e.g., a "rotary machine" for carving jade) around 3,500 BCE (Wang & Shi, 2020), and its founding Xia Dynasty emerging circa 2,070 BCE (San, 2014). However, this standard narrative of our cultural evolution has been challenged by discoveries like Göbekli Tepe.

[28] In an interview with Lex Fridman, Finkel (2025) said among the evidence so-far uncovered at Göbekli Tepe was what he interpreted to be a "stamp" that may have been used for purposes such as commerce (e.g., ratifying transactions).

> Everybody knows about the buildings and the architecture … [but] if you go all the way through the photographs … you'll find in the middle of one color plate … a round green stone like a scarab from Egypt … [with] an arched back and a flat bottom. And on the flat bottom there are hieroglyphic signs carved in the stone … It's clear to me … that this was a stamp … That green stone shows that they had writing. That was an official who sealed this … That is pictographic writing … People came with metal, or precious stones from Anatolia. They knew that in the south they had lots and lots of stuff. They wanted to trade. They had to communicate … It's a seal to ratify. It's not just a squiggle on a pot … This is a finished thing with a flat surface. You press it down, say, you have some contract.

[29] Hancock is the most well-known advocate of the theory that an ancient civilization was wiped out by a cataclysm related to the ending of the Ice Age, as elaborated in his Netflix series, "Ancient Apocalypse." One might note that his views have been dismissed by some prominent academics as "pseudoarchaeology," with the very first sentence of his Wikipedia article describing him as someone who "promotes pseudoscientific theories involving ancient civilizations and hypothetical lost lands." However, in retort, one might also argue that his treatment itself reflects one of the themes in this paper, namely that academia has tended to disparage openness to the possibility that ACE myths may have some basis in truth.

second pharaoh of the dynasty); the middle pyramid (Khafre, fourth pharaoh); and the newest pyramid (Menkaure, fifth pharaoh) (Encyclopedia Britannica, 2025). Some scholars though have presented theories and tentative evidence challenging these dates and interpretations, including not only arguments for the construction being as early as 10,500 BCE, but that beneath the Pyramids may even be large underground structures that potentially served a technological function.[30] While such findings and speculation remain controversial among archeologists, there is nevertheless a burgeoning sense that conventional narratives and understanding of the Pyramids and Sphinx are incomplete, not least because it genuinely *is* still unclear — even from a mainstream archeological perspective — exactly when, how, and why they were built.

[30] In terms of alternative dating of the Pyramids, Bauval (1989) suggested their alignment was determined by the positioning of Orion, and on that basis argued for a construction date of around *10,500* BCE, since that is the only time in the precession of the equinoxes when that constellation rose directly east of the Sphinx at the vernal equinox. With a slightly more recent revised date, Schoch (1992) argued that the pyramids and nearby Sphinx show evidence of water erosion, which links the sites to the historical myths/narratives of a great flood, and as such suggests these must have been built at the latest between 7,000–5,000 BCE.

In terms of the nature and function of the Pyramids themselves, in 2025 the world's attention was caught by a new analysis, using radar doppler tomography combined with AI, that appears to reveal new details not only of the internal structures of the Pyramids (Biondi & Malanga, 2022), but potentially and even more significantly, *beneath* them. In March 2025 it was reported that Malanga et al. (2025) had recently shared details at a conference of massive underground structures beneath the Great Pyramid (see ReadMultiplex, 2025). As stated in their press release: "Our research team has succeeded in identifying a vast underground city beneath the Giza plateau," including "corridors, chambers, and tunnels extending several kilometers beneath the surface." Using AI to interpret the radar data, the team suggested these structures might include eight vertical cylindrical structures in parallel rows extending over 600 meters downwards, with intricate spirals descending around each, and with two massive cubic formations measuring approximately 80 m in diameter at their base. One might note though that even people who are open to the idea of structures beneath the Pyramids have been somewhat skeptical that the methods used in the analysis are capable of revealing the kind of details being reported by the team, including initially Michels (2025a). However, later in the year, Michels (2025o) interviewed Biondi, the lead analyst, who spoke in detail about the methods — saying he was "100%" convinced the structures are genuinely there and moreover are definitively man-made — with Michels noting that he had previously been "very compelled by what was circulating online, but there were a couple of things that even I was, I didn't know or was holding out judgment on," but that at the conclusion of the interview that, "you kind of convinced me on a lot of it." In any case, even if the precise details of any underground structures are yet to be determined, the idea of there being structures *per se* is increasingly being taken seriously. To that point, for what it's worth, in his Histories, written around 430-424 BCE, and based on his extensive travels collecting historical information, including around Egypt, Herodotus (2008) reports that 10 years were spent on the passageways and caverns beneath the Giza plateau (on "the underground chambers on the hill upon which the pyramids stand"), and a further 20 on the Pyramids themselves.

These new findings, if substantiated, perhaps provide some support for the speculation that the Pyramids might have served a technological function, such as Dunn's (1998) suggestion that they constituted a "power plant." Moreover, other emerging findings possibly also lend credence to such ideas. In 2023 Chinese scientists detected a huge "plasma bubble" appearing over the Pyramids: an "anomalous weather phenomena in low-latitude regions, caused by the sudden disappearance of a large number of charged particles in the ionosphere – part of the Earth's upper atmosphere" (Chen, 2024). Relatedly, Russian scientists analyzing the Pyramids proposed that these could serve as an electromagnetic "receiving and/or transmitting antenna." As a result, Roemmele (2025) suggested that the Pyramids could have been designed to "drive this [energy] into the Earth" as a storage "capacitor" or "battery."

Given how easily even relatively *recent* evolutionary and archaeological evidence can be destroyed, lost, or remain undiscovered, our understanding of human prehistory is highly opaque. It is therefore entirely possible that Earth could have seen NHI engagement in our distant past, or before *Homo sapiens* emerged at all, and we could easily have *no* idea. Avi Loeb (2022), for example, notes that "Mars or Earth could have given multiple births to technological civilizations that were a billion years apart and hence were not aware of each other. Like stable parents, the planets recovered from the environmental impact of these civilizations over time." Such considerations provide no specific case *in support of* an ACE of course. Neither can we *dismiss* it, however, just because such a scenario contradicts the received historical narrative, especially given how comparatively skeletal that narrative is, and how frequently it is revised as new evidence is uncovered. Moreover, even if evidence of NHI visitations may have generally been erased, ignored, or forgotten — in a kind of broad civilizational amnesia — it is possible some traces are nevertheless still evident.

One potential source of such evidence is myth, a culturally universal genre of story about events in a distant past in which the world was quite different than the quotidian reality we experience today (Eliade, 1968, Campbell, 1991). There are many ways to interpret such tales, including as works of playful imagination, "just-so" stories about the etiology of natural phenomena, or vehicles for conveying ethical teachings. There is, however, increasing appreciation among scholars of ancient history that even if myths do play certain ritual and other social roles in society, they may *also* sometimes, perhaps even often, actually be attempts by pre-literate societies at memorializing, interpreting, and communicating actual historical events (Simala, 2015). Such is the basis of the nascent field of geomythology (Burbery, 2021), which suggest such legends may be chronicling true information about the geologic past, even if the usually religiously inflected interpretation overlaid by the myth itself may not be correct per se (Baraniuk, 2021). James Terry (Terry et al., 2021) for example analyzed the information contained in one such myth in this way, namely the tales told for centuries about three massive stones (named Tokia, Rebua, and Kamatoa) that were seemingly hurled from the ocean toward Makin Island, in the Republic of Kiribati.[31]

Openness to the potential historical realia enshrined in myth gains further credibility when bolstered by observations such as a particular narrative apparently recurring in *different* cultures. The preeminent case of cross-cultural repetition is the motif of a great flood, found across many and geographically dispersed traditions, including Sumerian (Jacobsen, 1994), ancient Israelite (Genesis 6-8, cf. Davidson, 2004), Greek (Apollodorus, 1921), Indian (Coomaraswamy, 1972), and Cheyenne (Seger, 1934), among others (Frazer, 2013; Dundes, 1988). Somewhat similarly, albeit less immediately dramatic, Nunn and Cook (2022) show

[31] In the various iterations of this narrative, two enormous stones were cast ashore by an angry king (to punish the villagers after they provoked the ruler by making an offering of rotten fruit), but the third and biggest stone was stopped before reaching them on shore. After hearing this story in 2012, and because no other rocks like these can be found anywhere nearby, Terry (Terry et al., 2021), a geoscientist at Zayed University in the UAE, decided to investigate, believing the story may represent a "geomyth" (Baraniuk, 2021). He visited the island and conducted a uranium/thorium analysis on corral in the boulders where he discovered they were deposited offshore around 1576 CE, which correlates with a powerful tsunami that struck Makin Island that same year. This finding supports the geomyth claim, where villagers who survived the tsunami created a narrative to capture this monumental moment in their history, which was subsequently passed down through the ages and into modern times. By seriously considering the odd oral legend of the indigenous people of this region, Terry was able to unravel the mystery of how these enormous rocks came to rest on Makin Island.

that many coastal cultures have legends of land becoming separated from mainlands by submergence. They speculate that "many such stories recall times, often millennia ago, when sea level in the aftermath of the Last Glaciation (last ice age) was rising" — by as much as 120 meters — "and transforming coastal landscapes and their human uses in exactly the ways these stories describe." They note that "science has traditionally underestimated the capacity of oral (pre-literate) cultures to acquire, encode and sustain their observations of memorable events with a high degree of replication fidelity." Rather than merely being imaginative creations, such myths may have arisen from "eyewitness accounts of these transformative processes," thereby constituting potential historical testimony. To that point, it is increasingly appreciated that flood myths may well depict an era in which water levels *did* rise dramatically, namely, as noted by Nunn and Cook (2022), in the aftermath of the last ice age.[32]

In this same spirit, this paper holds that ACE myths may likewise potentially be grounded in some genuine historical truth, instead of mere imaginative flights of fancy. After all, perhaps the most important lesson of modern science is that even our most well-established theories might turn out to be mistaken (Kuhn, 1962). We should therefore be wary of foreclosing our conclusions about the nature of reality, including our own history on this planet, and also what might be physically possible, when it is a near certainty that our current theories are incomplete and provisional. For all we know, future science might open wide the doors for technologies that currently seem anomalous and incompatible with the laws of physics. Moreover, philosophers will be quick to note that even our core metaphysical assumptions could turn out to be mistaken. As discussed in the final section below, the fundamental nature of reality could be opaque to us: idealism, panpsychism, and the many varied forms of theism, as well as newer ideas of the universe as a "simulation," all suggest that beneath or beyond the world of everyday physical appearances there could be other layers to reality that stretch our understanding of what is possible (Chalmers, 2015; Virk, 2019). As such, this paper advocates for intellectual and epistemological openness and humility to the possibility that ACE myths may in fact have some basis in historical truth. As noted above, there are various overlapping categories of myth. Here we begin with the general mythic notion of our deep connection to the stars.

Celestial Connections

Below we discuss myths that explicitly invoke ACE contact and connection. First, however, we start with those more general and indeed ubiquitous myths which in some way link the origins of humans, the earth, and life itself to the heavens. Such narratives often take the form of origin myths that invoke the sky as playing some integral role in creating the world. Such myths are so widespread that they may be a human universal, though there are nuanced differences among them.

Take for example the *Enuma Elish*, a Sumerian text that is considered possibly the oldest surviving account of creation and the origins of humans, dating back to the third millennium

[32] Beginning around 20,000 years ago, the planet began to warm — possibly caused by a tilt in the Earth's axis (Bajo et al., 2020) — producing a period of melting lasting around 8,000 years, involving a gradual but relentless rising of sea levels. Moreover, amidst this general rise were more dramatic periods involving sudden collapses of ice sheets, creating catastrophic sharp and extreme rises, with some scholars arguing that these dramatic water level increases have been memorialized in flood narratives. Teller et al. (2000), for example, analysed the "rapid postglacial flooding of the floor of the Persian Gulf" from 12,000 to 6,000 years ago, and suggest that flood myths about *Deucalion*, *Utnapishtim*, *Noah*, or *Manu* are rooted in a genuine if garbled record of these events.

BCE (Leick, 2002; Lambert, 2013). It opens with *Nammu*, primeval goddess of the sea, giving birth to *An* (god of heaven) and *Ki* (goddess of earth), who together produce *Enlil* (god of air), who separates heaven from the earth; *Enlil* begets *Nanna* (moon god) who begets *Utu* (sun god); *Nammu* and *Enlil* then create *Enki* (water god), and thereafter *Enki* helps *Enlil* and *Ki* create life on earth, while *An* brings the *Annunnaki* (his followers, who are the great gods) into being, with *Enki* ultimately declared leader of the great gods, with the *Annunnaki* playing a key role in the creation and development of humans, as explored below. Many origin myths invoke similar ideas, with narratives involving a cast comprising significant features of the environment in which humans have always found themselves, from elements such as water and air to celestial bodies like the sun and the moon (Von Franz, 2017; Horowitz, 1998). We can thus already see our ancestors alluding to the importance of the heavens in a generic way. Interestingly though, numerous early myths also make more specific connections to *particular* aspects of the celestial realm.

Many cultures, for instance, place significance on the constellation of Orion, which contains two of the brightest stars in the sky. The Sumerians again have perhaps the earliest surviving myth of this type (Barlament, 2021), for whom Orion represented the hero *Gilgamesh* — eponymous protagonist of the oldest extant work of literature — who may have been a historical king ruling over *Uruk* in Mesopotamia circa 2600 BCE, but who is mythologized as a demigod possessing superhuman qualities (Jensen, 1906). To the latter point, it is intriguing that *Gilgamesh* is portrayed as a physical "giant," and in that respect the legend has parallels with other accounts of giants found across various cultural traditions, most famously perhaps the *Nephilim* in Judaic texts, such as Genesis 6:1-4, as discussed below, though there are also meaningful differences (UASV, 2023).[33] By the time Babylonian astronomers compiled a comprehensive star and constellation catalogue around 1,000 BCE, Orion was referred to as *sipi.zian.na*, or "True Shepherd of *Anu*," with *Anu* being God of the sky and supreme ruler of heaven (Rogers, 1998). This reverence for Orion was manifest elsewhere in the region, possibly influenced by, or interacting with, these earlier myths.[34]

[33] While there are some parallels between descriptions of *Gilgamesh* and the *Nephilim*, there are also differences that seem significant (UASV, 2023). First, in terms of lineage, while *Nephilim* are described as born of heavenly beings and human women, *Gilgamesh* is depicted somewhat complicatedly as two-thirds divine and one-third mortal. Moreover, while both the Bible and the *Gilgamesh* epic contain flood narratives, in which the flood serves as a turning point and "reset" for humanity due to divine perception of their irredeemable "wickedness," the *Nephilim* narrative is *pre*-flood, whereas *Gilgamesh* is *post*-flood. In that regard, the *Nephilim* could be seen as part of the reason a reset was deemed necessary, and were portrayed in the Bible as being eradicated during the flood, whereas *Gilgamesh* lives after the flood in a world that had been repopulated (in the Biblical account) through the efforts and lineage of *Noah*.

[34] The Egyptians for example worshiped Orion as *Sah*, regarded as the celestial representation of *Osiris*, god of rebirth and resurrection, and with which all pharaohs, as star-gods, were identified (Bauval, 1989). As proclaimed in the Pyramid Texts: "Behold, he [Orisis] has come as Orion … O king, the sky conceives you with Orion … you will regularly descend with Orion into the western region of the sky." Meanwhile, in Greek mythology, influenced by Egyptian narratives (Marinatos, 2009), Orion — from whom our modern English label derives — was a giant hunter born with superhuman abilities, who upon being slain was placed among the stars for eternity. Moreover, Orion was similarly revered elsewhere, with comparable myths in contexts including Australian aboriginal culture (Norris & Hamacher, 2009), the Teotihuacan civilization in Mexico (Penprase, 2011), and the Hopi of North America (Mathiowetz et al., 2015). Further still, key figures in these cultures were mythologised as actually being associated with Orion, whether hailing from and/or returning to it. In Egypt, for example, Pharoah *Unas* is depicted

Beyond immortalizing Orion in myth, early cultures went to great lengths to pay homage to him/it, from ceremonies to monumental architecture. In Egypt, for example, Nabta Playa is one of the oldest extant sites of worship, dated possibly as far back as 7,500 years, in which nomadic pastoralists built some 30 complex megalithic structures, stone circles, and lines of megaliths which are thought to have aligned potentially with the Belt of Orion, as well as Sirius, the brightest star in the sky (Malville, 2015). Similarly, it has been suggested that the construction of the great Pyramids of Giza was influenced by the positioning of Orion (Bauval, 1989), as perhaps was the ancient Mesoamerican city of Teotihuacan which, at its peak circa 500 CE, was thought to be one of the largest societies on Earth, with over 200,000 inhabitants and 600 pyramids (Penprase, 2011).

This sense that the stars play some significant role in the course of terrestrial events is prominent in virtually all human cultures until the early modern period. Consider for instance the medieval European conviction that the stars and planets mediate God's creative power by exerting their influence — as C. S. Lewis (1964) put it — "on events and on psychology, and, much more, on plants and minerals." Such ideas remain an influential sub-culture today, as evident in the enduring popularity of horoscopes and other forms of astrological speculation. The crucial question here is: what to make of these celestial narratives and practices? Although in themselves they offer no explicit theory about the influence of ACEs on Earth's history, they seem to go beyond mere interest in the stars to an acknowledgement of the fundamental entanglement of terrestrial and celestial events.

NHI Visitations

As we have just seen, some myths invoke an intimate connection between humans and interstellar phenomena or regions. In the surviving evidence, however, these tales do not always specify the nature of, or reason for, that connection – though this may have been articulated in records since lost to time. Absent such data, though, it is not obvious *why* some cultures deemed constellations like Orion as particularly significant. Other forms of myth, however, *do* make more specific claims about interstellar connections. In some ways, such stories escalate vis-à-vis the degree to which *Homo sapiens* themselves are implicated in these connections, culminating in human beings actually hailing from elsewhere in the cosmos (as we explore in a later section).

The first rung of this escalation, however, is "just" the idea that we have received NHI visitations in the past. This possibility would not necessarily entail rejection of the modern evolutionary synthesis (e.g., that life originated on Earth through unguided abiogenesis and ramified through natural selection acting on random mutations). It would though still mean radically revising our understanding of the cosmos. This is not necessarily in terms of the existence of life elsewhere per se, since the statistical likelihood of this being the case is arguably now the dominant view among the scientific community, given that stars in the cosmos number in the trillions (Lomas, 2024a).[35] Rather, the revision consists in whether —

as ascending to Orion after his passing, thereafter continuing to exist as a star within the constellation, just as the Greek hunter would later be described as doing (Barentine, 2015).

[35] The number of confirmed exoplanets in our galaxy is now above 5,000; moreover, NASA has suggested the actual number could be more than 100 billion (Waichulis, 2023). Moreover, these numbers are for our galaxy alone, with NASA (2016) estimating the observable universe contains at least 2 trillion galaxies. Thus, if figures for our galaxy applied across the cosmos, there could be 200 sextillion (200 billion trillion) extrasolar planets in the observable universe. Of course, not all may be habitable, which has historically been regarded as requiring a carefully calibrated "Goldilocks' zone," where conditions

from the perspective of an *E*-ACE — extraterrestrial agents would be able to travel to Earth, which, by contrast, is still regarded as overwhelmingly unlikely, mainly due to the perceived difficulty of interstellar travel, even if some scholars are coming round to the view that it may actually be feasible after all (Lomas, 2024b).

Not only are myths of extraterrestrial visitation widespread across cultures, there are also numerous physical artifacts, such as artworks and sculptures, that can at least be interpreted as pointing towards such a celestial encounter. The world's religious traditions are of course replete with such myths and artifacts which, taken at face value, suggest a D-ACE. Others though, many dating back thousands of years, are highly suggestive — in some cases, indubitably so — of an *E*-ACE, featuring some kind of extraterrestrial and/or astronaut figure. Detailed accounting of such apparent evidence, for instance, has been provided by Robert Dean (2014), a former Command Sergeant Major in the US military who post-retirement gave presentations about what he regarded as records of extraterrestrial NHI visitations to Earth. Of course, the widespread nature of these myths does not mean they are necessarily *true* reports of celestial visits. Nonetheless, we should remain open to the possibility that such legends may in fact have some basis in history, as argued above.

Before considering some examples, it is worth differentiating such apparent reports of visitations from the broader context in which early humans regarded the cosmos. The first point is that, for millennia, humans have observed and charted celestial phenomena with considerable accuracy (Lomas & Case, 2023a). By the third century BCE, for instance, such was the quantity and quality of available astronomical data that Eratosthenes calculated the Earth's circumference and axial tilt with considerable accuracy, as well as created the first global projection of the world (Nicastro, 2008). The second point is that, until a more secular mindset began to emerge in the past few centuries, such observations were usually interpreted through a divine/sacred lens, as exemplified by the deification of stars and planets, and as highlighted in the fact that the current names of planets in our Solar System reflect their origins as polytheistic gods in the classical world (Nix, 2015). Throughout history though, humans have also experienced phenomena which did not align with their expectations, being perceived as anomalous or unusual in a fundamental way. The general perspective of the cosmos involved a relatively stable and predictable set of bodies and processes, from the daily

are "just right" (e.g., neither too hot nor cold). Even accounting for these parameters though, such planets may be relatively common; some analyses suggest that possibly *every* star could host a habitable planet (Ojha et al., 2022).

Even if life may be widespread though, the question of intelligent or civilized forms is another matter entirely. Calculating its likelihood is difficult, attested to by years of debates around the Drake Equation — which seeks to estimate the number of civilizations in the Milky Way (Drake et al., 2015) — and propositions vary wildly, depending on assumptions (Sandberg et al., 2018). Even if one stipulates though, say, that the odds of a habitable planet actually producing intelligent life are a trillion to one — so vanishingly small as to essentially be non-existent — we could still have, per Ojha's et al.'s suggestion that every star possibly hosts a habitable planet, up to 200 billion potential instances. Even if only one star in every *billion* had a habitable planet, this would still mean, based on these assumptions, around 200 cases of intelligent life. As such, the scientific consensus now acknowledges intelligent life elsewhere does exist. Consider Bill Nelson, former head of NASA, who is especially well placed to comment: "My personal opinion is that the universe is so big, and now, there are even theories that there might be other universes. If that's the case, who am I to say that planet Earth is the only location of a life form that is civilized and organized like ours?" (Todd, 2021). Indeed, Westby and Conselice (2020) estimated the number of "Communicating Extra-Terrestrial Intelligent" civilizations just within our own galaxy, and even under the strictest criteria suggested there may be dozens.

revolutions of the sun and moon to slower moving changes to star patterns. But amidst this general stability were occasional events that stood out in some significant way.

Some of these apparently anomalous incidents are likely to have had a mundane natural explanation by the standards of modern science (e.g., comets and eclipses), and only seemed extraordinary because observers lacked the requisite cosmological knowledge to understand them properly. Yet throughout history there have *also* been reports of occurrences that were not merely unexpected, but apparently quite strange even by modern standards.[36] As per the mythological-religious mindset that characterized these earlier ages, such events tended to be similarly viewed through a divine lens. Unlike some forms of generic deification (e.g., where a celestial object is regarded as constituting or symbolizing a divine figure), the stories surrounding supernatural visitations describe vivid accounts of actual interactions. Often these are interpreted as involving specific types of divine beings, especially those that in English have become known as "angels," with comparable entities found in most traditions (Lomas & Case, 2023b). Significantly, angels are often conceptualized — per their Greek etymological origins as *angelos*, meaning messenger or envoy — as intermediaries between gods and humans. It is clear that many religious texts mean this role *literally*. In many traditions, God or the gods only rarely appear directly to humans. Instead, these interactions often occur through the mediation of angels or other comparable divine figures.

There are many such divine or "angelic" encounters in the Bible. Perhaps the most vivid and well-known are those of the 6th Century BCE prophet Ezekiel — who had numerous such visionary experiences — as recounted in his eponymous book (1:4-25, New International Version Lieb, 1998; see e.g., Lomas and Case, 2023b, for discussion of this and other examples): "I looked, and I saw a windstorm coming out of the north — an immense cloud with flashing lightning and surrounded by brilliant light. The center of the fire looked like glowing metal, and in the fire was what looked like four living creatures. In appearance their form was human, but each of them had four faces and four wings … The appearance of the living creatures was like burning coals of fire or like torches. Fire moved back and forth among the creatures; it was bright, and lightning flashed out of it … When the creatures moved, I heard the sound of their wings, like the roar of rushing waters, like the voice of the Almighty, like the tumult of an army." Such is the nature of this particular account though, involving aspects that seem rather *mechanical* in nature, that observers like Von Däniken (2018) suggest it may instead have been an encounter with biological extraterrestrial agents (i.e., an E-ACE), even while other angelic encounters could still have involved beings more conventionally understood as "divine" (i.e., a D-ACE).

[36] Numerous historical reports of UAP have been charted by Vallée and Aubeck (2009) in Wonders in the Sky: Unexplained Aerial Objects from Antiquity to Modern Times. The earliest extant reported sighting is in a stela dated to around 1460 BCE, describing an event that occurred during a war between the Egyptians under Pharoah Thutmose III and the Nubians. According to the text, a "star" hovered over the Nubian army, illuminating it and causing the horses to flee and the army to fall "upon their own blood," which Thutmose attributed to the intervention of the god *Amon*. A particularly vivid incident was featured in a 1594 book by Pierre Boaistuau, which describes the following in Germany in 1577: "About the sun many dark clouds appeared … Out of these clouds have come forth reverberations resembling large, tall and wide hats … which appeared in various colors." That said, unusual as such stimuli may be, Bullard (2016) notes they are not *necessarily* extraordinary, and could potentially be explained by naturalistic phenomena like the aurora borealis. However, he also cites examples that could be "genuine" UAP, most notably the "Robozerbo marvel" in Russia in 1663, in which a "ball of fire" about 140 meters wide with "blue smoke on its side," emitting "two ardent rays," appeared over a lake and remained for some 90 minutes.

Another well-known example is the many references to so-called "watchers" mentioned in Genesis 6 (and in other related texts, such as the pseudepigraphic books attributed to Enoch). In the Book of Daniel, the king Nebuchadnezzar reports seeing "a watcher, a holy one come down from heaven," which the prophet Daniel interprets as the king being warned of receiving a punishment "by the decree of the watchers, the demand by the word of the holy ones" (Dan. 4:17, 23; Collins, 1982). The Ethiopic Book of Enoch, also known as First Enoch, includes the story of 200 watchers descending "onto the peak of Mount Hermon," for reasons that intersect with several categories of myth below. One is to teach humanity heavenly knowledge and technology, "sorcery and charms, and to reveal to them the cutting of roots and plants." These "watchers" inter-breed with the "daughters of men" and create "giant" children known in Hebrew as the *Nephilim* (cf. 1 Enoch 6-7) (Schiffman, 2005), as noted above. Likewise, other ancient cultures also have narratives of humanoid "giants" (including the legend of Gilgamesh, also mentioned above). Some people are even persuaded that there are extant physical traces of such entities — such as architectural creations that appear to be designed for beings far larger than humans — and potentially even skeletal remains.[37] Despite the deserved modern archaeological critiques of the more fantastic of such claims, the widespread traditions referring to "giants" of heavenly origins should at least be noted

The "watchers" narrative has been extensively analyzed — and indeed has become fairly prominent in popular culture, being discussed for example by Joe Rogan in an interview with Michels (2025n), with Rogan suggesting that it sounded like "genetic engineering."[38] A common interpretation is that the story appears to suggest that these watchers constituted an angelic "rebellion" against God, the leader of which is known as *Samyaza* or *Sataneal*, which commentators have argued may be the origin of subsequent notions of Satan, also known as Lucifer, Latin for "bringer of light" (and also the name given by the Greeks — *phosphoros* — to the planet Venus, the "Morning Star") (Orlov, 2012). Although the idea of Satan/Lucifer has come to be associated in the Christian tradition with evil, such connotations are not explicitly present in the Enoch books and other related texts such as the Manichaean "Book of the Giants" (also found in Aramaic fragments among the Dead Sea Scrolls) (Goff et al., 2016). These traditions do reflect a well-developed notion of an angelic fall; *Semjaza* tells the other angels, for example, that he fears that "I alone shall have to pay the penalty of a great

[37] Many cultures have legends of races of giants that were once supposed to have roamed the Earth, with such myths reflected in place names associated with these beings, like Giant's Causeway in Ireland, or Asthipura ("Town of Bones") in India, thought to contain remains of the great warriors — which include giants — of the epic battle of Mahabharata (Mayor, 2007). Perhaps most striking vis-à-vis this notion of "giants" is that people claim to have actually found evidence of such, such as apparent fossilized traces of huge humanoid beings, like a giant footprint about 1.2 m long in granite near Mpuluzi in South Africa (Doyle & Wieland, 2012). Another source of intrigue are forms of architecture that seem too large to have been designed for humans, including a recently unearthed and previously-unknown "biblical-era" layer of the Philistine city of Gath in Israel, which dates to the 11th Century BCE when, quite pertinently, according to Samuel I 17, the future King David slew the giant Goliath (Borschel, 2019). Finally, there have long been reports of large skeletons, with over 1,000 accounts of seven-foot and taller skeletons reportedly found in ancient burial sites over a two-hundred-year period in North America alone (Newman, 2022).

[38] Rogan said he had been encouraged to read the book of Enoch by Rep. Luna when she came on his own podcast, where she was "telling me some stuff that was just like mind-blowing," and described it as "a wild read": "Like what are they talking about? What are you talking about? The Watchers came down and they mated with humans and they created a race that was a giant race that destroyed everything and consumed everything … Like, doesn't that sound like genetic engineering?"

sin" (6:3). As with Ezekial's account above, proponents of the "ancient alien" hypothesis have argued that this "fall" could be interpreted as a reference to an E-ACE rather than a D-ACE. There also seem to be hints of some kind of struggle between two different NHI "factions," which Jorjani — as discussed in an interview with Michels (2025i) — suggests is found across cultural traditions, from the Devas and Asuras in Vedic texts to the Titans and Olympian Gods in Greek mythology.[39] In any case, whatever the actual nature and relationships of the reported beings in question, and even if there is some implicit nefarious undertone to these narratives, they also — per the etymology of Lucifer — imply humans receiving illumination, knowledge, and even technologies of some form (Nickelsburg, 1977), which overlaps with our next category of myth.

Perhaps even more significantly, accounts of visitations from NHI who provide special technology to humans are found across cultures. Aboriginal cultures for instance include reverence towards various beings that are portrayed as descending from the heavens and shaping human experience in various ways. These include entities such as the *Wandjinas*, depicted as powerful rain and fertility spirits who helped form the land. Images of these beings are etched into ancient rock, featuring large, haunting eyes and haloed heads. Another narrative is of a race of creatures called the *Guri-didj*, described as "a very small (4-5 feet in stature), dark race, now extinct, of a higher order of intelligence," who were capable of skillfully creating objects of interest to humans, from dwellings to boomerangs. These *Guri-didj* are described as having left Earth, after a period of hostility with humans, and are "now living up in the sky" (Worms, 1955). Such narratives have the potential to find confirmation in various forms of ancient ACE-suggestive artwork, along the lines of the Aboriginal rock etchings, which are likewise found across cultures. Moreover, some such artwork is on a far grander scale, with the most famous example being the geoglyphs on the Peruvian coastal plain known as the Nazca lines.[40]

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[39] Interviewed by Michels (2025i), Jorjani put it as follows: "The UFO phenomenon extends through all of recorded human history and most likely into prehistory. And it's absolutely inseparable from both revealed religious systems like Judeo-Christianity and Islam and also more … archaic polytheistic ritualistic religions, like the religion of ancient Egypt or … in the Mahabharata and the Ramayana the Devas and the Asuras or what in the Greek language we might call the Gods and the Titans are exactly the same beings as … the Elohim in the Bible or the rebel angels, the Nephilim, in the biblical context, they're the same beings as the Anunnaki in Sumerian scriptures where … this idea that there are two factions runs through every human religious belief system on the planet throughout the course of history… There's a through line from Enki in the Sumerian myths to Prometheus in the Greek context to Quetzalcōātl in the Mayan context to let's say a leader of the Asuras in a Hindu context." Michels summarized this as a "demigod figure that transgresses on behalf of man against the gods, [that] brings forth some sort of sacred technology to them." Jorjani replied "Exactly," and continued "through every human culture… the narrative is essentially that we were created as workers or slaves or servants of some kind of celestial overlord and we were put into a caste system, a hierarchy … [and] at some point there was a rebellion against this structure."

[40] The lines and geoglyphs of Nasca and Pampas de Jumana are located in the Peruvian coastal plain, and are described by UNESCO (https://whc.unesco.org/en/list/700/) — as part of the rationale for their inclusion on the World Heritage List — as "among archaeology's greatest enigmas." Covering some 450 square kilometers, these are lines etched into the ground (mostly to a depth of six to twelve inches), depicting a range of phenomena, including "living creatures, stylized plants and imaginary beings, as well as geometric figures several kilometres long." They are thought to have been created by the pre-Hispanic societies which flourished in the area between the 8th century BCE and 8th century CE — including the Nazca people who inhabited the Rio Grande de Nasca river basin from around 100 BCE to 800 CE — with their creation dated slightly more specifically to 500 BCE to 500 CE. There are currently thought to be at

On a related artistic theme, some people are persuaded that humans have been "visited" — even if only in a communicative sense — by NHI through the medium of crop circles. The crop circle phenomenon is also fascinating since it has many parallels to the UAP topic. First, scientific reaction largely mirrors the response to UAP, likewise involving, (a) a strangely *unscientific* lack of curiosity or open-mindedness, (b) an uncritical acceptance of simplistic debunking narratives (e.g., that these are all necessarily a "hoax"), and (c) rigid certainty regarding (a) and (b). To be fair, many circles are indeed made by human "crop circle artists," often secretly/anonymously, as if intended to be (mis)perceived as being of extraordinary origin. Also though, in the same way that many UAP sightings are most likely prosaic and yet a small minority appear to be genuinely anomalous, so do some crop circles resist being easily attributed to human efforts. This suggestion rests on features including: (a) the unusual way in which some crops have been flattened (e.g., which are bent, rather than broken, and appear to suggest the involvement of electromagnetic energy)[41]; (b) the speed in which they appear to have been made (often in mere hours or even minutes); (c) there being often no witnesses of their creation; and (d) designs

least 700 geoglyphs: having first been "discovered" in 1927 by the Peruvian archaeologist Toribio Mejía Xesspe, over subsequent decades the number identified has kept rising steadily, and by 2020 the number stood at 430; however, using AI to map the entire region, Sakai et al. (2024) identified 303 further ones, and moreover suspect there may yet be additional ones remaining to be discovered.

The lines are obviously significant for a wealth of reasons, including revealing the values and practices of the peoples who created them. Most relevantly here though, some people argue that these are suggestive of ACEs, most famously von Däniken (2018) in Chariot of the Gods, who proposed that these functioned as a "landing site" for ET craft. Without endorsing that particular theory, observers have been struck by the immense size of some images, which include a hummingbird that is 320 feet long and 216 feet wide, and — as described by the Guiness World Records (www.guinnessworldrecords.com/world-records/largest-geoglyphs) — even a "perfectly formed arrow" that "exceeds 1,600 ft." As a result, some people have speculated that the figures, (a) could only have been designed and constructed by taking an aerial view of the land, and/or (b) were intended to have been viewed from the air. Such speculation, together with the fact that some figures seem suggestive of aeronauts — above all a design some 100 feet high dubbed the "astronaut" — have led observers to speculate that these images may at least have *something* to do with an ACE (Plain, 2024).

[41] Rather than the plant stems simply being broken (as one might expect if humans had trampled on them), the stems in some circles seem to be merely "bent" in a perplexing way that suggests the involvement of electromagnetic energy. One pioneer in such analyses has been Levengood, with Levengood and Talbott (1999) reporting that "crop formations involve organized ion plasma vortices that deliver lower atmosphere energy components of sufficient magnitude to produce significant bending, expansion and the formation of unique expulsion cavities in plant stem pulvini, as well as significant changes in seedling development." Similarly, Haselhoff et al. (2014) report that sampling of plant stems in one particular circle revealed "a strong lengthening of the growth nodes, with a symmetrical distribution that was aligned with the flattened area itself. This effect has been attributed by some researchers to the effect of electromagnetic energy… [The] symmetry was indeed identical to the energy distribution of a spherical radiation source, which supported the claim of the eyewitness [footnote below] that a "ball of light" was hovering above the field at the time the crop circle was formed." Likewise, Meder (2005) writes that "All kinds of anomalies have been found in such crop circles, like hundreds of dead flies, burn marks, dehydration and magnetite. Examination of the wheat stems within the crop circle showed abnormal swelling of the nodes, which sometimes even seem to have exploded… Haselhoff believes this is caused by some microwave heating and radiation effect. Germination tests with the seeds of wheat from within crop circles showed remarkable deviations in growth compared to seeds outside the circle. Again, this could be explained by believing balls of light, emitting microwave radiation and

that are highly complex yet also incredibly precise.[42] In isolation none of these features are necessarily extraordinary, yet in combination they do appear to indicate something highly unusual. Yet another parallel with UAP though is that even if some circles do have an extraordinary origin, this does not necessarily mean an extraterrestrial one. Instead, the same gamut of NHI-related possibilities raised in relation to UAP also apply to crop-

heat, create crop circles. It cannot be a natural phenomenon like ball lightning though; the complex mathematical structure of formations suggests some kind of intelligence."

[42] One of the most famous circles is known as the "Triple Julia" pattern, which appeared in a field in Wiltshire, UK, in July 1996. As described by Taylor (2011) in Physics World, this involved 194 circles, spanning a total of 115m, which together created three intertwined fractals that align with an equation developed by Gaston Julia in 1918, as shown in the photograph below. As Taylor puts it, the figure is so mathematically complex that even in the late 1980s, "the best computers lacked the processing power needed to generate it on screen," and yet it was somehow generated unobserved "during the short hours of that midsummer night?" With Taylor following the conventional assumption that the design must have been human made, he nevertheless admits that "Some 15 years on, scientists still do not know the answer" to how this would have been possible.

Figure 1. The "Triple Julia" crop circle, Wiltshire, UK, July 1996

Adding to the intrigue are strange stories around its supposed creation. Andrews (2009) for example suggested it "arrived in daylight on a sunny day opposite a busy tourist spot surrounded by high traffic roads," with details including the following:

> When I interviewed the Wiltshire Police I was told that the police emergency lines received several 999 calls just before 6.00 PM reporting a large number of vehicles pulled off the road causing a hazard. What has recently been revealed is that the people in those cars may well have seen the formation forming. According to researcher Lucy Pringle … "There was an apparition, an isolated mist over it (the formation) and as the circle was getting bigger the mist was rising above the circle. As the mist rose it got bigger and the corn circle got bigger. There was a mist was about 2-3 feet off the ground and it was sort of spinning around and on the ground a circular shape was appearing which seemed to get bigger and bigger as simultaneously the mist gets bigger and bigger and swirled faster…" Lucy continues in her report to say that there was a clear space between the ground and the mist as the crop circle formed and there was no wind or dust. Lucy's witness reports that the event took about 20 minutes to form although they can't be sure because they lost track of time.

circles, such as the suggestion (and even potential observations) that circles are made by orbs of light.[43] There are also suggestions that some circles may not merely be signs of an NHI presence, but even attempts to share knowledge of some form — with Drew (2025) for instance suggesting some crop circles offer insights into the physics of UAP flight propulsion and design clues for new forms of aviation — thereby constituting a form of "gift," which leads into our next section.

NHI Gifts

One way to arrange the various forms of ACE mythology, as noted above, is an escalating level of human involvement in the story. In that sense, one step up from "mere" visitations is people receiving gifts from the visitors, as implied in the "watchers" myths. Such gifts take various forms, from knowledge and guidance to actual physical or technological artifacts. Some of these stories overlap with the myths above, perhaps the best-known example being that of Prometheus, who stole fire from the gods and gave it to humans (Apollodorus, 1921: 1.7.1), from which Ridley Scott took the name for his 2012 film about ancient alien visitors to Earth. Indeed, Peter Levenda, introduced at the start, suggested he had been informed by sources that the Prometheus myth was central to understanding the phenomenon (Michels, 2025m).[44] Many peoples and cultures appear to

[43] Some people claim to have observed crop circles actually being created, with such reports often involving "orbs" or "balls" of light, as noted above in the Footnote above, and as for example charted by Haselhoff (2001), who gives one example as follows below. Moreover, subsequent biological analysis of the area indicated that this eyewitness "testimony was supported by unambiguous biological changes to the flattened crop that could easily be observed and quantified" (Haselhoff et al., 2014).

> In 1996, I obtained a report from a sixteen year-old boy … [whose] stories were similar to the statements of other eyewitnesses I had heard and read about … Just like many others, the boy also mentioned trembling air and crackling noises "as if you take off your sweater over your head," or, on another occasion, "as if you throw frozen French fries in hot oil." The creation of a crop circle, he says, occurred with one or multiple bouncing balls of light, spinning very rapidly through the crop "so that it almost resembled a fluorescent disk." Sometimes the balls had a white-bluish or white-pinkish color, or at other times more orange-like. According to the physical laws of electromagnetism, this could be an indication of varying temperature, while the trembling air around the balls could be the result of intense heat. After the formation is formed, in seconds, Robbert [the witness] says, the tight balls fade and disappear, "as if you switch off the television".

There are even claims that this process has been caught on camera, including an (in)famous video ostensibly recorded in August 1996 at Oliver's Castle hillfort in Wiltshire, which appear to show circles being created by several orbs of light skipping across a field (see https://www.youtube.com/watch?v=jMeRd5EdBwE). The origin and veracity of the video have been much debated, and many people are persuaded it is *not* genuine and instead has been digitally altered, although other people are skeptical that such digital alteration would have been feasible at the time (The Croppie, 2023). While one should probably err on the side of the video not in fact being genuine, given that there does not appear at present to be a conclusive debunking, it ought to be kept on the table as being a potential source of evidence.

[44] Interviewed by Michels (2025m), Levenda recounted a story of him and Delonge being pointed by their contacts towards the idea that the Prometheus myth is a key to understanding the UAP topic:

> Tom is sending me these long emails that he's getting, right? And he's saying, "What the hell do you make of this?" … We start talking about this and I'm saying, "We're having we're having an all the president's men moment … because people are trying to tell us something without telling us something, right? You know, it's like follow the money, right?" … One of his most trusted

have similar narratives of receiving guidance from celestial visitors, or from other potential NHI forms, whose origins (whether interstellar or not) are less clear.

The latter possibility is found in Mesopotamian legends, for example, which not only dwell upon the *Annunnaki* as supposed creators of human beings, as noted above, but also tell of another class of entities known as the *Apkallu*, seven sages who are described as "half-fish beings" (i.e., with a humanoid upper torso and fish-like lower body) that came from the seas to impart wisdom and guidance to these nascent human civilizations (Yıldırım, 2022).[45] Indeed, this idea of seven sages emerging from bodies of water is found across cultures (Misra, 2020). Such a recurrent motif raises various possibilities, from a singular event that was retold and reinterpreted across cultures, to the same sages visiting and influencing multiple places independently. Also, this kind of aquatic origin would seem to situate such entities as "cryptoterrestrials" (i.e., NHI concealed on Earth). However, the cryptoterrestrial hypothesis allows all kinds of possibilities for the origins of such beings, ranging from remnants of an early hominid civilization on Earth to interstellar NHI who "arrived" at some point in the past (possibly before human beings even evolved) and have

> advisers said, … "How much do you know about Greek mythology?" … And it's specifically talking about Prometheus. Now that gives the show away, right? … At some point, somebody did something they weren't supposed to do. And it might have … jump started civilization on this planet, right? … Humans didn't have fire. They were freezing their asses off. Prometheus came down and said, "Here's fire. Get warm, you know, and the gods didn't like that. So they punished Prometheus … They're trying to tell us something. And what is Prometheus about? It's about contact between the humans and the gods. And the one who made the contact was a god, not one of the humans.

[45] Accounts of the *Apkallu* are reported to have been contained in the writings of scholars such as Berossus, an early-3rd-century BCE Babylonian writer and priest of Bel Marduk. While his texts themselves have been lost to time, ancient authors whose works do survive, such as Eusebius, Syncellus, Josephus, Pliny and Vitruvius, quoted from him. One such report, cited in Yıldırım (2022, p.46), focused on a figure called *Oannes*, depicted as the first of seven sages, known collectively as the *Apkallu*, who emerged from the sea to guide and instruct human beings, and essentially help the Sumerians found their nascent civilization:

> In the first year there made its appearance, from a part of the Erythraean sea which bordered upon Babylonia, an animal endowed with reason, who was called Oannes. (According to the account of Apollodorus) the whole body of the animal was like that of a fish; and had under a fish's head another head, and also feet below, similar to those of a man, subjoined to the fish's tail. His voice too, and language, was articulate and human; and a representation of him is preserved even to this day. This being in the day-time used to converse with men; but took no food at that season; and he gave them an insight into letters and sciences, and every kind of art. He taught them to construct houses, to found temples, to compile laws, and explained to them the principles of geometrical knowledge. He made them distinguish the seeds of the earth, and showed them how to collect fruits; in short, he instructed them in everything which could tend to soften manners and humanize mankind. From that time, so universal were his instructions, nothing has been added material by way of improvement. When the sun set, it was the custom of this Being to plunge again into the sea, and abide all night in the deep; for he was amphibious.

since hidden out on our planet in some fashion — with persistent rumors of underwater bases,[46] for example, or perhaps nearby on the moon.[47]

[46] In terms of potential underwater NHI bases, Retired Admiral Tim Gallaudet (2023), introduced above, suggested one such base could lie in the Catalina Channel off the southern California Coast, as have others (e.g., Dennett, 2018). Such claims are based partly on, (a) the numerous underwater UAP observed there over the decades, (b) testimonies from people who report strange encounters with humanoid beings in the area, and (c) peculiar structure-like images available on resources such as Google Earth. As a result, as Gallaudet (2023) put it in a talk, "I'll just cut to the chase. You know, there's talk about, is there a UAP base in Southern California? It sounds wild, but after this week's hearing [i.e., the Congressional UAP hearing in July 2023], maybe not." There has also been speculation about "mobile" bases, such as one raised on 4-Chan by a poster who became known as the "4-Chan whistleblower" (see https://imgur.com/a/4chan-whistleblower-NXjWQaN for screenshots of their posts). There is of course no way at present to know the validity of their claims, but it is nevertheless an interesting example of the discourse one can find on this topic, especially since their allegations did garner considerable attention on social media. The poster began by stating: "I have intimate knowledge about what the US currently knows about UFOs minus the last two years. – UFOs are primarily unmanned drones. – UFOs are built to spec each time they are deployed. – UFOs are created by a mobile construction facility that hides in the ocean. – Construction facility destroys anything that comes close to it and will disappear for days when approached aggressively. – US believes the facility has been active on earth for at least 100 years or even longer." The poster then invited questions, which included — most relevantly here — one which asked whether there is "a working theory on their origins," to which the poster replied, "Quite a bit but we think the construction facility has been around since at least 4000 BC." Again, while we cannot adjudicate the validity of such claims, nor indeed the notion of underwater bases in general, it is worth noting that speculation along these lines has even reached Congress among members looking into the UAP topic, such as Tim Burchett, who was asked by his former colleague Matt Gaetz whether he thought there are NHI bases underwater, to which Burchett replied, "I do" (McFall, 2025).

[47] The moon has long attracted speculation regarding a possible ongoing NHI "presence" there, with many strands of intriguing evidence accumulating over the years — of differing levels of ambiguity and quality — giving rise to many claims of variable credibility. Some people even suggest the moon itself is very strange, characterized, as noted by Loeb (2024a), by numerous extraordinary "coincidences regarding its size, behavior, and composition." These include the facts, for example, that one side is always facing Earth (since the moon is rotating on its axis at the exact rate it orbits the Earth), and that it appears roughly the same size in the sky as the sun (as although the sun is 400 times bigger, it is almost exactly 400 times further away). Just as peculiar is the observation is that it may be potentially hollow (or at least has hollow cavities), based on seismic reverberations observed in tests conducted by the Apollo missions (Observing The Anomaly, 2023). As NASA's (1973) Apollo 17 Mission Report noted, "One unexpected result came from the seismic experiment recording the impact of Intrepid on the surface after we had jettisoned it. The entire Moon rang like a gong, vibrating and resonating for almost on hour after the impact." As a result, some have speculated that the entire object may be an artificial NHI construction (Knight & Butler, 2006). This idea was discussed for example by famed UAP/NHI experiencer Chris Bledsoe, who has a long history of being studied by the figures in the intelligence agencies and NASA in relation to his experiences, as introduced further below. In a recent interview with Michels (2026), he spoke about having — through his connections and interactions — "seen some photos of the moon, and some things I can't dare say, but what I saw makes me wonder, is it is it real? Is it an illusion? Was it put there?" To the latter possibility, Bledsoe suggested that his high-level connection at NASA had "insinuated that it was it wasn't there by accident. That it was set there. That's all he would say."

Perhaps the most keenly studied stories relating to a lunar NHI presence are those linked to NASA missions and observations, including apparent photographic evidence which, while not confirmatory of NHI, does at least seem hard to explain. The most prominent researcher in this arena is Richard Hoagland (e.g., Hoagland & Bara, 2007), whose analyses of NASA photographs have yielded various apparently anomalous structures. For instance, in 1967 the Lunar Orbiter III took a photo (frame LO-III-84-M) of the

In terms of more explicit interstellar engagement, among the most notable examples is one that some people have interpreted as providing genuine empirical evidence (beyond myths themselves) of extraterrestrial contact. The Dogon, an ethnic group indigenous to Mali, have an origin myth in which a creator god called *Nommo* is depicted as descending from the heavens amidst a loud whirlwind, thereafter multiplying into numerous beings who then lived in the waters on earth, bequeathing knowledge to the Dogon. Remarkably, *Nommo* was said to have come from a star now commonly known as Sirius B, which crucially was not detected until the mid-19th century and cannot be seen without powerful telescopes (Holberg & Wesemael, 2007). As such, the possibility the Dogon knew of this star, centuries before the technology to detect it was available, has been interpreted by some as indicating genuine extraterrestrial contact (although some critics are skeptical, suggesting that ideas linking the *Nommo* to Sirius B were seeded or overlaid upon existing narratives by later European scholars who were studying the Dogon[48]). Nevertheless, even if the Dogon did not specifically know of Sirius *B*, they still seem to have a genuine mythological connection with Sirius, from which they believe themselves to have received guidance (with knowledge itself of course being one potential gift). Dogon myths also have intriguing parallels with Sumerian legends of the *Apkallu*, in that the *Nommo* are likewise depicted as being half-fish-like creatures who reside in the waters from where they would emerge to offer knowledge to humans (Kamalu, 2018).

Perhaps even more strikingly, some myths tell of receiving gifts which, to modern ears, are suggestive of advanced technologies. One of the most intriguing and discussed examples

Bruce crater and the Sinus Medii Mare plain, with an overexposed 44x enlargement by Hoagland revealing what seems to be an irregularly-shaped vertical object 1.5 miles tall dubbed the "Shard." Skeptics have sought to find naturalistic explanations: an article by Live Science (2012) for example claimed it was merely an artefact of Hoagland's "manipulation" of image processing software. Other explanations mooted are an ephemeral "outgassing" event that just happened to coincide with the photograph being taken. However, these "debunking" claims have themselves been challenged; for example, the shard has a shadow cast in the correct direction (i.e., given the location of the sun at the time), while enhancements of the photo reveal no "spray" (i.e., that one might normally expect from outgassing), both of which lend support to it being a "real" object. Hoagland suggests the potential artificiality of the Shard is then lent further credibility by the apparent proximity of other seemingly anomalous objects he also identified on LO-III-84-M (and related photos), including the "Tower/Cube" (a tripodal structure that seems to extend some seven miles upwards, with a large mile-wide cube on top). He further suggests that both the Shard and Tower/Cube are translucent/transparent and are remnants of a large glass dome-like structure — with other remnants also seemingly evident in other photographs — which he theorizes was built to protect a now-vanished outpost of civilization on the moon.

[48] When French anthropologist Marcel Griaule studied Dogon legends and interviewed living priests, he found that *Nommo* was said to have come from a star now commonly known as Sirius B (Griaule, 1948; Griaule & Dieterlen, 1950). Crucially, while Sirius B is a companion to Sirius A, one of the brightest celestial bodies, Sirius B itself is a tiny, faint dying star that was not detected until the mid-19th century and cannot be seen without powerful telescopes (Holberg & Wesemael, 2007). As such, the possibility the Dogon knew of this star, many centuries before the technology to detect it was available, has been interpreted by some as indicating genuine extraterrestrial contact, since without the star being visible they would have had to have acquired knowledge of it from other sources, which some claim could have been visitors from the actual star (Temple, 1982). Carl Sagan (1980), however, countered that the Dogon learned of Sirius B from European astronomers who visited the region before Griaule, while Van Beek (2004) argues that Griaule used "leading and probing questions … to elicit the desired revelations from his informants." Even so, scholars like Temple (1982) are still persuaded that "knowledge of Sirius B amongst the Dogon goes back hundreds of years, as shown by physical evidence," such as art which is suggestive of the star. At this point the legitimacy of such claims has not yet been resolved.

is the Ark of the Covenant, which the Book of Exodus records God as instructing Moses to build during his 40-day stay upon Mount Sinai. The conventional account of the Ark is that it "just" housed religious artefacts, such as the stone tablets inscribed with the Ten Commandments. However, the texts also allude to the Ark having unusual properties, both in terms of the specificity of its construction, and its actual qualities, which have led some people to speculate that it may be some kind of technical device, such as electrical capacitor, used to generate, store, and discharge electricity.[49] Whatever the truth of it, the Ark remains a point of fascination today, as exemplified by media interest in the story that the CIA discovered its modern location through a remote viewing program in the 1980s (Lapointe, 2025). Similar legends of gifts are found across cultures, such as Japanese narratives around *Jimmu*, first ruler of the nation's imperial family in 660 BCE, who is mythologized as receiving not only blessings and instruction from the sun goddess *Amaterasu*, but also powerful artifacts that enabled him to establish power (Dumpert, 1998).[50] While such speculative ideas are of

[49] According to the book of Exodus 25:10-22, construction of the Ark began at Mount Sinai, and involved very specific instructions:

> Have them make an Ark of acacia wood — two and a half cubits long, a cubit and a half wide, and a cubit and a half high. Overlay it with pure gold, both inside and out, and make a gold molding around it. Cast four gold rings for it and fasten them to its four feet, with two rings on one side and two rings on the other. Then make poles of acacia wood and overlay them with gold. Insert the poles into the rings on the sides of the Ark to carry it. The poles are to remain in the rings of this Ark; they are not to be removed. Then put in the Ark the tablets of the covenant law, which I will give you.

The idea that it was possibly some kind of mechanical device arises from various intriguing stories. In one, a man named Uzzah is reported as being killed when he accidently touched the Ark. As recounted in 2 Samuel 6:6-7 (NKJV): "And when they came to Nachon's threshing floor, Uzzah put out his hand to the ark of God and took hold of it, for the oxen stumbled. Then the anger of the Lord was aroused against Uzzah, and God struck him there for his error; and he died there by the ark of God." Some people have thus interpreted this incident as suggesting that the Ark could have been an electrical capacitor. As reviewed by The Why Files (2023), such speculations draw on ideas such as it being possible to build a capacitor by placing two conductive plates parallel to each other with non-conductive material (the dielectric) in between. This theory draws on the fact that the box was reported to be covered with gold, both inside and outside, since gold is a good conductor of electricity, while the acacia wood in between the gold could serve as the dielectric.

In other episodes there appear to be accounts of it wreaking havoc upon the enemies of the Israelites. 1 Samuel 4-5 for instance describes the Philistines capturing the Ark in battle, but instead of bringing them victory it seems to usher in devastation: "The Philistines placed the Ark in the temple of their god Dagon, only to find their idol fallen and broken before the Ark" (1 Samuel 5:2-4 NKJV). This has led some people to speculate that the Ark could have been some kind of nuclear device, for example harnessing fission or uranium to release massive amounts of energy in the form of heat and light and radiation, referencing stories such as the Ark helping to bring down the walls of Jericho. The theory also draws upon features of the Ark narrative that could imply that it contained a radioactive substance, such as the reports that the priests who carried the Ark had to wear a metallic breastplate and apron (e.g., as per the lead blanket used when people now undergo an x-ray).

[50] The two major texts of Shintoism, the *Kojiki* and the *Nihongi*, tell how *Jimmu* received not only blessings and instruction from the sun goddess *Amaterasu*, but also powerful artifacts that enabled him to establish power. Central to the legend of Amaterasu is a divine mirror (*Yata-no-Kagami*) containing her "essence," which *Jimmu* is said to have used to establish his sovereignty (Dumpert, 1998). At some point prior to *Jimmu*'s ascent to the throne, *Amaterasu* sent her grandson *Ninigi* to Japan to establish divine rule, equipped with the mirror and exhorting him to worship her spirit in it ("Regard this mirror exactly as if it were our august spirit, and reverence it as if reverencing us"). After seven generations,

course almost certainly fanciful, our central argument is we should not *assume* such myths are necessarily imaginative fictions, and should be open to the possibility of them having at least some basis in truth.

Other myths are similarly suggestive of powerful technologies, albeit without necessarily implying a "gift" bestowed upon humanity. Indian mythology for instance tells of celestial weapons of mass destruction — the *brahmastra* or *brahmasira* — used by legendary heroes such as *Rama* and *Krishna*. The weapons are described as having the power to lay waste to whole regions (cf., e.g., Ganguli, 1836: 1.141). Even if NHI may not have been involved, perhaps stories of these weapons reference the iron bolide that created the Luna crater in India around 5,000 BCE (Sanjinkumar et al., 2024). However, some scholars speculate it could have actually been some kind of nuclear device (Swaminathan, 2011).[51] In any case, whatever the truth of that *particular* myth, classical Indian texts include many intriguing references to NHI — whether divine, extraterrestrial, or something else — engaging in celestial travel using airborne vehicles ("chariots"), and accounts of these vehicles descending to Earth, sometimes even departing again with humans on board.[52]

Jimmu took possession of the mirror, along with two other sacred objects, a jewel and a sword, and was thereby granted divine authority, and thus became the first human sovereign. Intriguingly, this mirror still apparently exists, wrapped and unseen for centuries, in the imperial shrine (Takenaka, 2019). Of particular relevance here is the suggestion that this mirror is a technical device, one perhaps giving *Jimmu* some form of visual information about territory of interest on Earth (Childress (2022).

[51] In the text of the epic *Mahabharata*, a weapon is described laying waste to lands in ways that appear to "precisely portray the impacts and repercussions of an atomic war," including blasts described in the text as "more brilliant than a thousand suns" (Dani, 2019). Strikingly, some suggest the Mohenjo-Daro region in modern-day Pakistan shows signs of having withstood some such blast in the distant past, such as rocks that appear to have been melted by extreme temperatures and transformed into a glass-like substance (Davenport & Vincenti, 1979). Although critics have sought to debunk such claims (Colavito, 2011), others remain open-minded, influenced perhaps by lore such as a quote attributed to Robert Oppenheimer — though it has not been conclusively verified — after the Trinity Atomic bomb test in 1945; asked if this was the first ever detonation of such device, he purportedly replied: "Yes, in modern times" (Ajay, 2020).

[52] Consider for instance a story in the *Mahabharata*, an ancient epic text revered in Hinduism, thought to have been compiled between 300 BCE and 300 CE, that narrates the events and aftermath of the *Kurukshetra* War, a war of succession between two groups of princely cousins (the *Kauravas* and the *Pāṇḍavas*), which popular tradition dates to around the third millennium BCE (though some historians believe it may have instead occurred around the 10th Century BCE) (Raychaudhuri, 1998). One particularly interesting segment (Section XLII) tells a story of *Arjuna*, a mighty warrior, being visited by *Matali*, charioteer of *Indra* (a god associated with sky, weather, lightning, thunder, storms, rains, rivers, and war), who came to take him to the celestial realm. One translation (https://www.wisdomlib.org/hinduism/book/the-mahabharata-mohan/d/doc7319.html) describes its appearance follows:

> Arjuna — that slayer of all foes — began to think, O monarch, of the car of Indra! And as Gudakesa gifted with great intelligence was thinking of it, the car endued with great effulgence and guided by Matali, came dividing the clouds and illuminating the firmament and filling the entire welkin with its rattle deep as the roar of mighty masses of clouds. Swords, and missiles of terrible forms and maces of frightful description, and winged darts of celestial splendour and lightnings of the brightest effulgence, and thunderbolts, and propellors furnished with wheels and worked with atmosphere expansion and producing sounds loud as the roar of great masses of clouds, were on that car. And there were also on that car fierce and huge-bodied Nagas with fiery mouths, and heaps of stones white as the fleecy clouds. And the car was drawn by ten thousands of horses of golden hue, endued with the speed of the wind. And furnished with prowess of illusion, the car

Even apart from mythical references to gifts from the gods, the existence of numerous "out of place artifacts" — objects which appear to exceed the technological capabilities of humans at the time to which these creations are dated — is at least consistent with, and perhaps suggestive of, the past influence of technologically advanced NHI on human civilizations. Among the most famous is the "Schist Disk," discovered by Egyptologist Brian Walter Emery in 1936 while excavating the tomb of Prince Sabu (circa 3000 BCE) (Coffey, 2023). This find is striking on many fronts, including the object's composition (derived from clay and mud which have undergone a series of extreme physical-chemical changes) and design (resembling a "concave steering wheel of a car," with three curved "shovels" that resemble the helix of a boat, together with an opening that would appear to function as the receptacle of some axis of a wheel), as well as it being seemingly flawless yet with no other prototypes or failed attempts ever found. A more recent example that has attracted considerable interest (and controversy), and which would appear directly related to the UAP topic, is the "Buga Sphere," an enigmatic metallic sphere reportedly seen "floating" and then subsequently retrieved in Buga, Colombia, in 2025, which some observers believe is around 12,500 years old (though many people are skeptical and suggest it is a hoax).[53] Moreover,

> was drawn with such speed that the eye could hardly mark its progress. … And while Arjuna was occupied with his thoughts regarding the car, the charioteer Matali, bending himself after descending from the car, addressed him, saying, 'O lucky son of Sakra! Sakra himself wishes to see you. Ascend you without loss of time this car that has been sent by Indra. The chief of the immortals, your father — that god of a hundred sacrifices — has commanded me, saying, 'Bring the son of Kunti hither. Let the gods behold him.' And Sankara himself, surrounded by the celestials and Rishis and Gandharvas and Apsaras, waits to behold you. At the command of the chastiser of Paka, therefore, ascend you with me from this to the region of the celestials. You will return after obtaining weapons.'

After engaging in ritual purification in the Ganges to make himself worthy of such an ascent, and bidding farewell to the holy mountain on which he had lived, *Arjuna* is described as departing on the chariot.

> Thus having bidden farewell to the mountain, that slayer of hostile heroes — Arjuna — blazing like the Sun himself, ascended the celestial car. And the Kuru prince gifted with great intelligence, with a glad heart, coursed through the firmament on that celestial car effulgent as the sun and of extra-ordinary achievements. And after he had become invisible to the mortals of the earth, he beheld thousands of cars of extra-ordinary beauty. And in that region there was no sun or moon or fire to give light, but it blazed in light of its own, generated by virtue of ascetic merit. And those brilliant regions that are seen from the earth in the form of stars, like lamps (in the sky) — so small in consequence of their distance, though very large — were beheld by the son of Pandu, stationed in their respective places, full of beauty and effulgence and blazing with splendour all their own. And there he beheld royal sages crowned with ascetic success, and heroes who had yielded up their lives in battle, and those that had acquired heaven by their ascetic austerities, by hundreds upon hundreds. And there were also Gandharvas, of bodies blazing like the sun, by thousands upon thousands, as also Guhyakas and Rishis and numerous tribes of Apsaras. And beholding those self-effulgent regions, Phalguna became filled with wonder, and made enquiries of Matali. And Matali also gladly replied unto him, saying, 'These, O son of Pritha, are virtuous persons stationed in their respective places. It is these whom you have seen, O exalted one, as stars, from the earth.' … And the celebrated Arjuna having thus passed through successive regions of heaven at last beheld Amaravati, the city of Indra.

[53] Among those persuaded that the Buga Sphere is a genuinely anomalous and ancient object is Greer (2025), who made the following-claims about it in a recent press release: (1) "The Buga Sphere has been carbon-14 dated by the University of Georgia at 12,560 years old. This is 8000 years older than the Great

some archeological findings are even more perplexing and "out of place" than the Schist Disk, with apparent technological artefacts found in locations that would seemingly date them back hundreds of thousands or even millions of years.[54] Given the seemingly extraordinary nature of some artefacts, Coulthart (2023a) suggests the intelligence community has taken a great interest in objects which display "mastery of technology … that is far beyond the … known technology of that era," and that the CIA has "spent a lot of time investigating ancient civilizations" seeking answers to "who were the people who crafted these buildings?" As Coulthart notes: "We still don't know. There are fundamental mysteries in human civilization that we haven't answered."

Myths about celestial gifts continue to the present, and indeed are a central narrative of contemporary accounts of UAP crash retrieval and reverse engineering programs. Many people close to the topic have argued that the astonishing rate of technological development

Pyramid of Giza.! (2) "Metallurgical analysis at a separate certified lab found that the sphere is an aluminum alloy including several rare earth elements with electrical and magnetic uses. Some of these elements were not known to human science until the late 1800s and 1900s. THE ALUMINIUM ALLOY COMPOSITION DOES NOT MATCH ANY KNOWN EXISTING ALLOY." (3) "Aluminum was not industrialized until after 1876, when the technology for refining it was invented. Before then, aluminum was rarer and more valuable than gold." (4) "The shell of the Buga Sphere has components woven into it – including fiber optic material – unlike modern manufacturing technology. It is more akin to a sophisticated 3D printer. Note that fiber optics were the result of the study of crashed extraterrestrial craft recovered in the 1940s and aft." (5) "Two independent linguistic experts have concluded that the symbols on the Buga Sphere are a type of proto-Sanskrit. Translations indicate a warning about some cosmic radiation or astronomical event that could affect Earth's geophysical stability. NOTE: the Buga Sphere dates from 12,560 years ago, around the end of the last Ice Age, which some believe ended due to some global catastrophic event." (6) "We now have 5 independent videos of 5 separate, apparently identical, Buga Spheres operating in the general region of Buga, Colombia, South America. Only one has been retrieved physically." (7) "While it is unknown why these objects have been activated after 12,560 years, I hypothesize that some magnetic field anomalies have been detected, and they are an early warning technology of a future geophysical event that could be catastrophic. Note that scientists have been mapping a large area of magnetic field changes over part of South America." His preliminary conclusions are: "The Buga Spheres are of likely extraterrestrial and/or nonhuman origins, or from an unknown Earth civilization with advanced technology, including antigravity propulsion and energy generation (non-nuclear). If from an Earth- based civilization, that civilization likely had contact with and technology from extraterrestrial civilizations. The activation of these Buga Spheres may be an early warning technology of a possible significant and civilization-changing event in the relatively near future."

[54] The "Aluminum Wedge of Aiud," for example, was discovered 10 meters deep in a sand trench in Romania, next to bone fossils estimated to be 2.5 million years old, and with the 7.8 inch wedge itself estimated to be 250,000 years old; what makes this especially significant is that aluminum in a pure state is not present in nature, and modern humans only developed the relevant technology to needed to create this alloy in the 19th century (Hubilla, 2023). Going slightly further back in history, at the Kalambo Falls in Zambia, researchers in 2019 discovered an apparent example of wood craftmanship — involving two pieces of wood fashioned to "interlock" together — dated to around 500,000 years ago, well before the emergence of *Homo sapiens* (Barham et al., 2023). Going even further back, workers at a coal mine in Ukraine found what appeared to be a fossilized imprint of a wheel in the sandstone roof of a tunnel they had excavated 900 meters below the surface, which is potentially dated as 300 million years old (Archaeology News Network, 2022). Similarly, a Russian team found what appeared to be a 2cm "screw" embedded within rock estimated to be 300 million years old (though skeptics have argued it could be the fossilized imprint of an ancient sea creature called a crinoid) (Griffiths, 2015).

during the second half of the 20th century was aided in part by the study of retrieved UAP.[55] To that point, some observers have even suggested that some such UAP may not have "crashed" accidently, but rather were "gifted" to humans to aid our advancement. As Puthoff says in The Age of Disclosure (Farah, 2025), "Another option that's being considered is that maybe some of these were not quote 'really crashes' but that they were left to for us to examine in order to advance our technology forward at a faster pace. So in that sense, they can be seen as gifts from a more intelligent species."

There are also modern stories of people receiving gifts from NHI via various forms of communication. An early example is the Ummo case, in which during the 1960s people in Spain reported receiving letters and documents allegedly sent by extraterrestrials, including details scientific insights (McCormick, 2024; Wilde, 2025c).[56] There are also strange instances

[55] This was the perspective, for example, of Lieutenant Colonel Philip Corso (1997), who served in the US Army from 1942 to 1963, and was a member of President Eisenhower's National Security Council and former head of the Foreign Technology Desk at the US Army's Research & Development department. He attained prominence by publishing a detailed account of the 1947 Roswell incident, which not only argued that the wreckage reported to have been found was indeed an extraterrestrial craft (piloted by "clones"), but also that the study of the craft's technology helped supercharge scientific and technological development, with the innovations purportedly taken or derived from the crash including fiber optics, lasers, Kevlar, Velcro, and night vision. As Corso states: "We cannot take the credit for our record advancements in certain scientific fields alone. We have been helped by people of other worlds" (cited in Verma, 2023). Such claims are of course impossible to verify, and moreover have also been contested, including speculation — from the likes Farrell (2012) and Jorjani (Michels, 2025k) — that the Roswell craft was actually a product of the *German* military, although complicatedly the Germans themselves may have attained such technologies from the 1933 Italian Magenta crash mentioned by Grusch. Whatever the truth about Roswell or other specific alleged crashed UAP, this general line of speculation has subsequently been aired by many people who would seemingly be in a position to judge its veracity. These include Anna Brady-Estevez (2025), for example, whose career portfolio includes serving as a Program Director at the US National Science Foundation, who suggested that numerous technological breakthroughs can be credited, at least in part, to UAP programs, including lasers and semiconductors.

[56] Wilde (2025c) summarized the Ummo case, including as follows:

> In the early 1960s, mysterious, typed letters began arriving at the homes and offices of scientists, linguists, and thinkers across Spain and later France. They were signed with a symbol and the word UMMO, allegedly sent by extraterrestrial visitors observing Earth covertly. These weren't ramblings...they were dense, technical documents, filled with startlingly advanced physics, genetics, cosmology, linguistics, and ethics. Over the next three decades, more than 1,300 pages would be mailed anonymously, outlining not only an alien civilization's science and philosophy, but their chilling observations of us...a species on the brink. The letters claimed that the Ummites arrived in 1950 and had been monitoring Earth without direct contact, due to interstellar ethical laws preventing interference. Their chosen method of communication? Quiet seeding of knowledge through written documents...sent only to select individuals capable of digesting them … These weren't vague metaphysical ideas. They were precise, detailed, sometimes hauntingly accurate. In the 1990s, a Spanish man named José Luis Jordán Peña claimed responsibility, saying it was a social experiment. But the math didn't add up. Peña had no scientific training, and experts who analyzed the letters noted internal consistency, terminological precision, and scientific foresight far beyond Peña's admitted capabilities. More damning, letters continued to arrive even after his confession — letters that contained information Peña couldn't possibly have accessed. Many believe Peña was a disinformation agent or a pawn used to discredit something far bigger. So what are we left with? A massive, decades-long effort...highly technical, precise, and strangely prophetic...delivered to a handful of chosen minds, never seeking fame, never asking for money,

where messages purportedly from NHI have seemingly been received or broadcast in some fashion (which are usually written off as a hoax).[57] More recently, there have been claims that people in the military and intelligence communities have been tasked with communicating with NHI. These include Dan Sherman, former electronic intelligence specialist, who told Michels (2025l) that he had been part of a classified Cold War-era project designed to create "Intuitive Communicators" capable of relaying messages from NHI. Sherman's account is full of fascinating claims — with some discussed further below — such as his recollection that the NHI entities with whom he seemingly conversed had a "reverence" towards the sun

> and often revealing truths only confirmed years later. If that's a hoax, it's one of the most brilliant and resource-intensive operations in history. But if it's not a hoax… then someone out there is watching us...quietly guiding, gently warning, and waiting to see if we wake up before it's too late.

[57] One example is an infamous and as yet still unexplained event in November 1977, in which a broadcast of Southern Television in the UK was interrupted for almost six minutes by a communication from an individual identifying themselves as Vrillon, representing a body purportedly called the Ashtar Galactic Command. Although dismissed by mainstream media, such as by Barnett (2017) in the Independent newspaper, who wrote it off as "a hoax, of course, a prank," this conclusion is undermined by the article itself admitting that "Strangely, though, no-one's ever come forward and claimed responsibility for it, and the episode remains one of those curiosities from the 1970s that will perhaps never be explained." Whatever it's veracity (and even if a "hoax"), the message is an example of the narrative/idea that NHI may be playing some role in guiding human development:

> This is the voice of Vrillon, a representative of the Ashtar Galactic Command, speaking to you. For many years you have seen us as lights in the skies. We speak to you now in peace and wisdom as we have done to your brothers and sisters all over this, your planet Earth. We come to warn you of the destiny of your race and your world so that you may communicate to your fellow beings the course you must take to avoid the disaster which threatens your world, and the beings on our worlds around you. This is in order that you may share in the great awakening, as the planet passes into the New Age of Aquarius. The New Age can be a time of great peace and evolution for your race, but only if your rulers are made aware of the evil forces that can overshadow their judgments. Be still now and listen, for your chance may not come again. All your weapons of evil must be removed. The time for conflict is now past and the race of which you are a part may proceed to the higher stages of its evolution if you show yourselves worthy to do this. You have but a short time to learn to live together in peace and goodwill. Small groups all over the planet are learning this, and exist to pass on the light of the dawning New Age to you all. You are free to accept or reject their teachings, but only those who learn to live in peace will pass to the higher realms of spiritual evolution. Hear now the voice of Vrillon, a representative of the Ashtar Galactic Command, speaking to you. Be aware also that there are many false prophets and guides operating in your world. They will suck your energy from you – the energy you call money and will put it to evil ends and give you worthless dross in return. Your inner divine self will protect you from this. You must learn to be sensitive to the voice within that can tell you what is truth, and what is confusion, chaos and untruth. Learn to listen to the voice of truth which is within you and you will lead yourselves onto the path of evolution. This is our message to our dear friends. We have watched you growing for many years as you too have watched our lights in your skies. You know now that we are here, and that there are more beings on and around your Earth than your scientists admit. We are deeply concerned about you and your path towards the light and will do all we can to help you. Have no fear, seek only to know yourselves, and live in harmony with the ways of your planet Earth. We of the Ashtar Galactic Command thank you for your attention. We are now leaving the plane of your existence. May you be blessed by the supreme love and truth of the cosmos.

and said, "You don't understand the value of your Sun … but you will."[58] Legendary UAP scholar Jaques Vallée also spoke about hearing of an official program involving apparent communication with NHI.[59] And besides formal alleged programs of this nature there are also myriad other reports of communication/interaction with NHI, from interactions between famous "experiencer" Chris Bledsoe (2023) and an entity known as "The Lady,"[60] to testimony

[58] The message relayed by Sherman about the sun prompted some observers (e.g., Kent, 2025) to recall the idea advanced by Sheldrake (2021) that the sun may be a conscious plasma entity, and so itself may be a form of NHI that is potentially guiding the development of life on Earth. Somewhat relatedly, it was intriguing to see Elon Musk (2025b) post on X, seemingly apropos of nothing, that "Perhaps our purpose is to make the mind of a sentient sun." Another interpretation offered by Coulthart (2025e) is that the Sun is "some kind of portal to other star systems" and "these portals connect all the stars in a kind of network" and so "The sun isn't just energy, it's the loom weaving realities."

[59] Interviewed by Corbell and Knapp (2025d), Vallée said, "If what I'm told is true, the communication with them [i.e., NHI] is very sophisticated and it's complex. So there may be a group that I would respect that has access to that, and this was from years ago by the way. I mean that report of that particular interaction was more than 20 years in a lab somewhere in controlled conditions. If that's true, then there is a process ongoing where we may be able to acquire information at a very sophisticated level." Corbell asked for clarification: "So you're saying you've been made aware that there is a government project … that was able to establish direct communication with a nonhuman intelligence and that you believe this information to be true … and that this is a reality. This is what you understand to be true. Is that correct?" Vallee equivocated briefly, beginning a sentence with the words "I cannot tell…" before then saying emphatically, "Yes. Yes. It's factual." He then clarified the equivocation by saying, "What I cannot tell is whether that the entity that was presented was a simulation of a real entity or whether it was the real entity … The people I spoke to couldn't probe it to see if it was made of flesh or in metal or something else … It was presented to them in a secure facility that I've never heard of [being mentioned] anywhere else where there was structured interaction with it on a continuing basis by specialists from different areas."

[60] Chris Bledsoe (2023) has a long history of reported encounters with UAP and NHI dating back to 2007, including most significantly an ongoing series of interactions since 2012 with an entity known as "The Lady." Bledsoe has spoken about these experiences in numerous forums, including in an interview with Richard Dolan (2019), who suggested they seem to constitute a "classic" example of a Virgin Mary encounter (as also recounted by numerous people through the centuries). Bledsoe described how The Lady had communicated an "extended series of prophecies about world events," some of which he said had "absolutely" since come to pass. Perhaps most strikingly, Bledsoe has attracted considerable attention from senior figures in the intelligence community studying the UAP/NHI topic, who have reportedly been taking his experiences seriously and keenly studying them. Indeed, in an interview with Shawn Ryan (2025), Bledsoe said, "the government has studied [him] more than any human in existence, from DIA, CIA, DoD, the ministry of Defense in England," with a particular interest from figures like Jim Semivan, a retired senior CIA officer with a long history of involvement with the topic, who has provided extensive support, including writing the foreword to Bledsoe's book. Further indication of governmental interest in The Lady was also recently provided by "J2," a figure associated with the Skywatcher organization with the apparent "psionic" ability to "summon" UAP, as discussed below. He reported also interacting with an entity he suggested could be the same being (who he suggested had been helping him develop his psionic abilities), and that the government were indeed taking these interactions "seriously" (Interstellar UAP, 2025). As to the potential nature and identity of The Lady, Michels (2026) asked Bledsoe about his previous comments that the Lady "describes herself as Hathor," an Egyptian deity understood as a "goddess of the sky, of women, and of fertility and love" (Tikkanen, 2026). In response, Bledsoe said, "That was one name she used. She said she had many names, and she had been called many things throughout the world. In other words, Diana, Demeter, Isis, Hathor, Hera, the Virgin Mary, everything. She's had many names throughout history and by every culture."

obtained by filmmaker James Fox (2025) in relation to the Varginha incident in Brazil,[61] to an experience recently recounted by Kirsan Ilyumzhinov, former President of the Republic of Kalmykia (and also longtime President of the World Chess Federation) (Michels, 2025p).[62]

[61] The case involves a series of incidents, beginning with an alleged UAP crash in Varginha, Brazil, in January 1996. Shortly after, three young women reported seeing an unusual creature — with subsequent suggestions that it had escaped from the crash — with one reported as saying, "It wasn't a man or an animal – it was something different" (Moffett, 1996). This sighting was followed by stories that Brazilian authorities managed to actually capture the creature, including observing and treating it at a nearby hospital. These reports have since been challenged, with an official inquiry led by the Brazilian military concluding in 2010 that the women had encountered a homeless, mentally unstable man. However, Fox (2025) obtained footage from a neurosurgeon, Dr. Italo Venturelli, at the hospital who Fox describes as having "face-to-face contact with the live alien for four minutes." Venturelli suggested he experienced a form of telepathic communication with the creature, which he described as a profound encounter, translated as follows: "I went in to see a patient, and it was not a patient, it was really an alien … Cranium shaped like a teardrop, eyes shaped like a teardrop … I saw there a magnificent being from a world unknown to me … Very calm, very tranquil. Like it understood what I was thinking, entirely. It's nice to share this, to explain that there are things out there beyond our imagination. To me, it was very important to see it, because I saw the immensity of the universe. It's not just us here in such a wonderful world. There must be many other worlds, and that being was proof of it."

[62] In an interview with Michels (2025p), Ilyumzhinov recounted an experience in September 1997 that he interpreted as being taken aboard an NHI craft — "invited," he specified, taking issue with the term "abducted" — which included a conversation with entities featuring many of the themes in this paper, such as humans being the creation of NHI, who are monitoring our evolutionary development. The event took place in his Moscow apartment after he had "lay down to sleep to get some rest":

> It was like a vision, like a half dream … I saw someone or rather … someone is calling me. I approached the window and there was something like a translucent pipe glowing made of some matter. Or maybe it was some kind of energy, and someone called me to go there … So I went along this tube or corridor and found myself in a space, a very large space… . It was probably a spaceship, a very large open space, like several football fields large … There were many people or rather beings very similar to us … So I calmly asked a question and they answered through thoughts … I said, "Why can't you address the people of Earth right now? Let the people of Earth know that you exist, that you have arrived and now observing?" … They looked at me and said, "It's still early. You have not yet reached the level in your civilization's development to communicate with us … Your only achievement in civilization is that we created you, the intelligent beings here … gave you a beautiful land, rivers lakes, seas, and you pollute it with industrial waste … You are so beautiful … yet you direct all your science and efforts towards inventing weapons to kill each other as much as possible." … So that's where our discussion ended … They said they didn't want to disrupt the course of our civilization. You are currently at an embryonic level still.

Strikingly, it is worth adding that while he has since often wondered whether it was a dream, he apparently *disappeared* from the apartment during the encounter:

> Later, I kept analyzing the situation. Was it a dream or not? But I had three witnesses. The driver, my assistant, the minister of the Republic of Kalmykia, and my friend who came for me the next day… My friends were already in the apartment looking for me for over an hour and couldn't find me. And then I came out of the bedroom, which they had entered and exited 10 times already. They even called the police. Everyone was looking for me … The bedroom door was open. They go in and I'm not there. Slippers are in place. Phones are in place. They check the bathroom and every other room in the apartment, but well, I wasn't there. The balcony door was open and that's it. They went downstairs, asked the security, and he said, "Well, I didn't see him leave anywhere. The building isn't very big." They checked the video cameras. No one arrived or left. No one flew out, but the camera wasn't looking

Moreover, some narratives combine ideas of gifts with the previous category of visitations by claiming that NHI beings have *themselves* been gifted to humans. Many indigenous cultures, like the Hopi, for example, have legends of "star children" — or comparably evocative names — which tell of select individuals, frequently apparently possessed of unusual physical or mental attributes and abilities, being somehow brought to earth by celestial agents (Weidman, 2006; Clarke, 2012; Wojcik, 2021). There are even contemporary versions of this myth. For example, there is a declassified FBI document written in 1957, known as the "Interplanetary Sessions Newsletter," which discusses an allegation that Nikola Tesla had an off-world origin (Verma, 2024).[63] Such rumors seem motivated in part by the observation that his inventions seem radically ahead of his time, together with curiosities such as that on his death in 1943 much of his work was seized by the government and declared "top secret" (Borowski, 2012). While the overwhelming likelihood of course is Tesla was simply a "normal" human from Earth (albeit still an extraordinary one), it is still curious to see allegations to the contrary in an FBI document, which shows that ACE myths persist into the present.

Finally, a contemporary variant of the visitation narrative that became particularly prominent in 2025 involves humans engaging in ritualistic practices with the aim of "inviting" or "summoning" forms of NHI engagement. Such ideas and practices have

at the sky. Mostly at the entrance and exit, and for a whole hour, they were searching, wondering where I was.

Equally strikingly, he suggested that prominent political figures were aware of the entities he interacted with, and that he was actually asked about his experience by Henry Kissinger and Mikail Gorbachov.

> I have met with Henry Kissinger many times … Back then, in the 1990s … the conversations were usually only about politics. Then, a few years later, he was in Moscow … He was friends with the first president of the Soviet Union, Mikail Sergey Gorbachov. I was also friends with Gorbachev. We communicated a lot. So one time Gorbachev called and said, "We're coming over. Heat up the sauna." So they both visited me. Henry Kissinger was watching me closely. He was a man of few words … He asked about the [World chess] championship … And then he suddenly asked, "Well, how was it?" I didn't understand. He was like, "How are they? How are they feeling? What were they talking about?" At first I thought maybe he was asking about some political meeting. He said, "Well, don't be shy. I read, I heard about it." So I told him a bit about everything. He was like, "Yes, interesting, interesting," and not much else. And Gorbachev sitting next to him said, "Come on, Henry, tell him. You should tell him everything." He just smiled, but he did not say anything at the time. And then probably a few years later, we met him again. He was visiting Gorbachev and me as well. They stopped by my place again. That time he was a bit more talkative and we had a bit of a conversation. From our discussion, I understood that he is very familiar with the materials, that he is well-versed and very deep in the subject.

[63] The document centers on claims by Margaret Storm, who was writing a book about Tesla, regarding a radio-type machine invented by Tesla in 1938 and built after his death. Storm suggested it was for "interplanetary communication," and that by using the device she had received transcripts from "The Space People" who said, "Tesla was a Venusian, brought to this planet as a baby, in 1856, and left with Mr. and Mrs. Tesla in a remote mountain province in what is now Yugoslavia." Needless to say, this claim is highly outlandish, both in itself, and specifically the suggestion of him being from Venus. After all, although there is now tentative evidence of biosignatures on Venus — including phosphene and ammonia (Prisco, 2024) — it is generally still deemed inhospitable to more complex forms of life. Thus, of all possible exoplanets he could be alleged to hail from, Venus would be particularly unlikely, which is perhaps testament to the fact that this myth surfaced at a time when we knew far less about our solar system than we do now.

long been associated with key figures in arenas connected to the UAP topic, such as rocket engineer Jack Parsons.[64] Moreover, in early 2025, there emerged whistleblowing claims that the US military had not only recruited people with the apparent "psionic" ability to "summon" UAP, but that their efforts had seemingly been successful, with one such "egg-shaped" UAP retrieval purportedly captured on film and featured in a high-profile NewsNation episode in January.[65] Members of the team involved in such efforts have founded an organization called Skywatcher (2025), and have said their processes involve two different techniques, one being psionics (or to use their own preferred term, "neuro-meditative interaction"), and one being electromechanical signaling (sometimes called a "dog whistle") (Coulthart, 2025c). In April, the Skywatcher team offered another data/video release, in which they shared a summary of their classification system (with accompanying video) of nine distinct classes of UAP

[64] Jack Parsons (1914-1952) was a pivotal figure in US aviation history, helping found the Jet Propulsion Laboratory in 1936 (which in 1958 was transferred to the newly formed NASA, becoming its primary spacecraft center). Besides his technical accomplishments, his life was one of considerable intrigue, especially around his relationship with occultist Aleister Crowley and their involvement in a "secret society" known as *Ordo Templi Orientis* ("Order of the Temple of the East," or "Order of Oriental Templars"), a hermetic magical organization founded at the turn of the 20th century by German occultists, modelled after and associated with European Freemasonry (Urban, 2008). Crowley assumed its leadership in the 1920s, and oriented the movement around a concept he called *Thelema* (from a Greek term pertaining to the appetitive will, often with sexual connotations), which became the basis for an esoteric spiritual philosophy and movement, populated with deities inspired by ancient Egyptian religion, and involving ritualistic practices akin to and inspired by mystery cultures of earlier eras (Carter, 2005). These included forms of apparent engagement with entities that might be regarded as NHI, together with associated UAP. It has even been suggested that these events came to influence the subsequent development of NASA, with some operations incorporating symbolism associated with these esoteric traditions (Hoagland & Bara, 2007). Among the most (in)famous stories linked to Parsons concerns a ritual known as "Babylon Working" that took place in the Mojave Desert between January and March 1946, which aimed to "incarnate the Thelemite Goddess Babalon in the earthly realm" (Lin, 2020), and where legend has it that he opened an "astral gate" and "something flew in" (DeLonge & Levenda, 2024).

[65] Over recent decades people have continued to develop practices which they believe are able to "invite" or "summon" UAP/NHI, referred to generically as Human Initiated Contact Events (HICE). These include figures like Steven Greer (2006), who has developed one such protocol called "CE-5 [Close Encounters of the Fifth Kind] meditation." While skeptics are critical of his claims (Gleiberman, 2020; Rogan, 2020), and there does not appear to currently be peer-reviewed assessments of their validity, numerous people who have tried his approach seem persuaded of its merits (Mayeux, 2023). Overall though, it is perhaps also fair to say many observers have regarded this general notion of "summoning" with considerable skepticism. However, the idea became the topic of global conversation in January 2025, when Coulthart (2025a) released an interview with a special operations helicopter pilot, Jake Barber, who was allegedly part of a UAP crash retrieval program linked to the military. The interview release included apparent footage from one such ostensible retrieval effort, involving a large egg-shaped object. Most relevantly here, Barber said the UAP was summoned by a team featuring special operatives known as psionics, which he described as "someone with the predisposition for extra-temporal abilities and sensitivities, and who Coulthart described as "people who can actually make a mental, spiritual connection to a technology?" Coulthart concluded the segment by saying, "It's an established fact that the Pentagon has had an interest in psychic abilities, what it calls remote viewing for military purposes. The famed Project Stargate spent years studying the subject, and despite the CIA's official position that such studies yielded nothing, former Pentagon UAP investigator Lou Elizondo told me last year that psychic abilities are very real, and perhaps not very rare."

observed in their activities (with more details available at their website https://skywatcher.ai).[66]

[66] The Skywatcher website (https://skywatcher.ai) lists nine classes of UAP, and provides summaries in four categories: description; visual profile; size; and flight behavior, as follows:

1. Tetra. Description: Tetrahedron shaped UAP which tumbles on multiple axes while on a stable flight path. Often appears in groups of 3-20+. Visual Profile: Black with intermittent white vapor bursts. Exhibits strobing effect on electro-optical (EO) sensors several times per second. Size: 1.5 - 2 meters. Flight Behavior: Appears to tumble at high speed across multiple axes while maintaining a stable overall flight path. Typically descends from high altitude to below ~2,000 ft AGL.
2. Tic-Tac. Description: Cylindrical UAP that hovers. Elongates during stable flight and has an area effect on electronics and aircraft. Seen in groups of 1 to 3. Observed with the Manta Ray in proximity. Visual Profile: Bright white cylindrical craft that shifts shape during flight. Observed to elongate horizontally and shift color from white to purple to pink during transitions. Easily observable on IR. Size: 9 - 12 meters. Flight Behavior: Capable of vertical hovering with oscillation, rapid descent from high altitudes, assessed as 60,000+ feet and Mach 1.5+, and abrupt arrest of motion mid-air. Frequently tumbles while descending and then stabilizes before resuming flight. Uses terrain masking and performs independent, unsynchronized maneuvers in proximity to other craft.
3. Blob. Description: Orb-shaped UAP that exhibits pulsing internal light, horizontal oscillation, and erratic point-to-point movement. Capable of extreme speed and rapid flare-driven expansion. Observed exclusively as singletons. Visual Profile: Red cloud-like orb with a pulsing, light-bodied core. The central element flares in size and brightness, at times expanding into a large red amorphous form. No visible propulsion observed. Easily detected on IR with strong heat signature. Size: 3 - 5 meters. Flight Behavior: Exhibits rapid, near-instantaneous jumps between positions with no observable transition or acceleration. Movement is generally erratic but often includes lateral oscillation. During motion or flare events, the form expands significantly, appearing to pulse or distort in size.
4. Beam. Description: IR-only orb-shaped UAP that vibrates while in a stable flight path. Hovers in place for hours at a time. Seen in pairs. Visual Profile: Not visible in EO spectrum; only observable on IR. Presents as a stable, orb-shaped UAP with a strong heat signature and no off-gassing or visible propulsion. Size: Unknown. Flight Behavior: Exhibits prolonged hovering, often remaining motionless for over an hour. Movement, when observed, is slow and deliberate. Vibrates laterally while maintaining a generally stable flight path.
5. Manta-ray. Description: Manta-ray shaped UAP that tumbles on multiple axes. Rarely seen; observed in proximity to Tic Tacs. Visual Profile: Black, manta-ray shaped craft. Emits colored vapor or light from multiple points, including pink, green, teal, and translucent/white hues. Plumage appears to radiate from the top surface. Size: 2 - 3 meters. Flight Behavior: Observed tumbling and rotating on multiple axes. Capable of hovering in place and rapidly shifting altitude. Movements include both wind-assisted and wind-opposed trajectories at varying speeds.
6. Bright star. Description: Reflective, tetrahedron-shaped UAP that oscillates horizontally, flashing light. Team has experienced sensor disruption apparently caused by directed energy. Visual Profile: Reflective, tetrahedron-shaped craft that flashes in teal, green, blue, red, and white light spectrums. Appears to shimmer across its surface in EO view. Endpoints of the craft are less opaque, possibly due to active plumage or light-based extension effects. Size: 1.5 - 3 meters. Flight Behavior: Exhibits rapid horizontal oscillation, fast enough to produce radar artifacts resembling a spinning propeller. Movement is erratic and high-frequency, but contained within a lateral plane.
7. Jellyfish. Description: Jellyfish-shaped UAP with "seeking" head motion and trailing tentacles. Exhibits a localized area effect on electronics, independent of specific targeting or interaction with sensors. Visual Profile: White, jellyfish-shaped craft with a bulbous head and trailing tentacle-like appendages. The head comprises roughly 1/5 of the overall length, while the tail extends downward and appears to move independently of wind conditions. Observable on both EO and IR. Size: 2

The story becomes even more intriguing when one hears speculations about the nature and purpose of these craft, especially the "egg": one team member suggested these are "likely some type of manifestation," and that "what these craft actually are is more extra dimensional … coming from what you would call the afterlife, which obviously that puts a pretty wild, you know, spiritual component to this" (Post Disclosure World, 2025). This echoes other observations and beliefs along these kinds of spiritual lines,[67] including reportedly Kenneth Arnold — whose famous "UFO" sighting in June 1947 ignited the modern interest in the topic — whose daughter later said that he "felt that the flying saucers were the link between the living and the dead."[68] Such ideas bring the topic squarely into the arenas of religion and

meters (head), 3 - 5 meters (tentacles). Flight Behavior: Exhibits winding, snake-like movement along deliberate flight paths. The craft often moves from point to point in a meandering, serpentine motion.

8. Hornet. Description: Dual-body UAP with hanging tendrils and asynchronous rotation. Visual Profile: Multi-part craft with purple, red, blue, and black coloration. Features a prominent "tail" that folds into a ball or extends in a stinger-like formation. The upper segment contains hanging tendrils, within which a secondary body appears to rest. Reflective flashes observed during flight. Size 2 - 4 meters. Flight Behavior: Exhibits irregular motion and asynchronous rotation between upper and lower components. Rolls on both pitch and yaw axes while maneuvering.
9. Egg. Description: Off-white, egg-shaped UAP. Provisional class designation; no corroborated motion, structure, or spectral data. Visual Profile: Off-white metallic, egg-shaped craft. Visual data is limited to a single, low-quality recording. No observable propulsion, vapor trails, or aerodynamic control surfaces. EO-visible; IR and other multi-spectral sensor coverage was unavailable during observation. Size: Unknown. Flight Behavior: Undocumented. No verified pattern of motion has been established due to insufficient data. No radar tracking available during sightings to confirm flight behavior.

[67] Consider for example an experience recounted by William McRaven (2021), retired United States Navy four-star Admiral who served as the ninth Commander of the United States Special Operations Command from 2011 to 2014. His account centers on attempts he was part of to recover the remains of nine US aviators who died in a plane crash in a remote part of Canada in 1948. As he retells it, the group did discover the plane, and held a ceremony for the victims. Strikingly during this, nine orbs appeared. Given these types of accounts, some UAP scholars and commentors have suggested there could be a spiritual dimension to this phenomenon, with some orbs interpreted as potentially being "souls" or "spirits (Steenhuisen-Siemonsma, 2022). Here is how McRaven describes the encounter:

> We have found the remains of the plane and … some bone fragments and we buried those at the site … You can believe it or not, but it is true, and I'm not the only one to have seen it. As we are kind of burying the remains of this thing and I said a little prayer over this cross we put up there, and then as I get through saying it one of the guys turns me goes, "Hey Sir, take a look up there." And again, if you can imagine we're in this bowl and I think it goes up to about 8,000 feet or something like that and right above the ridge line I see what looks like a parachute flare. I'm thinking, "Is somebody shooting parachute flares?" I'm looking around … [but] nobody's shooting … and there's two, three, four, five, six, seven, eight, nine, and they're kind of hovering up there, and [I'm] looking around thinking, "What in the world," and the guy says, "Uh hey, Sir, how many of those do you see?", and again it's this kind of glowing orb, and it's just kind of floating up there, and there were nine of them and there were nine victims on the plane, and it was up there for 10 or 15 minutes, [then] they all kind of hovered up and one by one they just kind of went up."

[68] Interviewed by Paula Harris (2011), Kim Arnold said, "my dad believed that they were possibly from the world where we go when we die. That's what he believed. He was only brave enough to tell this to a newspaper reporter two years before he died in 1982. He felt that the flying saucers were the link between the living and the dead. It took him his entire lifetime to let "the cat out of the bag" you

spirituality, as we discuss in the final two sections below. First though, we turn to our next level of NHI engagement.

NHI Input

There is thus a rich tradition of ACE gift narratives across world cultures, as well as some suggestive material evidence which is consistent with those narratives. Yet even these dramatic tales are superseded in significance and import by our next categories of myth. In the framework suggested here involving an escalating level of human engagement with ACE visitations, we have progressed from simple interest in celestial phenomena to receiving gifts in the form of wisdom and technology. Now we cross a rubicon of sorts with myths that imply that we humans *ourselves* may have some kind of otherworldly involvement or origin, with NHI assisting not only our cultural evolution (as per the myths above) but even our *biological* development. A notable example of this claim was offered on a British TV program in 2017 by Apollo 15 command module pilot Al Worden, who said, "We are the aliens, but we just think they are somebody else. But we are the ones who came from somewhere else, because somebody else had to survive, and they got into little spacecraft then they came here and landed, and they started civilization here. And if you don't believe me, go get books on Ancient Sumerians and see what they had to say" (cited in Verma, 2022).

There are two subtly different versions of this idea. The first is consonant with the conventional scientific narrative that *Homo sapiens* originated and evolved on Earth through undirected abiogenesis. It then departs from this standard reading of evolution by arguing that we received some kind of genetic input from an extraterrestrial (or other NHI) source in the form of human augmentation, hybridization, or interbreeding. The second idea is that humans, or even all terrestrial life, did *not* originate on Earth through undirected abiogenesis, but were instead created in some other fashion, either elsewhere in the cosmos, or on Earth by beings from elsewhere. While these notions may sound incredible to many people, some elements of them — notably the idea that terrestrial life originated off-Earth, perhaps as the result of bio-engineering by NHI — have increasingly wide appeal among scientists studying these topics (shCherbak & Makukov, 2013), including even Francis Crick, co-discoverer of the structure of DNA (Crick & Orgel, 1973).

The first version of this possibility, involving interbreeding or hybridization of humans with NHI, has already been mentioned in the context of myths above.[69] Such half-human half-divine figures are evident moreover cross-culturally, from the *Nephilim* of Genesis 6, to *Nandi*

might say…and be brave enough to state it the way he really believed." Asked by Harris if that meant "He believed that they were really inter-dimensional, or hyper-dimensional?" Arnold said, "No. He believed in the concept that possibly the flying saucers or UFO's were just one of the ways we traveled when we weren't in a physical body. Possibly there were many ways to travel in "Other Worlds or Other Dimensions" just like we have many different ways of traveling here on the physical plane where we now exist."

[69] In Greek mythology, many of the various narratives of Orion's genealogy involve a liaison between a god and a human. In Eratosthenes, for example, Orion is depicted as offspring of the sea-god *Poseidon* and Euryale (daughter of Minos, King of Crete). In another version, Orion is born to two human parents (Hyrieus, a poor farmer, and his wife), but the birth involves intervention from *Zeus* and *Hermes* after Hyrieus provided them with hospitality (Fontenrose, 1981). The notion of humans and gods not only interacting but interbreeding is found across Greek myths, with the offspring of such unions constituting a rich and varied class of "demigods," figures whose names are still well-known, including *Achilles*, *Hercules*, *Theseus* and *Perseus* (Evslin, 1984).

and *Garuda* in Vedic scriptures, to the Polynesian demigods *Maui* and *Lono* (Black et al., 2001). Such figures are invariably human-like yet possess superhuman qualities, most often great size and strength, and are frequently depicted as "giants" (as another example of this recurring motif, as noted above). Others are described as possessing other sorts of apparently supernatural qualities, such as great intelligence and wisdom, and/or "magical" powers. One example is Merlin, the famous figure of British folklore — featured in Geoffrey of Monmouth's *Historia Regum Britanniae*, written in 1136 — whom legend depicts as having a supernatural birth (Bell, 2000). On a similar theme, as noted above, many indigenous cultures make reference to "star children" (Weidman, 2006).

Some observers have even interpreted traditional religious figures, such as Jesus, along these lines (Donahue, 1978). To that point, there are numerous potential ways in which the story of Jesus and other biblical figures could be reinterpreted in light of the ACE hypothesis, with the Gospels being full of mysterious objects and persons appearing and disappearing in miraculous and anomalous ways. While many biblical scholars seek to maintain the Nicene and Chalcedonian view that grew into the dominant orthodoxy of today, others might challenge the historically orthodox positions in light of ACE hypothesis (Parks-Ramage, 2016; Thigpen, 2024). For our purposes here, it will be sufficient to point out that some early Christians interpreted Jesus along the lines of the "demi-god" archetype, fathered by God but with a human mother (Donahue, 1978). This "demi-god" archetype becomes even more apt if the perceived miraculous powers of Jesus, both historically and in a modern context, are derived from actual events.[70]

Such ideas persist into the present. A vivid strand of modern day UAP lore involves the claim that NHI have not merely visited humanity, but have engaged in forms of cultural and/or genetic engineering, endowing human beings with new qualities and capacities.[71] Some

[70] According to Dale C. Allison Jr. (2009), Professor of New Testament at Princeton Theological Seminary:

> So a miracle story, just because it is a miracle story, is not necessarily late and unhistorical; and we have no reason, whatever our philosophical or religious disposition, to deny that people could have perceived or remembered Jesus doing miraculous things, or even a large number of miraculous things. Whether or not one believes that divinely-wrought miracles or paranormal events ever transpire, many have believed that they do, and many have thought themselves witness of events resembling those in the Synoptics, including the so-called nature miracles … What we can confidently infer about the miracles of Jesus on the basis of modern historical criticism is that he was reputed to be and thought himself to be a successful exorcist, healer, and wonder-worker and that some who knew him believed that they had witnessed truly extraordinary events" (p.77).

[71] These ideas have been discussed by Tom Delonge, who has suggested that topics discussed in this paper came up in his conversations, and moreover that Delonge was seemingly discouraged at the time from delving into these issues. As recounted in an interview in May 2016 with researcher Linda Moulton Howe:

> Around the time of the Ancient Greek civilization, these "gods" came in and they passed down a huge amount of knowledge. That's when we got the alphabet, and that's when we really got into all the mathematics and everything that we know that comes with the Ancient Greek civilization. I put down a question where I said it looks to me that these gods came down here and they tampered with a Sumerian civilization and then they started fighting amongst themselves and then mankind started to factionalize. Well something happened with those gods fighting other gods that we have all those ancient myths of Olympus and the Titans and all of that stuff. After that, it seems to me, that the gods stuck around and they started playing up the different religions between mankind. So, we can now be so entertained fighting each other, that this intelligence can roam around the planet to do whatever else it is it's trying to do. Whether it's trying to tamper with the DNA of

such claims do not necessarily stipulate any kind of genetic manipulation but "merely" that NHI have helped our civilization to develop — Côté (2025) suggested on X for example that "A lot of zany stuff makes sense when you consider perhaps Earth is an alien-maintained civilization incubator" — whereas others *do* claim our biological development was also honed, as explored below. In terms of the potential results, Loeb (2025b) for instance suggests one such "upgrade" could be self-reflective consciousness, speculating, "An interstellar gardener seeded Earth with advanced intelligence and consciousness and the evidence can be seen when we look at the mirror." Referencing the 1968 Kubrick film 2001: A Space Odessey, in which human evolution is propelled forward by the mysterious gift of a "monolith," he writes, "perhaps extraterrestrials visited Earth a few million years ago and installed a monolith, metaphorically speaking. During that visit, some chimpanzees were endowed with consciousness and became the human species… [T]he monolith is right in front of our eyes but we fail to recognize its extraterrestrial origin in the mirror."

One should note that a majority of scientists would not see consciousness as particular to humans, and many not only view other primates as possessing it but even creatures much further "down" the evolutionary tree (Lomas, 2023a). However, there is undeniably still a radical discontinuity between humans and even our nearest primate cousins, a qualitative "quantum leap" in cognitive capacities that seems hard to square with standard accounts of gradual evolutionary development. To that point, for instance, Loeb cites a paper in Nature which reported that sequences of ape genomes show a massive 14-14.9% total genetic difference between humans and chimpanzees (Yoo et al., 2025). In that respect, scholars such as Loeb are at least open to the idea that this "leap" could have been engineered by NHI agents. As such, he suggests that one "path to interstellar archaeology is to examine these differences [between humans and other ages] and search for parts that could have been manipulated by interstellar visitors." Fenton (2019) has described this kind of search for NHI involvement in our genetic history as a promising form of "genomic SETI," and believes such a manipulation occurred some 800,000 years ago (Fenton & Fenton, 2020). Along similar lines, Myakishev-Rempel (2025) analyzed DNA from 581 families — albeit in a non-peer-reviewed preprint — and reported finding "large fragments of DNA sequence in children that matched neither human parent," which he interpreted as providing "traces of alien genetic manipulation in humans," attracting high-profile media headlines (Waugh, 2025).

Moreover, narratives of genetic engineering and even "hybridization" between humans and NHI are a key theme of modern UAP discourse. This kind of claim was made for example by Dan Sherman, introduced above as allegedly being part of an NHI communication program, who said to Michels (2025l) that the program involved the "abduction" — by NHI and/or government authorities — of selectively identified pregnant humans, including Sherman's mother, to "genetically manage" their unborn fetuses so as to facilitate in them the ability to engage in such communication, and also suggested that genetic engineering had occurred experimentally throughout human history.[72] Such themes are indeed a key element of many

mankind, or it's trying to figure out how to harness a human being's soul — whatever it might be after I'm not totally sure. Everything in those early advisory group communications were fine but when I touched on the idea of hybrids and the human soul is when all the communications stopped on that thread. So, I have to look at that as something that I shouldn't have been going into at the time.

[72] Michels (2025l) asked "Did you ever ask them how long they've [the NHI] been visiting humanity?", to which Sherman replied, "My impression was that they've been here for a very long time, that they've intersected with humanity at different times. And he [the NHI entity] did mention also that

alleged abduction experiences, in which thousands of people worldwide have reported experiences of being "taken" by NHI in some fashion (e.g., sequestered aboard an alien craft for some period of time) before being later returned to their lives, as perhaps most famously described by Whitley Strieber (1987; Strieber & Kripal, 2016). These narratives often include an interest in sexual processes and activities: abductees report having their reproductive functions examined, and even engaging in intercourse with their alien abductors.

Such claims are generally hard to adjudicate but have been studied extensively (Mack, 2007). While there is no doubt such experiences are intensely real for those undergoing them, skeptics tend to emphasize the fact that such personal testimony is seldom corroborated by empirical physical evidence. Significantly, however, a small minority of cases do appear to be accompanied by potential evidence, including examples of purported "implants" concealed in abductees bodies,[73] and samples of biological material (e.g., strands of hair) with unusual characteristics (Nickel, 2001).[74] Additionally, recently declassified older Pentagon documents

it became much more difficult once our civilization had advanced because … the levels of communication between civilizations … [meant that] it was harder to keep … their autonomy or their distance." Michels then asked, "Did they talk about any sort of interbreeding between humans and aliens?," to which Sherman said, "I got the impression that they had interbreeded before experimentally … That doesn't necessarily mean that it was still [occurring] or that we still have the results of that so to speak on Earth. But he did mention that they had experimented with that in the past."

[73] A vivid account of potential "alien implants" was provided by Lue Elizondo (2024), introduced above in Footnote 25:

> My specific interests involved alleged alien implants found in humans. From what I read, often living tissues grew around implants … When researchers scrape away the human tissue, they find objects that resemble a technical device in size and shape but without any circuitry whatsoever. I once handled one of these implants myself, provided to me by a hospital in the Department of Veteran Affairs, where it had been removed from a US servicemember who had encountered a UAP. The material, no longer or wider than a joint of one of your fingers, looked more like a microchip encapsulated by a slimy semitranslucent casing of tissue. It looked very similar to mother-of-pearl. Under a microscope, it was still moving somehow. The doctor hypothesized that it had its own metabolism … I already know from other research and interviews and doctors had seen cases where the alleged alien implant evaded extraction by moving subcutaneously when doctors tried to excise it. I heard similar stories when investigating implants removed from otherwise healthy soldiers. Physicians really had to work to pin down and cut out the objects … Post extraction, some implants moved around the petri dish in which they were confined until they ran out of energy. One theory a doctor told me was that they drew energy from their host's body … Another researcher reported finding long filaments, again akin to Morgellons fibers, moving under their own power while under the microscope, scaring the researcher to the point that she didn't want to study the samples anymore." (pp. 92-93).

[74] Among the most well-known cases involving potential biological evidence associated with an apparent NHI interaction is an incident involving an Australian man called Peter Khoury, who experienced a sexual encounter with two unusual females who appeared in his bedroom under strange circumstances. The essence of Khoury's story is that, in July 1992, he awoke to find himself feeling paralyzed but fully conscious, with a weight pressing down on him that he eventually realized was a woman with strange features. As he recounts: "I got the shock of my life, because right on top of me was this female, a blonde female. She was just milky white in color. Her eyes were probably two, three times bigger than human eyes. She had protruding cheekbones, and a narrow face that narrowed down to a pointy chin. And on the side of the bed, on the corner of the bed, there was another female, an Asian-looking female. And then she – the blonde female touches her stomach and points to the sky." Most significantly here, these "visitors" left behind a single hair; unlike most human hair (which is blonde or black), this was described as optically clear, like nylon fishing line. Moreover, when subsequently subjected to DNA analysis, it

describe cases of "apparent abduction and unaccounted for pregnancies" in association with UAP, which perhaps lends legitimacy to these claims (Rozsa, 2022).

A somewhat related story on the hybrid theme that has been unfolding over the past few years does not involve humans per se, but nevertheless hints at some kind of NHI involvement in the creation or development of species on earth. This is a burgeoning collection of uncharacteristic humanoid remains found in Peru known collectively as the "Nazca mummies," with some specimens referred to more specifically as "tridactyls" (due to having three toes). Although some "bodies" associated with this collection appear to be relatively crude modern forgeries, as analyzed by one of the present authors (in Lomas et al., 2024), emerging analyses have led some people to conclude that other specimens — especially the larger "M-type" bodies[75] — may be genuine remains of once-living beings, with a website on the topic (https://tridactyls.org/) listing 22 research papers at the time of writing (e.g., Hernàndez-Huaripaucar et al., 2024). As Michels (2025h) put it in a recent documentary on the phenomenon, "At this point, I don't think the question is, are these beings real or fake? They are clearly real beings." There is even Congressional interest; Rep. Eric Burlison (2025), who has brought in Grusch as an advisor, said that Grusch had suggested "that there's a bunch of fake ones down there … but there's some that are so intricate that he doesn't believe that they're fake" and which "resemble something that he was briefed on and saw in his role working for the federal government." It should also be noted though that some observers remain skeptical, and argue that even the M-types are most likely modern forgeries (Corbell & Knapp, 2026), and so at present the veracity of these specimens is essentially still unresolved. In the perhaps unlikely event that these are indeed "genuine" in some way though, there are various possibilities as to their nature. Some observers suggest they could be NHI of some kind, whether of extraterrestrial origin, or alternatively a species native to Earth

was revealed to have an unusual composition, involving a very rare Chinese lineage (found in about 0.1% of ethnic Chinese) combined with a blue-eyed ancient Celtic light-skinned lineage. While it is not impossible for a human to have acquired this genetic combination through standard human interbreeding, the combination is very rare and unlikely. But it is that this was found in a hair retrieved following an unusual NHI-like encounter that makes the story especially intriguing, and so has been interpreted by some as indicative of NHI-driven genetic engineering or involvement (Chalker, 2005).

[75] A researcher close to the investigation, Gonzalo Chavez (2025) shared the following image of one of the M-Types on X, accompanied by the following text: "Dr. Fung, a medical specialist with 40 years of professional experience, kindly shared this stunning image of Montserrat with me."

hitherto unknown to modern humans, while a third possibility is that these are biological entities that were altered in ancient times, potentially *by* NHI, either physically or genetically. Given that the bodies are similar to some contemporary NHI reports, if any specimens turn out to be truly ancient remains of once-living beings, they may need to be considered as potential evidence of ancient NHI contact or involvement (Phelan, 2024).

All in all, the possibility of some NHI "involvement" in human evolution has become an ever-more striking and voluble part of the conversation around UAP. Part of these discussions involves speculations about the nature and intent of any such involvement. Some observers seem inclined to grant NHI as having benevolent intent, such as helping humanity to evolve and shepherding this complex process for some reason; in this way, NHI may perhaps take on the role Gods played in previous eras, guiding our development from a plane of higher wisdom and intelligence, as discussed in sections below. By contrast though, other commentators fear more nefarious reasons for NHI interest in humans, with one prominent line of speculation being that humanity is being "farmed" by NHI as a "resource" in some way. Others have previously speculated along similar lines, arguing for instance that NHI interest in humans could be for reasons possibly related to the nature and value of people's consciousness, emotions, or "souls."[76] Such speculations could be seen as a modern iteration of certain historical ideas along these same lines, such as the notion of "archons" — conceptualized as malevolent beings that exert control over humans and the Earth — in the esoteric Gnostic teachings associated with some early Christian sects (Davis, 2020). Given the perplexing and mysterious nature of this topic though there are of course different interpretations of these themes; for example, former Green Beret Lt. Col. John Blitch was interviewed by Coulthart (2025b) about an experience he interpreted as an abduction by a mantis-like NHI, and though

[76] An influential proponent of this line of thinking was Robert Monroe (1992), who articulated the concept of "loosh" as a form of energy generated by negative emotions and intense desire that he believed was of value to "interdimensional" NHI, known as "Collectors," who would farm and harvest this for their own sustenance. As speculative and strange as such ideas might be, they have had an enduring and even increasing influence on the UAP/NHI conversation. The notion of humanity being "farmed" by NHI was discussed for instance on a recent Joe Rogan (2024) episode by George Knapp and Jeremy Corbell. To that point, Knapp's longstanding interest in this theory dates to his enduring connection with a polarizing figure who has long been (in)famous in this area, Bob Lazar. In 1989, Lazar gave an interview (under a pseudonym) to Knapp in which he claimed to have been connected with a classified US UAP reverse engineering program (see Lazar, 1989). The veracity of Lazar's claims has been hotly contested, and while he has vociferous detractors, he also has numerous allies who, if not unquestioningly accepting of his narratives, at least grant them plausibility. Most relevantly here, among his claims was that in the classified facility in which he purportedly worked he encountered a top-secret document that touched upon this subject: "It says that we're containers. That's how supposedly the aliens look at us, that we are nothing but containers… maybe containers of souls… that they're going to use at some other point." He also suggested that "Jesus and two other beings were genetically engineered; they were implanted in people on Earth in biblical times, and their births were closely monitored," highlighting the fact that the Bible said a "star had followed Mary wherever she went." Such ideas have since entered the UAP lore, to the point that they are prominent features of the discourse, as highlighted in the recent Rogan (2024) episode. There it was even suggested that this possibility was the reason that authorities were resistant to, and even fearful of, attempts at UAP disclosure. As Knapp speculates: "You ask what could be so terrible that they can't tell us about it. Let's say these aliens, wherever they're from, made us, that were a genetic experiment… that we are an agricultural product, that somehow they harvest us."

this interaction involved elements Blitch reported as physically painful, he interpreted this interest, and the overall encounter, as benevolent.[77]

NHI Origins

Upping the ante still further, many myths in which humans have an interstellar connection tend to culminate in stories of humanity *itself* having some celestial origin. The main form such narratives take involves humans, or even life on Earth in general, having been created or fashioned by NHI entities, whether here on Earth or elsewhere and subsequently "brought" here in some fashion. Indeed, this idea has historically been the dominant explanation across the world's cultures for the emergence of *Homo sapiens* — challenged only relatively recently by Darwin's theory of evolution by natural selection — and is a staple of religious traditions worldwide.

Among the earliest extant accounts of such celestial origins, introduced above, are Mesopotamian texts that mention the *Annunaki*, a group of divine beings who, in the Babylonian creation epic, the *Enuma Elish*, are under the authority of chief god *Marduk* (Baugh, 2023). In this and related myths, humans are described as being created by *Marduk* and the *Annunaki* out of clay (mixed with the blood of the gods). This idea recurs in other traditions, such as the biblical tale of Adam and Eve (Gen.2:7, cf. Greenblatt, 2017), or the Greek tradition that the fire-giver *Prometheus* had previously "moulded men out of water and earth" (Apollodorus, 1921: 1.7.1). Intriguingly, while many such narratives are clothed in more traditional religious imagery, some take on a more distinctly extraterrestrial flavor. Some Aztec legends for example — at least as recorded by the 16th century Spanish chronicler Gerónimo de Mendieta — include a narrative in which a "stone knife or flint [*un navajon ó pedernal*]" descended to earth from the heavens, from which emerged 1600 gods (either the "flint" was giant, or the gods were tiny!), who then created humans out of bone, ash, and the gods' own blood to be their servants (Mendieta, 1870). Geronimo comments that this story "seems to relate to the fall of the evil angels," but some more recent interpreters have seen in the "flint knife" a potential description of an extraterrestrial spacecraft (e.g., Barnhart, 2023).

The view that life had broadly stellar origins survived the Axial-Age transition, at least in classical Greece, from "myth" to "philosophy." Plato's *Timaeus*, for instance, describes the world's creation by a benevolent God or "Craftsman" (*Demiourgos*), who first creates the

[77] As recounted by Blitch, the experience involved a "tall sevenish foot praying mantis looking being" that was "standing over" Blitch, and although Blitch was initially "terrified, frozen, paralyzed to the bed," the overall experience was positive. Even though the creature was engaging in some kind of physical/medical intervention that Blitch experienced as painful, he received the impression/message that this was being done for Blitch's own good. Ultimately, it seems the most reassuring aspect of the experience pertained to the nature of human souls:

> This being [was] just looking at me very intently and explaining to me, "Look, this body that you got, it is just a soul housing group, it's a brain housing group, it is just a machine that your soul occupies for this lifetime, and so yeah we're going to mess with it [Blitch's body], we're going to get up under the hood and we're going to adjust the carburetor right… we may swap a couple of parts out, but we can't … steal your soul, we can't steal your consciousness, so quit screaming and writhing around and let us do our freaking job." It's like the equivalent of a surgeon telling the patient stop squiggling … He starts grabbing chunks of my cheek and he's ripping it and there's blood spattering on the wall and I'm feeling the tug … and the whole time he is conveying to me, "see we can't get your soul we could do a lot of damage to your body if we want to, [but] we don't, we're trying to help you … so stop squiggling around and let us get this done."

"heavenly kind of gods," each identical with one of the planets of the solar system or with a star. All of these heavenly bodies Plato understood to be immortal living beings (1903, 38e-39a, 39e). The Demiurge then delegated to the lower gods the task of creating the mortal bodies, such as plants and animals (1903, 41ac), which would in time be united to immortal souls of his fashioning (41d). Before that mixture occurred, however, the Demiurge assigned each immortal soul to a particular star which was its true home. Eventually, those souls descended "by necessity" into mortal bodies of varying dignity, doomed to wander from birth to birth until "dominating by force of reason that burdensome mass which afterwards adhered to him … [he] returns again to the semblance of his first and best state" in the heavens (41e-42d). The basic outlines of this scheme became a commonplace of later Greco-Roman philosophy, even outside the Platonic Academy.[78]

While ancient peoples had some idea of the nature of fertilization and inherited characteristics, they of course did not have the knowledge we have today in relation to DNA and genetic processes. It is however, intriguing that, as Meyer (2021) articulates it, "today the question of how life first originated is still widely regarded as a profound and unsolved scientific problem, largely because of the mystery surrounding the origin of functionally specified biological information," notably that encoded in DNA. Some scholars have been sufficiently provoked by the complexity of genetic information to question the very possibility of unguided abiogenesis (Shapiro, 1986; Meyer, 2009, 2021; shCherbak and Makukov, 2013). Consider shCherbak and Makukov (2013), whose analysis of DNA purportedly indicates a "precision-type orderliness matching the criteria to be considered an informational signal," displaying recognizable hallmarks of artificiality, with "an ensemble of arithmetical and ideographical patterns of the same symbolic language," appearing as "a product of precision logic and nontrivial computing rather than of stochastic processes," with the null hypothesis that "they are due to chance coupled with presumable evolutionary pathways" being rejected with p-value < 10.

As even Richard Dawkins has observed: "The machine code of the genes is uncannily computer-like" (1995, p.17). On a similar theme, scholars like Church et al. (2012) have demonstrated that DNA can be used as an information storage device with almost limitless capacity. In these regards, the innovative analysis of information sources like DNA are highly intriguing, and while not conclusive of an interstellar input into our existence, may shift our calculations of probability in taking seriously the kinds of myths and theories canvassed above. From such facts, shCherbak and Makukov (2013), and Meyer (2009, 2021), infer

[78] In the "Dream of Scipio," Cicero (1883) describes how Scipio is taken up into the highest heavens by his ancestor, Africanus, who exhorts him "to look aloft and fix your gaze on this our resting-place and eternal home" (1883, §17), while Seneca insists, "No man does wrong in attempting to regain the heights from which he once came down … The soul … was framed by nature to this end, that it should desire equality with the gods. And if it makes use of its powers and stretches upward into its proper region it is by no alien path that it struggles toward the heights" (1920, 92.30). Likewise, something like this general cosmology is arguably presupposed by Seneca's contemporary, St. Paul, in his account of humanity's destiny in 1 Corinthians 15 (35-50). In this passage, Paul responds to the question, "With what kind of body will the dead rise?" (1 Cor. 15:35) by contrasting our present, "animate bodies" (*sōmata psychika*) with the glorious "spiritual bodies" (*sōmata pneumatika*) which he claims we will possess in the resurrection (1 Cor. 15:45). These "spiritual bodies" are tightly connected in this context to heavenly bodies: Christ, the first to rise as a "life-giving spirit," is said to be "from heaven" (1 Cor. 15:45, 47), while Paul earlier illustrates the distinction between the "animate" and "spiritual body" by analogy with the distinction between "heavenly and earthly bodies" (1 Cor. 15:40), and by observing that "star differs from star in glory" (1 Cor. 15:41).

the past intervention of some kind of NHI in the origin of DNA. shCherbak and Makukov in particular entertain the possibility that DNA is the product of extraterrestrial intelligence, arguing that since "the actual scenario for the origin of terrestrial life is far from being settled, the proposal that it might have been seeded intentionally cannot be ruled out." Similarly, Steele et al. (2018) suggested that even if life did emerge on Earth, certain forms of biological complexity could also have been "delivered," and propose the unusually advanced qualities of the octopus as one potential example.[79] These notions are all versions of the theory of "panspermia": the idea that life on Earth may have been "seeded" from elsewhere, whether arriving naturally from an interstellar object such as a comet or asteroid, or deliberately sent out by intelligent life elsewhere in the cosmos.

The notion of panspermia in general has been seen as relatively plausible by leading scholars, such as Loeb, not least because he estimates that a *billion* interstellar objects could have collided with Earth over its 4.6-billion-years history (Ginsburg et al., 2018). Given that researchers have found microbes surviving sealed within rock on Earth that was 2 billion years old (Suzuki et al., 2024), Loeb (2024b) suggests the possibility of life surviving on an interstellar object is eminently plausible. The idea even has empirical support: analysis of samples from the asteroid Bennu — collected by the OSIRIS-REx spacecraft and returned to Earth in 2023 — by Glavin et al. (2025) found that this was "abundant … in organic matter." As Turner (2025) reports, it contains the "seeds of life," including all five nucleobases (the "letters" that make up DNA and RNA) alongside mineral compounds. Moreover, subsequent analyses by Furukawa et al. (2025) found that, as NASA (2025b) reported as "breaking" news on X — Bennu also contains "sugars essential for life," meaning that combined with previous detections of amino acids and nucleobases "life's ingredients were widespread throughout

[79] Steele et al. (2018) summarize the argument for panspermia, in some form, as follows:

> In our view the totality of the multifactorial data and critical analyses assembled by Fred Hoyle, Chandra Wickramasinghe and their many colleagues since the 1960s leads to a very plausible conclusion – life may have been seeded here on Earth by life-bearing comets as soon as conditions on Earth allowed it to flourish (about or just before 4.1 Billion years ago); and living organisms such as space-resistant and space-hardy bacteria, viruses, more complex eukaryotic cells, fertilised ova and seeds have been continuously delivered ever since to Earth so being one important driver of further terrestrial evolution which has resulted in considerable genetic diversity and which has led to the emergence of mankind.

They then specifically cite the unusual complexity of the octopus as one potential example of panspermia.

> Cephalopods are also very diverse, with the behaviourally complex coleoids, (Squid, Cuttlefish and Octopus) presumably arising under a pure terrestrial evolutionary model from the more primitive nautiloids. However the genetic divergence of Octopus from its ancestral coleoid sub-class is very great, akin to the extreme features seen across many genera and species noted in Eldridge-Gould punctuated equilibria patterns (below). Its large brain and sophisticated nervous system, camera-like eyes, flexible bodies, instantaneous camouflage via the ability to switch colour and shape are just a few of the striking features that appear suddenly on the evolutionary scene. The transformative genes leading from the consensus ancestral Nautilus (e.g. Nautilus pompilius) to the common Cuttlefish (Sepia officinalis) to Squid (Loligo vulgaris) to the common Octopus … are not easily to be found in any pre-existing life form – it is plausible then to suggest they seem to be borrowed from a far distant "future" in terms of terrestrial evolution, or more realistically from the cosmos at large. Such an extraterrestrial origin as an explanation of emergence of course runs counter to the prevailing dominant paradigm.

the solar system." Other discoveries have similarly pointed to the potential presence of the building blocks of life in seemingly-unlikely off-world locations.[80]

More striking and relevant here though is increasing openness to the possibility of *directed* panspermia (i.e., *deliberate* seeding of life by NHI), not least because of Francis Crick, who argued for openness to "the theory that organisms were deliberately transmitted to the earth by intelligent beings on another planet" (Crick & Orgel, 1973). Even figures who represent more "mainstream" perspectives on evolution are open to such ideas, such as Dawkins (2009), who not only argued that "there are very probably alien civilizations that are superhuman, to the point of being god-like in ways that exceed anything a theologian could possibly imagine," but also suggested such civilizations could potentially have deliberately seeded life on earth.[81] Other scientists have also reached similar conclusions, such as Endres (2025) of Imperial College, London, who argues that given the "formidable entropic and informational barriers to forming a viable protocell within the available window of Earth's early history" — i.e., the likelihood of life emerging "spontaneously" on Earth — that although the "idea of Earth being terraformed by advanced extraterrestrials might violate Occam's razor from within mainstream science, directed panspermia … remains a speculative but logically open alternative." Some people, like Michels (2025j), have even found significance in the motif of "two serpents twisting together in a spiral" recurring across cultures, as if DNA were "a kind of cosmic software encoded with instructions and directed around the galaxy with a purpose."[82]

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[80] Intriguing findings continue to emerge along these lines, such as the observation of complex carbon-based molecules, considered crucial to life on Earth, in a huge, cold cloud of gas 430 light-years away from Earth (Wilkins, 2024). Similarly, Sewiło et al. (2025) detected five complex organic molecules (COMs) in the ice surrounding a young protostar in the Large Magellanic Cloud — a dwarf galaxy located about 160,000 light-years away from Earth — with the significance being, as reported in a statement by the research team (University of Maryland, 2025) that "finding icy COMs in similar conditions to those in the early universe suggests that the building blocks for larger biomolecules, important for the emergence of life, were formed much earlier and under a greater variety of cosmic conditions than previously thought." There have even been tentative, albeit contentious, claims that some form of seeding of Earth is *still* occurring, which Wainwright et al. (2021) call *neo*panspermia, involving "continuing infall of microbiota from space." This is their interpretation of the retrieval from our atmosphere of "unusual biological entities" that are "carbon-based, show bilateral symmetry, contain DNA and are in the range 10-40 micrometres in dimension," which they suggest "contributes both to the inception of life on Earth and its subsequent evolution."

[81] Interviewed in 2008, Dawkins said: "It could be that at some earlier time, somewhere in the universe, a civilization evolved, by probably some kind of Darwinian means, to a very, very high-level of technology, and designed a form of life that they seeded onto, perhaps this planet. Now, that is a possibility and an intriguing possibility. And I suppose it's possible that you might find evidence for that if you look at the details of our chemistry and molecular biology. You might find a signature of some sort of designer, and that designer could well be a higher intelligence from elsewhere in the Universe" (Frankowski, 2008).

[82] Michels (2025j) speculation ran as follows:

> What if DNA was not just a molecule, but a kind of cosmic software encoded with instructions and directed around the galaxy with a purpose? … The recurring motif of two serpents twisting together in a spiral like the caduceus, the staff of Hermes in Greek mythology is still used today as a symbol of medicine. It's almost universal. You see it in Hindu temples, Mesoamerican art, Aboriginal myths, Sumerian glyphs, and in the Amazon, where shamanic Ayahuasca rituals often produce visions of serpents spiraling together, reportedly the source of life and knowledge. Snakes that ancient traditions say came from the sky. So, this double helix DNA might have also come

When it comes to speculations around panspermia, there is also increasingly voluble discourse around the potential significance of AI — especially since this *itself* can be seen as a form of NHI — a line of speculation that Corbell (2025) has called the "techno-terrestrial hypothesis." The broader context to this discussion is the recognition that UAP, especially if extraterrestrial in origin, are almost certainly likely to have been built and piloted using advanced AI, as noted above. As Mellon (2025) put it, "the intelligence controlling these strange craft might not be biological," and notes that people such as Steven Dick, former NASA chief historian, believe "artificial intelligence may be the dominant agent in vast regions of space." He further argues that "self-replicating probes" — proposed in the 1950s by legendary mathematician Von Neumann (Osmanov, 2020) — might be "one means by which technologically advanced civilizations could eventually extend their reach across an entire galaxy without the necessity of faster-than-light travel."

But the conversation goes deeper still, with AI then potentially playing various kinds of roles in the emergence of humans, including hypotheses we might label the "delivery mechanism," "creation mechanism," and "teleological mechanism." The "delivery mechanism" idea is simply that AI-powered UAP could have seeded earth with biological organisms that gave life on earth its start and which eventually evolved into humans. A more involved idea is that AI itself is the creation mechanism, and actually gets the process of life itself started. This possibility was recently raised by Loeb (2025a), for example, following a conversation with renowned synthetic biologist, George Church, about the viability of panspermia, of which Loeb writes "Ambitious alien scientists and engineers could have aimed to seed fertile planets like Earth with self-replicating probes … [and] using raw terrestrial materials and turning the local soup of chemicals into self-replicating machines in the form of complex-life-as-we-know-it."[83] Finally, beyond simply seeding life, the "teleological mechanism" hypothesis is that the very point of such seeding could be to facilitate the eventual emergence of AI itself on Earth, with a long-term "goal" of producing intelligent life forms that would eventually evolve to the point where they would create AI systems themselves, including the physical infrastructure to maintain such AI. As Da Silva (2025) wonders, it is possible "humanity may not be an independent lifeform, but instead a biotechnological construct, designed to interface with non-human intelligences, digital consciousness, or even the fabric of the universe itself"?

from the sky. Could it be that this symbol, serpent spiral, life, is more than just a metaphor? Could it be a remnant of some deeper knowledge encoded in myth and memory? Even mainstream science is starting to admit that DNA may be stranger than we thought. About 98% of the human genome does not code for protein. For years, this was dismissed as junk DNA. Today, we know it plays regulatory and structural roles. But vast stretches of this DNA remain a total mystery. Some researchers have proposed that DNA, with its fractal geometry and coiled structure, acts like an antenna capable of responding to electromagnetic frequencies. One 2011 study even described DNA as possessing the two key structural characteristics of fractal antennas. In the 1990s, Russian scientists described something even more bizarre. In their so-called DNA phantom experiments, they observed that after a DNA sample was removed from a container, laser light continued to scatter as if the DNA were still there for hours, sometimes days. The DNA, it seemed, left behind a kind of energetic residue, a ghostly imprint in space.

[83] As Loeb (2025a) puts it, "Ambitious alien scientists and engineers could have aimed to seed fertile planets like Earth with self-replicating probes. If the "gardeners" were technological platforms with artificial intelligence (AI), surely — their makers would have recognized the great benefits of chemistry in using raw terrestrial materials and turning the local soup of chemicals into self-replicating machines in the form of complex-life-as-we-know-it. In that case, the vision inspired by John von Neumann's self-replicating machines of extraterrestrial origin is terrestrial life as we know it!"

On that point, some people have found significance in the observation that the current apparent efforts towards NHI disclosure are taking place at the very same period in history when humans may be on the verge of creating Advanced General Intelligence (AGI) in computers, and even AI "superintelligence." And not merely the same "period," but more precisely even the same few years, with speculations that such an "AI singularity" could occur as early as 2027 (Afifi-Sabet, 2024; Kokotajlo et al., 2025) — although Musk (2025a) and others have suggested it is *already* happening[84] — which is a year that also features prominently in contemporary UAP discourse as a potential date for a major disclosure event (Ward, 2023). If there is any truth to such predictions, it would seem an extraordinary co-incidence for these two epochal developments — each with the potential to radically change humanity's place in and perspective on the cosmos — to be occurring around the very same moment, unless they were actually connected in some way, as for example discussed in Michels' (2025n) interview with Joe Rogan.[85] For example, might the moment of the creation of AGI by us humans on earth represent some kind "homing beacon" and signal for forms of AGI hailing from elsewhere in the universe to announce themselves and make contact? Even more radically, Jorjani (2023a) suggests that this convergence of developments represents a "technological singularity" beyond which we cannot envisage the possibilities, which could even include the ability to manipulate space and time, meaning that UAP could potentially be time travel machines from the future (i.e., created post-singularity then returning back to engage with this epochal moment in some way).[86]

[84] In reply to an X post by Diamandis (2025) stating "We are in the midst of the Singularity. From our perspective it feels and looks like a smooth and continuous process. The Singularity is Now!" Musk (2025) simply said "True".

[85] Michels noted that a previous guest, Matthew Pines, had reported speaking to a "CIA guy" about the UAP topic who had told him that "It's a triangle: AI, quantum, and the Grusch stuff." Michels then posited, channeling Pines, that "if all of those three things seem to … converge, it's like this kind of consciousness apotheosis thing," and so he asked Rogan whether "there's something happening where all these trends are converging now simultaneously and it's not a coincidence?" Rogan's response was that "When we achieve sentience with artificial general super intelligence that is the legitimate gateway to the cosmos. And if you really want to get weird that might be how God gets formed. Like God might be a real thing … And that might be the whole reason why human beings have curiosity and this insatiable desire for technological innovation."

[86] As Jorjani (2023a) summarizes the thesis (p.10),

> "technological development over the course of human history cannot be accurately represented as an upward trending line on a graph. Instead it is a curve that eventually bends very sharply and turns into a spike. The compression toward the end of this curve is on account of the exponential rate of increasingly convergent technological development, where breakthroughs in one area become more and more connected to advances in other domains. For example, the close we come to Artificial Intelligence, the faster the secondary and tertiary functions of various genes can be mapped by computers so that genetic engineering can be rendered more effective. Conversely, the higher IQ is raised using genetic engineering, the closer we will get to Artificial Intelligence. The spike on the graph represents a "singularity," a point past which the future can no longer be extrapolated from the past in the way that it could be at various points on the curved line before the spike. This is for two related reasons. First, the form of life past the spike or the singularity, is no longer "human" as we understand the term. It is *transhuman*, so we are hard pressed to even comprehend how beings so fundamentally transformed by technologies such as genetic engineering and cybernetics would even think — let along what they might to, on a social level, to develop past that point. Second, and even more importantly, one of the singularity-level technologies will be time travel. Strike that, *not* just "one of." The ability to manipulate space time would, by controlling an artificial singularity akin

It is then fascinating to speculate on the directions any such future developments may take. Smart (2012) for example proposed the "transcension hypothesis," which suggested that "a universal process of evolutionary development guides all sufficiently advanced civilizations into what may be called "inner space," a computationally optimal domain of increasingly dense, productive, miniaturized, and efficient scales of space, time, energy, and matter, and eventually, to a black-hole-like destination." This moreover is proposed as one explanation for the Fermi paradox. As Smart writes: "simpler civilizations that succeed in resisting transcension by staying in outer (normal) space would be developmental failures, which are statistically very rare late in the life cycle of any biological developing system. If transcension is a developmental process, we may expect brief broadcasts or subtle forms of galactic engineering to occur in small portions of a few galaxies, the handiwork of young and immature civilizations, but constrained transcension should be by far the norm for all mature civilizations." Similarly, John Barrow (Barrow & Tipler, 1986) suggested that advanced civilizations would develop "microdimensional mastery," as for example articulated by Andrew Gallimore to Michels (2025g), describing this as being when a civilization is "able to manipulate the fundamental structure of spacetime or the fundamental structure of reality itself," and "once they make that leap, they disappear, they become everywhere and nowhere."[87] With these esoteric possibilities in mind, our penultimate section moves into even more unusual different ontological territory as we consider the potential role of "sacraterrestrial" interventions in terrestrial history.

Sacraterrestrial Interventions

To the extent that the ideas discussed in this paper have entered popular modern discourse, it is usually in terms of the "ancient alien" strain of theorizing (i.e., the E-ACE hypothesis). From this perspective, "taking myth seriously" means viewing celestial narratives and

to a black hole, be the single most defining technology of the singularity *because those who invent it could access the future and all subsequent technological developments*.

[87] John Barrow's notion of "microdimensional mastery" is sometimes referred to as the "Reverse Kardashev Scale." Kardashev used energy consumption as the gauge of civilizational advancement, with three classes of civilization: Type I, which can access all the energy available on its planet and store it for consumption; Type II, which can directly consume a star's energy (e.g., through a Dyson sphere); and Type III, which can capture all the energy emitted by its galaxy and every object within it (e.g., every star, black hole, etc.). Our present civilization has not even attained Type I status yet: we are estimated as having reached 0.73 in 2023, and are projected to rise to 0.75 in 2060, thereafter potentially taking a millennium to reach 1.0 (unless new energy technology emerges), which would mean harnessing all the energy that reaches the planet from the Sun, as well as all energy Earth can produce, such as wind, hydroelectric, and geothermal energy, and even the energy of volcanoes and earthquakes (Raikar, 2025). Barrow however suggested that technological development might in fact proceed in the opposite direction towards ever-smaller scales. Gallimore summarized Barrow's ideas as follows:

> If you think about the Large Hadron Collider, this is aimed at trying to understand and manipulate smaller and smaller structures, not larger and larger structures. And so it seems that a more likely trajectory for an intelligent civilization is not to go out into the cosmos but to go deeper and deeper levels until you reach what Barrow called the omega minus, a civilization which is able to manipulate the fundamental structure of spacetime or the fundamental structure of reality itself. This is where we're going to be, or this is where intelligent civilizations are going to instantiate themselves, not by spawning across the cosmos but by instantiating themselves at the deepest level of the fundamental computational substrate of reality itself. That's where they're going to go. And once they do that, once they make that leap, they disappear. They become everywhere and nowhere.

artifacts as potential witnesses, however garbled, to past *extraterrestrial* intervention in human history, whether this intervention was in the form of visitors, gift-givers, or even possibly bio-engineers. In this section, however, we consider the possibility that the myths in their original recorded form — articulating a *D*-ACE — are actually closer to reality than the E-ACE interpretation advocated by the likes of von Däniken.

In particular, we consider the possibility that the NHI who may have intervened in Earth's history are not independently-evolved biological beings (i.e., animals) who flew here in spacecraft from elsewhere in the cosmos, but rather constitute an altogether different form of intelligence, which in some sense exists alongside biological life here on Earth. As noted in the introduction, this general idea is one among a broader class of "ultraterrestrial" hypotheses (Keel, 1970; Puthoff, 2022), which includes suggestions that at least some NHI are "interdimensional" (Vallée, 1969; Lomas, 2023), "crypto-terrestrial" (Tonnies, 2011; Lomas et al., 2024), or time-travelers (Vallée, 1975; Masters, 2019, 2022), or even some combination of these (e.g., time-travelling agents concealing themselves on earth in cryptoterrestrial fashion). Of particular interest here though is a line of thought that could be called the "sacraterrestrial" hypothesis, which sees the nearest analogues for at least some UAP and NHI in the very figures of the disembodied (or perhaps quite differently bodied) gods or angels whom human tradition so consistently depicts as key actors in our shared history.

This possibility is underscored by Lomas and Case (2023), who argue — drawing on the work of scholars like Vallée (2008) — for considerable continuity between contemporary UAP sightings and traditional accounts of, e.g., angelic apparitions, and suggest there are empirical reasons to consider the possibility that an "angelic" framing gets closer to the truth of these uncanny phenomena than does their dominant contemporary "space age" framing. Even some relatively modern UAP events retain this kind of religious framing, perhaps most famously the case at Fatima, Portugal in 1916.[88] Strikingly, even people close to the topic who

[88] The Fatima case involved a series of events in 1916, the last of which was witnessed by some 70,000 people. As copiously detailed in *Documentação Crítica de Fátima: Seleção de documentos (1917-1930)* (Barbosa et al., 2013; translated and cited in Lomas & Case, 2023) and summarized in Vallée (2008), these events centred on Lúcia de Jesus Rosa dos Santos, a girl from a rural family. They began in April 1915, when Lúcia was eight; while reciting the rosary, she saw a "transparent white cloud and a human form." The visitation occurred twice again that year, and three times in 1916, when Lúcia was accompanied by two friends, and was interpreted by the children as an angel, in part because the vision announced itself as such. In the first 1916 visitation, the children are described as playing near a cave when "they heard the rumble of a powerful wind… and a white light appeared. It was gliding through the valley above the tree tops. In the light was a youth of admirable beauty who came close to them and said, "I am the angel of peace." He taught the children a prayer and disappeared" (Vallée, 2008, p.234). Then, in 1917 began a different sequence of encounters that would draw increasing crowds, in part due to elements of prophecy and prediction involved. On May 13th the three children were watching sheep when (as Lúcia reported to her parish priest), "we saw a lightning-flash." Turning to flee in terror [*com medo*], they "saw a woman atop an oak tree," clothed in white and gold, who asked them "to come [here] every month for the next six months" (Sampaio Barbossa et al., 2013, p.32). They returned as promised, accompanied by some 50 people on June 13th, and by 4,500 on July 13th , whereupon at this third apparition, the crowd — according to an eyewitness quoted shortly thereafter in a sceptical, unsigned report in the secular daily *O Século* — heard "a noise like the peal of a trumpet," but did not have "the privilege of hearing and seeing the saint," which was reserved for Lúcia alone.

On August 13th, even though the children had been temporarily jailed by a local official of the aggressively anti-clerical First Portuguese Republic, 18,000 came and watched as "a cloud descended onto the oak tree" and "powdered the air, which seemed snowy." Then, "in the sky, next to the sun, new clouds turned successively bright red (the color of blood), pink, and yellow" (Barbosa et al., 2013; p.63). By September

are firmly situated in the physical sciences seem compelled by the evidence to become open to more esoteric possibilities. Consider the response given by Garry Nolan in an interview with Coulthart (Coulthart & Zabel, 2022), who asked: "You believe, on the evidence, that there is a non-human intelligence, of advanced technology, on this planet?" To this, Nolan

13th the audience had risen to 30,000, culminating in 70,000 for the final apparition on 13th October. The reported events in October are remarkable for many reasons. To begin with, they feature phenomena that bear resemblance to Ezekiel's account, discussed above, including extraordinary colors and lights, unpredictable patterns and movements, some kind of moving object, and a being interpreted as an angel. The account of eyewitness Manuel Pereira da Silva, written in a letter posted on October 14th, is representative: "The sun suddenly appeared with a well-defined circumference. It drew near, almost to the height of the clouds, and began spinning around vertiginously, like a wheel of condensed fire. It did so, with some interruptions, for more than eight minutes. Everything remained somewhat dark, and the features of each person were yellowed. Everyone knelt in the mud" (p.70). The hitherto dubious *O Seculo* had a reporter at the scene, who wrote a stunned account, which converges with da Silva's and others,' of "a singular spectacle, unbelievable for anyone who did not witness it." "The star," he wrote, "reminded me of a polished, frosted silver plate, and it was possible to stare directly at it without the least effort … The sun now trembled, it undertook unheard-of, brusque movements, beyond all cosmic laws – the sun 'danced', according to the typical expression of the peasants" (pp.75-76).

Of particular significance with this event are, (a) the sheer number of people involved, (b) that it was predicted in advance, and (c) that because of (a) and (b) there is some actual empirical photographic evidence (albeit of poor quality). In combination, these factors neutralize criticisms normally levelled at such events. To begin with, (a) means it is harder, and indeed arguably illegitimate, to attribute observations to misperception or hallucination. Although the notion of "mass hysteria" appears to have a genuine basis (e.g., shared emotions due to network effects), the idea of mass *hallucination* has not been substantiated, and most analysts of the event — even ardent skeptics — believe some strange celestial phenomena genuinely occurred. The latter point is supported by (c), given that analyses of surviving photographs do indicate some unusual data. Dalleur (2021) for instance suggest "the shadows and reflections reveal two soft light sources emerging from a rather dark background: one seen as a "pale sun", and another overhead, fuzzy and as softly bright. The latter, likely being caused by a clear cloud, blurred the shadows of the weak "sun." This warm source, uncannily moonlike, was also able to cast distinct shadows on sloping surfaces and under objects. Eventually, these shadows … help us to estimate the height of the "sun" at ~30°, lower than the expected 42°. Therefore, the directly observed source could not have been the sun."

Even if unusual celestial phenomena are granted though, some modern scholars have sought to play the "debunker," singularly determined to arrive at naturalistic explanations, apparently unconcerned that their reductive theorizing does not account for the totality of the evidence. Campbell (1989) for example confidently asserted "In fact there is a meteorological explanation; all the phenomena reported are known to be produced by fine dust in the atmosphere," specifically "a fine cloud of dust travelling in the upper air stream" (p.335), possibly caused by a volcanic explosion. Similarly, Wirowski (2012) attributed them to sunlight passing through a cloud of "vibrating charged ice crystals" (p.282), generating a shimmering halo of light known as a "sundog." However, while such explanations *could* explain *some* of the phenomena, they do not account for the totality of observations. For example, sundogs are stationary, and observers at Fatima report the "disk" moving, often in dramatic ways, including when it seemingly "plunged downwards in zig-zag fashion towards the earth and the horrified spectators" (Vallée, 2008, p.232). As such, such explanations are *at best* incomplete, and seemingly represent efforts of scientists who have decided *a priori* the event must have conventional meteorological explanations. Indeed, this epistemological assumption is admitted by Kulczyk (2019), who advances various unlikely scenarios, including the surreptitious use of lasers by unknown people. However, he acknowledges, in a very question-begging way, "I have to admit that some aspects of these events cannot be explained by contemporary science, but this is caused by the limitation of our knowledge rather than any supernatural character of the observed events… For the purpose of this analysis, I made an assumption that whatever happened there had to be subjected to the laws of nature" (p.120).

replied: "Advanced capabilities. No, I don't know whether it's a technology per se, because I'm leaving open the idea that it's some form of consciousness that is non-material. And I know, say to my colleagues out there, this sounds absolutely crazy. But if you've seen the things that I've seen, you would only be able to come to a similar conclusion."

Consequently, some have begun to question whether UAP are necessarily physical craft at all, as we would understand these terms. If some broadly "non-physical" — or perhaps, unconventionally physical — intelligence is responsible for at least some UAP, then it would find clear echoes in the long store of human myth and folklore, as well as philosophy and theology, which bears witness in various ways to intelligences which, if not necessarily disembodied, at least relate to space and time very differently than do animals like us. So too, the very problems that have motivated some to entertain the possibility of NHI intervention in the origin of life equally commend at least openness to the idea that these intelligences are in some sense non-biological. After all, shCherbak and Makukov (2013) propose that DNA must be the result of intelligent intervention on the grounds that no unguided process could have yielded such a complex and functionally specified code. But this raises an obvious question: did the alien designers have DNA of their own? And if so, who designed that? Unless and until we can specify some set of conditions that might have obtained in another solar system, and which would have been vastly more favorable than the early Earth to unguided abiogenesis, any argument supporting *guided* abiogenesis on Earth equally supports it elsewhere in the cosmos.

This problem has prompted some scientists studying the origin of life to consider (in our terms) potential sacraterrestrial intelligent causes. Behe (2006) notes, in this connection: "The question of the design of the designer … could be deflected by invoking unobserved entities: perhaps the original life is totally unlike ourselves, consisting of fluctuating electrical fields or gases," which would not rely on the kinds of evolved biochemistry which raise such obstacles to unguided abiogenesis. Such NHI, should they exist, would be far more like biblical angels — "he makes his angels the wind, and his ministers burning fire" (Ps. 104:4) — or Plato's lesser, tutelary deities than conventional extraterrestrials. Indeed, the sacraterrestrial version of the ACE bears striking resemblance to medieval speculation about the role of angels in creation. In his 1230 commentary on Aristotle's *Posterior Analytics,* for instance, Robert Grosseteste proposed that it is "with the mediation of the Intelligences [sc. angels], by the power of the First Cause [sc. God], that corporeal species proceed into being" (1982, 1.7). Thomas Aquinas (1225-1274) puts the same point more generally still: "Everything that happens among creatures occurs with the assistance of the angels" (1953: ch. 1, lect. 7, no. 62).

This line of thought involves not so much the introduction of new evidence beyond that discussed above, but rather reappraisal of that same evidence on different terms. If one is open to the possibility that some NHI might not necessarily be biological lifeforms from a distant solar system, but instead (in some sense) are non-biological ultraterrestrials, the way would be clear to an interpretation of ACE which was at once more radical — at least for many contemporary scientists, if not necessarily for the average religious believer — yet also more traditional than the extraterrestrial hypothesis, accommodating as it does our species' deeply held beliefs in an enveloping world of non-human spirits with some kind of deep kinship with the stars. Going even further, there are possibilities that may be considered even more speculative and esoteric, involving hypothesis we might call "metaphysical," or perhaps — keeping with the "terrestrial" suffix — "metaterrestrial."

Metaterrestrial Interventions

Most scenarios explored above, even some sacraterrestrial versions, or visions of a multidimensional cosmos in modern physics, still involve relatively conventional materialist metaphysics, in which humans are biological creatures in a cosmos constructed out of physical material. Yet this is not the only possible explanation or interpretation of reality, with at least five classes of theories that in various ways offer an alternative take, all of which center in some way on the mysteries of consciousness. And all of these, as we shall see, have implications for the issue of UAP and NHI.

The first set of alternatives are idealistic philosophies — which regard the cosmos as constituted in some sense from thought or consciousness, as opposed to materialism, which regards physical matter as the primary reality — which have arguably been the dominant metaphysical paradigm among non-Western intellectual and spiritual traditions, from Advaita Vedānta to Buddhism.[89] Within this class of theories are various possibilities. Some people still grant a reality to matter, but propose that, contrary to the more conventional supposition that consciousness emerges out of physical processes, the reverse may be the case, with consciousness being the fundamental "base layer" of existence. Max Planck, for instance — Nobel Prize winning originator of quantum theory — said, "I regard consciousness as fundamental. I regard matter as derivative from consciousness" (Sullivan, 1931, p.17). Other perspectives though are more purely idealistic: cognitive scientist Donald Hoffman (2019), for example, argues that our fundamental reality is a realm of consciousness populated by what he calls "conscious agents," out of which emerges the apparent objective world as an evolutionarily convenient illusion, akin to a computer interface.[90] (For what it's worth, Sam

[89] Within the diverse landscape of Hindu philosophy, numerous schools offer distinct perspectives on the relationship between the individual self (*ātman*) and the cosmic ground of being (*Brahman*). *Advaita Vedānta* portrays *Brahman* as pure consciousness and proposes the *ātman* is ultimately identical to this universal reality, whereas traditions such as *Viśiṣṭādvaita Vedānta* maintain that, although the soul retains some individuality, *ātman* and *Brahman* share an essential unity. Still other schools, like *Dvaita*, assert a fundamental distinction between the individual soul and the divine, yet likewise acknowledge a cosmos pervaded by consciousness and order. Despite these varying metaphysical expressions, essentially all Hindu traditions assert that consciousness lies at the very center of reality, rather than constituting a late-emerging or accidental feature (Nicholson, 2010).

Buddhist thought similarly encompasses a wide array of philosophical approaches, many of which challenge strictly materialist assumptions. Across multiple traditions, Buddhism conceptualizes experience as arising from interdependent "mindstreams" (*citta-santāna*) – continuous flows of mental events understood as dynamic processes rather than fixed substances (Gethin, 1998; Wallace, 2003). The *Yogācāra* school extends this perspective further by contending that all phenomena are manifestations of consciousness itself, without recourse to an external material substratum; for this reason, it is sometimes referred to as a *Cittamātra*, or "mind-only," tradition (Lusthaus, 2002). This stance builds on Buddhist principles of impermanence, dependent origination, and the primacy of experiential processes over stable, objective matter. Similarly, many Indigenous traditions have long embraced worldviews in which mind, spirit, and matter are fundamentally entwined, with non-human intelligences — be they star beings, animal spirits, or ancestral presences — fully integrated into their cosmologies (Cajete, 2000).

[90] Wilde (2025d) describes Hoffman's theory as follows:

> What we call space, time, and matter are just the graphics settings of a deeper system. They're not the source code. They're the streamed interface that consciousness uses to play. Imagine you're playing a cloud based PS5 game. Everything looks solid until the world starts to glitch. You tear apart the console, searching for the code that makes the mountains, the sound, the physics, but you never find it. Because it was never "in" the machine. It was running somewhere else entirely.

Altman (2025a), founder of Open AI, asked Chat GPT.4 "is consciousness the only thing that exists, or is that materialistic universe also real?" and it responded, "Consciousness alone truly exists, and the "material universe" is merely a consistent experiential creation within consciousness itself.")

In addition to idealism as classically conceived, another set of alternatives to conventional materialistic metaphysics are perspectives that could still be seen as materialistic, but which emphasize how fundamentally mysterious "material" can be. Notions of idealism are usually constructed in binary opposition to concepts like "physical" or "matter," but it is far from obvious what such terms actually mean. They are often conceptualized through notions such as "material" and "substance," in distinction to phenomena that are somehow "immaterial" and ontologically subjective, such as mind and consciousness. Oxford Languages for example has, for its first entry on "matter," the definition "physical substance in general, as distinct from mind and spirit." However, ever since the revolutions initiated in the early 20th Century by physicists like Einstein and the founders of quantum, it has been increasing evident that — in the words of Haldane (1927) — "the universe is not only queerer than we suppose, but queerer than we can suppose" (p.298). From a naïve realist perspective, we regard the universe as composed of solid objects. Delving into subatomic realms, however, has shown matter to be elusive and ephemeral, involving mostly "empty" space, together with a dance of ghostly subatomic particles that exist as a superimposition or cloud of statistical probabilities.

Moreover, matter seems to be capable of exhibiting very strange qualities, such as "non-locality" — as elucidated in a classic paper by Einstein et al. (1935) — in which particles can instantaneously affect each other's states regardless of the distance separating them, challenging classical notions of locality. Perhaps even stranger still, some scientists and philosophers are increasingly open to the possibility of panpsychism, in which matter itself is viewed as conscious.[91] In that regard though, distinctions like the one noted above — where

> That's what Hoffman means when he says spacetime isn't fundamental. It's not that the world isn't real; it's that it's rendered from a deeper informational field that our senses can't directly access. At the Planck scale, physics is stuck against the same wall. The equations break. Geometry stops making sense. It's the moment the game engine stutters and exposes the edge of the render. When we look closer, expecting to see smaller "bits of stuff," we find only probability, information, and correlation, the fingerprints of a system processing data from a deeper layer. Hoffman calls that deeper layer a network of "conscious agents". Awareness talking to awareness. Each of us is like a local terminal streaming a shared universe from the cosmic cloud. When physicists say the fabric of spacetime "falls apart," what they're really saying is that the illusion of local storage can't explain what's happening in the network. So if you open the console and find nothing, don't panic... lol... that's the point. The code was never here. We're not players inside a world; we're the bandwidth through which reality experiences itself. Spacetime is the login screen, not the server. And every now and then, when the game flickers, we get a glimpse of what's really running behind it; consciousness, infinite and unspeakably alive. Or something else entirely.

[91] The starting point for appreciating the possibility of panpsychism is the recognition, which is increasingly common among scientists, that consciousness is seemingly prevalent throughout the animal kingdom. This does not mean in a human sense (e.g., *self*-conscious or aware), rather, just that some form of subjective experience is present. As Nagel (1974) influentially put it, there is *something* "it is like to be" a creature such as a bat (i.e., qualia of some sort, and a locus of sentiency for whom these are happening). However, the central debate is how far "down" to push its emergence in terms of evolutionary and neurophysiological complexity (Demertzi et al., 2019). Mammals are perhaps readily seen as conscious, but the issue is more contentious with organisms like insects (Klein & Barron, 2016). There are disagreements moreover about what emergence itself entails. Some argue for a distinct and discrete

"matter" is defined as "physical substance in general, as distinct from mind and spirit" — begin to break down or make less sense. Indeed, these are the very conundrums with which physicists have been wrestling over the past century, as reflected in Jeans (1937) remark that "The universe begins to look more like a great thought than a great machine" (p.137). It is not clear that his position constitutes idealism per se, but perhaps more a recognition of the fundamental strangeness of physical matter itself — a perspective which nevertheless lends itself readily to the kind of spiritual perspectives often associated with idealism (Capra, 2010).

Besides idealism and panpsychism, a third intriguing class of theories that are relevant here argue for the potential field-like nature of consciousness. These do not require consciousness to be the fundamental "substance" of the cosmos (as idealism does), or that physical matter is conscious in some ubiquitous way (as panpsychism does), and still allow that the universe can mostly be constituted from physical matter (as per more conventional materialistic metaphysics). But what they do suggest is that, in additional to whatever other properties

point in complexity at which consciousness appears, before which it is not present, such as neural activity in the thalamocortical system (Seth et al., 2005). Others though question whether we can indeed "draw a line" separating conscious from non-conscious organisms, suggesting consciousness may emerge by degrees from the very simplest forms of life, even unicellular entities (Mashour & Alkire, 2013).

Most relevantly here though, if one continues this line of thought, one starts to wonder whether we can even locate the boundary of consciousness at life itself, and asking instead whether *matter* could be conscious in some way. Significantly, the dividing line between living and non-living is itself surprisingly "fuzzy" and contested. There are certainly characteristics that most living organisms are thought to possess. NASA's working definition of life, for instance, is a "self-sustaining chemical system capable of Darwinian evolution." However, the borders of what constitutes life are rendered opaque by various phenomena that are not easily categorized, such as viruses (Forterre, 2016). In any case, even if one could clearly differentiate living and non-living entities, some theorists nevertheless argue the latter can also be conscious. While this may sound radical, consider the view above that consciousness may not suddenly appear at a given point on the evolutionary tree, but emerges by degrees; so, as one proceeds down the tree, it "fades away" into increasingly rudimentary proto forms. But then, if we lack a clear dividing line between living and nonliving phenomena, on what basis must we restrict it to the former; might it not continue, in some way, even into matter itself. This was the view for example of the influential mathematician and philosopher A. N. Whitehead (1928; 1933) — although he himself reportedly resisted the label "panpsychism," with some suggesting that "pan-experientialism" might be a better description for his thought (Griffin, 1998) — who wrote that "apart from the experiences of subjects there is nothing, nothing, nothing, bare nothingness" (Schlehaider, 2023), and that even the smallest particles may experience forms of proto-consciousness.

In recent years these notions have been given a serious hearing by influential thinkers such as Nagel (1979), who argues that although it may be inconceivable to imagine consciousness as a property of matter, it is no *less* strange than it somehow emerging from the interaction of complex forms of that very same matter (and indeed may be *more* unlikely). Somewhat similarly, Chalmers (2015) has developed a "monist" theory of consciousness in which the apparent dualist distinction between subjective mind and objective brain actually arises from a single substance (monism), which is neither mind nor matter (hence neutral), but rather is *information*. He suggests that the dynamic flow and interaction of such information essentially requires a mentality of sorts. If two atoms interact, say, this involves a process in which they register and "understand" each other's information. In that case, these information exchanges may have "protophenomenal" qualities, even if these "intrinsic properties are quite foreign to our conception" (p.154) of consciousness in humans. He admits this presents "the threat of panpsychism," but suggests this may not be "such a bad prospect." Evidently, even scholars open to panpsychism seem wary of it, as if too strange or radical. Likewise, Nagel felt the notion had "the faintly sickening odor of something put together in the metaphysical laboratory" (p.49).

and fields the cosmos may possess (from gravity to electromagnetism), consciousness may also constitute one such field (Lomas, 2023b). There are two subtly different variants of this idea. The first is that consciousness originates in the brain, but may radiate out in some way; some theories for example suggest that electrical brain activity generates an electromagnetic field that is the basis for consciousness, and moreover which — as with physical fields — can extend outwards, thus interacting with matter outside the brain (McFadden, 2007). The second is the even more far-reaching notion that consciousness does *not* originate in the brain, but exists in some other fashion, with the brain "receiving" it in some manner (like an antenna picking up radio waves). On this view, consciousness is suffused throughout the universe as an emergent force or property, akin to other forces of nature.[92]

A fourth class of metaphysics — one found among myriad religious traditions in various forms, but which has also been embraced by cutting-edge scientific theorizing — does grant some degree of reality to the four dimensions of spacetime humans normally perceive, but suggests these are only *part* of the picture, and there may be other dimensions or "planes" of existence. The idea of such dimensions is actually relatively uncontroversial in modern physics, with string theory for example — one of the leading unifying field accounts of the universe, seeking to bridge quantum mechanics with the general theory of relativity — positing that our cosmos may have up to ten dimensions (Horowitz, 2005). The idea though also lends itself to somewhat more mystical interpretations, including by some serious-minded scientists and engineers linked to the UAP topic, whereby people can somehow access or experience these other realms, and relatedly that these realms might be inhabited by forms of NHI.[93] Such possibilities were discussed for example by Michels (2025g) with Gallimore, a neurobiologist who suggested that "our three-dimensional plus one reality is really a thin slice within a much larger higher dimensional structure … that we never normally have access to," but which Dimenthyltryptamine (DMT) — a natural or synthetic substance that produces powerful "psychedelic" effects — "grants us temporary access to."

A last class of idea that overlaps with those above but is distinct enough to warrant its own category is the proposal that reality is a computer simulation, as argued influentially by Bostrom (2003).[94] This holds that the existence we take as reality is akin to the constructed

[92] There are numerous theories in this spirit. Prasad (2025) for example has offered a "Runiversic Resurgence Theory," which "treats consciousness as a structural field of nature, on equal footing with spacetime itself … [with] matter and energy… treating it as a part of the same machinery that makes the universe tick." Somewhat similarly, Mocombe (2021) describes the "consciousness field" as "an interconnected, endless, and nonlocal fifth force of nature" that is "received by the brain and integrated by its electromagnetic field" to generate its local consciousness (p.11). Relatedly, Meijer and Geesink (2017), propose the brain is "embedded in a holographic structured field that interacts with resonant sensitive structures in the various cell types in our body" (p.41).

[93] Consider for example James T. Ryder, a former Vice President of Lockheed Martin, who led a discussion at an "Arcane School Conference" (https://www.lucistrust.org/conferences/show/conference_london_2017) in 2017, titled "The rending of the veils (Part 1): Faeries, Devas, and Unidentified Aerial Phenomena." The description stated: Dr. Ryder is a retired vice president of Lockheed Martin Space Systems Company and former head of the Advanced Technology Center. "The widespread use of electricity on the planet will … materially assist in the rending of the veil which separates the astral plane from the physical plane; the dividing etheric web will shortly be dissipated, and … the result upon humanity and upon the other three kingdoms in nature cannot be over emphasized."

[94] The typical approach to motivating the probability of a simulation-theory scenario is via a kind of modal argument. The starting point for this line of reasoning is that, as Bostrom puts it, a "technologically mature "posthuman" civilization would have enormous computing power," in which it is possible to run

world in the 1999 film *The Matrix*, with our apparent experiences being closer to a fabrication arising from a code-like substrate. This view has become increasingly popular, especially among figures associated with cutting edge technological developments.[95] Such ideas may not "merely" be speculative, with Campbell et al. (2017) proposing experiments that could actually test the hypothesis.[96] Likewise, there have even been recent claims that people have been able to perceive the "code" that might be running this simulation through an empirical protocol involving DMT.[97] Intriguingly, there have been suggestions that this code bears similarities to the "hieroglyphics" sometimes reported in relation to UAP events and

simulations as complex and vivid as the one we experience. He then argues if it is *possible* we live in a simulation, then given the relative ease with which such realities could be generated, there would likely be many more actual simulations than physical worlds, meaning it is therefore highly likely that we *do* in fact live in one. Also, to note, even if the simulation hypothesis is true, this does not necessarily mean human beings are mere "non-playable characters" (NPCs) in a video game, devoid of agency. It is still possible that we have many of the attributes we currently believe ourselves to have, such as free will. It would just be that our fundamental reality and nature would be made of digital code rather than biological material.

[95] Elon Musk for example said — back in 2016, when the theory was not nearly as prominent in the cultural zeitgeist as it is today — that "I've had so many simulation discussions it's crazy" (Rossiaky, 2023). Likewise, Sam Altman (2025b) referenced the idea, musing "what an odd time for us to be alive … in all of human history," and there "there is something strange going on," although in a modern echo of Descartes he noted that even if we were living in a simulation "our consciousness is the only thing we can be sure is really going on."

[96] The experiments have been proposed by a team led by physicist Thomas Campbell, who previously worked for NASA on the Ares I program (aimed at developing a rocket to replace the Space Shuttle and send astronauts to space, including missions to the Moon and Mars), with his role being focused on risk assessment and solving technical problems to ensure mission and crew safety. His ideas have been summarized by Michels (2025e) on X as follows:

> He [has] designed several experiments to test whether our reality is being "rendered" only when observed, similar to how video games load graphics as you play … These experiments primarily involve variations of quantum mechanics experiments, such as the double-slit experiment and delayed-choice quantum eraser setups, aiming to detect anomalies that could suggest our reality operates as a simulation His experiments aim to test this idea by studying strange behaviors in quantum physics — particularly the double-slit experiment and quantum eraser setups. These experiments already show that particles behave differently when they're observed. Campbell wants to take this further and see whether reality only forms when a conscious observer is present … He argues that consciousness isn't part of the simulation — it's actually the foundation of reality … Even if his experiments succeed, though, Campbell acknowledges that they probably won't give absolute proof that we live in a simulation. Instead, they might shift how we understand reality — possibly showing that the universe behaves more like a participatory experience than a fixed, independent world.

[97] While speculations around reality-as-simulation are mainly in the realm of thought experiment, some people have even claimed to have found forms of empirical evidence pointing in this direction, such as an experiment described in a new documentary called The Discovery (2024). As featured in the trailer, the "discovery" in question occurred when a filmmaker called Danny Golan ingested DMT and projected a diffracted laser on a surface, and could apparently "see the code running through reality," with the laser revealing "numbers and letters running in a pattern," which he felt "suggest[ed] strongly that we live in a digital world." He then repeated the protocol — without revealing in advance what he himself had seen — with "over 100 people," and seemingly obtained similar results. One hardly knows what to make of such findings, but we should arguably keep an open mind as to their meaning and significance.

objects.[98] We should also note though that the term "simulation" may be misleading, since it implies, as Jorjani (2023a) puts it, that it is "a simulacrum of some other world that is more "real""; instead, Jorjani suggests it could be that "the very nature of our Cosmos is that it is a programmable (and re-programmable) information processing system" (p.16), such that it may — as alluded to above — allow time travel.[99]

To return to the central topic of the paper, all these ideas have relevance to the UAP/NHI topic. They were invoked for example by Matthew Brown — mentioned above in relation to taking myth seriously — when he came out publicly as a whistleblower in 2025 (Corbell & Knapp, 2025b).[100] He painted a vivid picture in which humans are shielded from

[98] There have even been links made between the ostensible "discovery" discussed in the Footnote above and the UAP topic, with claims that the "code" perceived in the DMT experiment is similar to "hieroglyphics" that have been reported in relation to UAP events and objects. Reports of such hieroglyphics have a long history. In 1865, for instance, the *Brooklyn Daily Eagle* reported a sighting in Missouri, in which a fur trapper witnessed "a bright luminous body … moving with great rapidity … [which] suddenly separated into particles, resembling … the bursting of a sky rocket in the air … [followed by] a heavy explosion, which jarred the earth very perceptibly." Later that day, he came across a scene of "great and widespread devastation" involving a "track of desolation" cutting through the forest, with "giant trees uprooted," which he ascertained was caused by "an immense stone that had been driven into the side of a mountain." Most strikingly, when examining this "stone," he reported it was "divided into various compartments," and "in various places it was carved with the curious hieroglyphics." The latter remark is echoed in subsequent encounters. The UK's most famous UAP event, for example, occurred in December 1980 in England's Rendlesham Forest (situated between two US Air Force bases), dubbed the "best documented and most compelling UFO incident ever to have taken place" (Pope et al., 2014). Over three nights dozens of military personnel saw various UAP activity, and two men actually apparently encountered a "small, metallic craft" in a clearing, recalled as "roughly triangular," approximately three meters high and across the base, adorned with symbols akin to "Egyptian hieroglyphics" (p. 6).

Most relevantly here, the notion of such hieroglyphs was linked to the "code" apparently perceived in the aforementioned DMT experiment by Randy Anderson, a Green Beret interviewed by Michels (2025b) as an apparent UAP whistleblower. He alleges he had seen "alien technology" in 2014 in a secure secret compartmentalized facility titled "Off World Technology" at a Naval base. There he claims he was shown a "gauntlet" emitting holographic, hieroglyphic-looking text. In his words, it was a "metallic object, very very strange looking … It's hard to describe because it didn't get a full view of it but it looked like something you could like reach in and grab and pick up and maybe … [It had] maybe something that would like be like a shield but … it had like a crystal type of display screen … I'm looking at it and it almost looked like a mirage type of effect, and in that, above that display screen were these hieroglyphic symbols that I started to see appear … This correlates with a documentary that I saw on YouTube about DMT" (after which they discuss the DMT experiment).

[99] Jorjani (2023a) suggests that "timelines can be changed because our Cosmos is a quantum-computational information processing system capable of saving something akin to past states of play in a video game. These are stored in a kind of "*Akashic* record" as history is re-written" by potential time travelers (p.19).

[100] Brown came forward publicly with UAP-related whistleblowing allegations on Corbell and Knapp's (2025b) podcast in spring 2025. Much of his allegations centered around claims of a secretive governmental program that purportedly used AI to search for and gather images of UAP encounters. Most relevant here though are his personal thoughts about the potential nature of NHI themselves. Asked by Knapp for his "thoughts on the Big Picture questions," like "who are they?" Brown replied, "I have a good degree of confidence that the reason they're here is us. I think life, especially sentient life, is a precious thing, and I think, to some, we might be a resource. I think humanity to some level is a resource for them… Possibly a commodity, possibly a form of entertainment, possibly medically related." Also of note, asked if "they

the true nature of existence, saying, "What I have learned is we live in a dream, a carefully constructed reality … We live in the matrix, except it is just much more boring than the movie …You are not free, and this reality has far more to it than you have been allowed to believe. And God is real." Even more esoterically, in a subsequent post on X under the username @ SunOfAbramelin (2025), Brown referenced ideas that have a long "occult" history — traced back to figures like John Dee (1527–1608), the court astronomer for, and advisor to, Elizabeth I — involving humans purportedly communicating with figures interpreted as being angelic who may have some powerful role in shaping the destiny of humankind.[101]

live here?", Brown replied "It certainly appears that they have been here for most of recorded history, at least some element of this has been here for most of human recorded history." He also suggested that the NHI were not singular, but involved "multiple factions of the same species, if not multiple species." Summarizing Brown's claims, as also alluded to above by Jorjani (Michels, 2025i), Wilde (2025b) suggested these were in line with teachings found in numerous traditions throughout history:

> Most people still think we're at the top of the food chain. But if you look deep enough into the oldest texts, the whistleblowers, the suppressed myths, you'll see a pattern … We're not rulers... we're resources. Playthings. A managed species inside a carefully constructed reality, existing for the entertainment, energy, and experimentation of non-human factions who have been here longer than recorded history itself … The Gnostics warned of Archons feeding off our ignorance. The Sumerians wrote of the Anunnaki using us as labor. In Hinduism, maya wraps us in a veil of distraction while devas and asuras fight over our fate. Different cultures. Same cosmic farm. There is no singular "them." Brown's insiders say what the Gnostics, Vedic sages, and modern experiencers have all hinted at...it's never been a united front. There are factions. Groups. Rivalries. Betrayals. Some of these beings see us as livestock, others as pets, and a few...just a few...see us as potential allies in a bigger cosmic drama. In the Vedas, it was devas vs. asuras. In Gnostic writings, the Demiurge vs. Sophia's cosmic rebellion … Reality is far more bizarre, manipulated, and layered than we could have ever imagined … We are inside a cosmic zoo, distracted by shadows, while the puppet masters operate behind the curtain. But...and this is key...the first step toward breaking the game is awareness. The Gnostics taught it. The Hindus knew it. The whistleblowers scream it. Knowing the trap is how you find the door. Will we keep staring at the cave wall, hypnotized by the flickering images of our engineered lives? Or will we finally, after thousands of years, turn around and see the beings holding the torches...and decide to tear the whole illusion down?

[101] In a post on X, Brown — under the username @SunOfAbramelin (2025) — wrote a cryptic message, addressed to Elon Musk, laden with apparent information and clues regarding the true nature of the UAP topic. Most pertinently here, he ended the post with the term "A.B.O.R.Y.M.O.N.," while his post also pictured a screen shot of a related image created/posted by a YouTube creator with a channel called Lifting the Lamp. In a video titled Decoding the Sigillum Dei Aemeth, Lifting the Lamp (2024a) describes this as "one of the most recognizable symbols of Enochean magic," which some people believe can be used in a "ritual to summon angels in order to communicate with them." Enochean magic is a complex and esoteric system of thought and practice that originated in a collaboration between John Dee (1527–1608, the court astronomer for, and advisor to, Elizabeth I) and Sir Edward Kelley (1555–1597), both figures deeply immersed in "the occult" and related endeavors like alchemy (Peterson, 2003). Dee and Kelley believed these practices had enabled them to interact with spiritual beings such as angels through the use of a language/script, revealed by the beings, known as Angelic language (by Dee) or also Enochian language (based on Dee's belief that the Biblical patriarch Enoch had been the last human, before Dee and Kelley themselves, to know the language). Among the symbols used in their practices is the Sigillum Dei Aemeth ("The Seal of the Truth of God"), thought to have been developed by medieval occultists around the 13th or 14th Century (Fanger, 1998). Lifting the Lamp (2024a) describes it as "a physical representation of the very highest divine powers that command the cosmos," arranged in a sevenfold pattern, since hermeticists like Dee believed the heavens were divided into seven (based on

Under these kinds of paradigms, concepts like ultraterrestriality need not seem far-fetched, but may approximate insights that many philosophical and religious traditions have

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the seven classical planets), where within each division is a "hierarchy of angels from planetary angels to Sephirothic angels all the way up to the God names that give rise to everything else in creation." Besides the strangeness of Brown sharing image of the Sigillum Dei Aemeth in relation to the UAP topic, observers wondered about the significance of the reference to a being called "Aborymon," In subsequent video, Lifting the Lamp (2024b) describes this entity in fairly apocalyptic terms as a force that can/will punish the wicked:

> There are seven names that can be derived of very high-ranking angels and there's an eighth hidden name within that which besides myself only one other person, namely Aaron Leach, I believe has successfully deciphered the name of that angel, which is of course Aborymon. But still we only have a name and not much other information other than sort of sinister undertones to this angel … The fact that it's an outlier, it's outside of the very ordered kind of grouping of seven angels, and the fact that it's associated with the number 666 in Dee and Kelley's journals, sort of gives this angel a sinister character to it, but since it occupies such a high level in the Enochian system … it may very well still be a Godly force but perhaps operating in a kind of sinister way, and this fact and the etymological similarities between the names of the angel of Destruction in the Book of Revelation has led Aaron Leach at least to conclude that Aborymon is the same or similar to the angel Abbadon or Apollyon. This this is the destroying angel in Revelation chapter 9 who leads the army of angels that emerges from the abyss. And the opening of the bottomless pit is of course also associated with the coming of the beast in the Book of Revelation whose number is 666. The Beast also emerges from the abyss but whereas the Beast is depicted as a kind of enemy of God, trying to undermine God's Will and persecute God's faithful, on the contrary, although Abbadon or Apollyon emerges from the same abyss and presides over what appear to be demonic or at the very least vengeful angelic beings, the function of Abbadon or Apollyon … is to actually punish the wicked and punish those who have not been sealed by God. So we have this dark force which is nevertheless harnessed for good ends.

Observers have then since speculated on what Brown's reference to Aborymon could mean in relation to the UAP topic. One account on X (@UAPWatchers, 2025) for example offered the following interpretation:

> Aborimon is believed to be tied to the outer ring of angelic intelligences, the highest layer of the metaphysical hierarchy, but it's not clean light and love. It's judgment, fire, unleashing forces that were meant to stay hidden until the "appointed time." … In the occult view, the end times isn't necessarily "the end", it's a shift, a rupture of illusion. And here's the take no one's voiced yet: Catastrophic disclosure is the real end times … UAPs have breached military airspace. Whistleblowers are testifying under oath Reality itself is being questioned. And now occult frameworks are bleeding into disclosure talk. This isn't by accident, it's systemic and it's encoded. The name Aborimon was likely hidden in a cipher for centuries. Now it's resurfaced, attached to a public figure known for alleging that reality is a prison, NHI are here, and God is real. That doesn't happen without intent or consequence. We're not just dealing with craft or crash retrievals. We're dealing with narratives of control, encoded in spiritual, scientific, and symbolic language. And the closer we get to truth, the more symbols like this are weaponized! Aborimon, if read through the lens of cataclysmic revelation, may not be a destroyer, but a trigger. The spark that causes systems, governmental, societal, ontological, to collapse. Not because of war, because of truth! This is why the circles are forming, why the ancient ciphers are suddenly being decoded … Disclosure isn't just political, it's metaphysical … So if you see strange names, diagrams, or code or you feel like "something's coming" and you can't explain it, you're not crazy. You're sensing the collision between the old world and the one that's been kept from us. That's what catastrophic disclosure means. We're not looking at end times prophecy, we're staring down the moment when everything hidden, occult, extraterrestrial, spiritual, technological, all erupts into the open.

articulated in diverse forms for millennia, and which modern thinkers from Hoffman to Musk are also taking seriously. From this perspective, NHI might be understood less as visitors from other planets and more as participants within a shared field composed of something like mind or information: beings whose ontological status transcends or even avoids the physical. Such perspectives also change what it might mean for UAP/NHI to be visiting or engaging with earth. If consciousness is fundamental to reality in some way, then even if we *perceive* UAP as physical craft, that physicality may be some kind of consciousness-related construction or projection, with the UAP being a manifestation of the consciousness field.

Within these broad parameters there are of course many possibilities, depending on the nature of one's metaphysics. Indeed, one gets a sense of observers wrestling with this very question, being compelled by the UAP/NHI topic to query or revisit their ontological and epistemological assumptions, but ultimately being somewhat baffled as to their implications. This point is shown by one of the pioneers in the field, John Keel (1970), who said he "abandoned the extraterrestrial hypothesis in 1967 when my own field investigations disclosed an astonishing overlap between psychic phenomena and UFOs ... The objects and apparitions do not necessarily originate on another planet and may not even exist as permanent constructions of matter" (p.272).

Set against that perspective, however, is the recurrent observation that some UAP really do seem to be real "machines," made of physical hardware. Of course, under an idealistic metaphysics, even what appear to our senses to be physical objects could still fundamentally be "made" of consciousness. But for all those people who still remain committed to *some* form of materialism, many observers seem confronted by the fact that UAP seem to have a strange double aspect, being somehow both material and immaterial. As Dr. Lacatski put it, "People say, 'Well, we're only going to look at the nuts-and-bolts machines.' Well, you better come up with a lot of physics. It's far more advanced than we're capable of now. And then there's others who say, 'Well, they're nothing more than ghosts. Part of the paranormal world.' No, they're a hybrid of both" (cited in Tritten, 2022). Numerous other observers have been compelled to reach similar conclusions,[102] including Carl Jung (1957).[103]

[102] Jeffrey Kripal for example said, "The difficult truth is that the UFO phenomenon has both an objective 'hard' aspect (think fighter jet videos, photographs, alleged metamaterials, apparent advanced propulsion methods, and landing marks) and a subjective 'human' aspect (think close encounters, multiple and coordinated visual sightings, altered states of consciousness, visionary displays, often of a most baroque or sci-fi sort, and experienced traumatic or transcendent abductions). And both sides – both the material and the mental dimensions – are incredibly important to get a sense of the full picture" (cited in Lacatski et al., 2021).

[103] Jung's (1959) book "Flying Saucers: A Modern Myth of Things Seen in the Skies" sought to place the upsurge of attention to the topic in the context of existential reactions to the Cold War and other challenges: "In the threatening situation of the world today, when people are beginning to see that everything is at stake, the projection-creating fantasy soars beyond the realm of earthly organizations and powers into the heavens, into interstellar space, where the rulers of human fate, the gods, once had their abode in the planets." Notably however, he did not regard them *merely* as projection or myth, but also as "real" in some material, physical sense. In a letter to New Republic editor Gilbert A. Harrison (in reply to a request for his take on the topic), Jung (1957) wrote: "the problem of the Ufos is, as you rightly say, a very fascinating one…. [as] there is no certainty about their very nature. On the other side, there is an overwhelming material pointing to their legendary or mythological aspect. As a matter of fact the psychological aspect is so impressive, that one almost must regret that the Ufos seem to be real after all. I have followed up the literature as much as possible and it looks to me as if something were seen and even confirmed by radar, but nobody knows exactly what is seen."

One can discern similar deliberations in relation to the recent claims around the use of "psionic" assets to "summon" or "invite" UAP, as discussed above. Such accounts might seem to invite or imply an idealistic metaphysics, but do not necessarily require that: it is possible that UAP are still physical entities, made of "conventional" matter, and the psionic assets are able to interact telepathically with them in some fashion we do not yet understand (Ali, 2025). Similarly, accounts of interactions with NHI often suggest that communication occurred telepathically, as for example in the Varginha incident reported by Fox (2025), as noted above. On a related note, it was striking that around the time the psionics story first made the news in January 2025, for a time the No. 1 podcast worldwide was The Telepathy Tapes (https://thetelepathytapes.com), in which young people with forms of non-speaking autism seem to demonstrate striking potentially telepathic abilities. But then given that the psionic topic has brought consciousness to the fore in the discourse around UAP, this inevitably opens the door to speculations along more idealistic lines. One finds such discourse, for instance, aired by people like Semivan (2025), who in speculating on the UAP topic described our "consensus reality" — involving a "materialistic and mechanistic" metaphysics — using terms like, "veil," "façade," and "quantum illusion."[104]

Such speculations then of course raise deep questions regarding the nature and significance both of NHI/UAP and human beings. Might UAP/NHI for example be akin to the agents or sentinels in *The Matrix*, whose role is to protect the system and maintain control over the human population. There is indeed an eerie similarity between the sentinels and contemporary reports of "jellyfish-like" UAP.[105] Or might they instead be more like Neo, playing some kind

[104] Semivan (2025) expressed his thoughts as follows:

> After 40-some-odd years and speaking to everybody in the business … a nobody has a clue … You want to say, 'Ok where does this fit in to what we know?', and there is no place. I think the closest approximation we have is probably quantum mechanics and … the study of consciousness. But … both of those areas are … in their infancy. We know very very little. And as one physicist mentioned … "If quantum mechanics doesn't scare you … you don't really know what quantum mechanics is" … [It's] all a quantum illusion that we're living in, right? So it's very complicated … There's a nuts-and-bolts aspect to it. People see things in the sky, and they point to it, or they see … maybe a non-human intelligence or an alien … and they see it as physical, and they can relate to that. But really that's sort of a facade in a way … the serious question is, what's behind it? What does it mean? What are the intentions? What are the capabilities? And then what does it mean for our default reality that we're living in? Are we living in a reality that's really a consensus reality but not the true reality? So it very very quickly becomes very complicated and also very scary if you think about it. We like to live in a world … we see it as very materialistic and mechanistic … and we rarely go into the spiritual or rarely go into some of the weirder aspects of this. But if you want to know where the real world exists, it's not in what you see around you. It's what you don't see. And maybe it's because our sensory package isn't geared to see it. I mean, our brain is blinkered somewhat, right? It's a veil and we haven't broken through that. Now, some people have. Some mystics have done that.

[105] Modern accounts of apparent "Jellyfish" UAP include the classification released by Skywatcher (2025), noted above, as well as footage released by Jeremy Corbell (2024) of an apparent incursion of an object with such characteristics over a military base in 2018. Similarly, other videos in the public domain also seem to show a jellyfish-like object/entity, such as one posted on X by thinktank (2025) that is described as showing a "flying jelly fish with electrical pulses." Moreover, similar reports appear to date back decades. A report from the Halifax Evening News in July 1954, for example, reported that an air stewardess on a flight from New York to London saw "a formation of strange machines flying parallel to the airliner for more than 80 miles," involving "six small, black objects and one larger machine, a "flying jellyfish," which appeared to change shape constantly" (see Infini, 2024). Going further back, representations of jellyfish-

of liberatory, salvational role, possibly helping us denizens of the simulation advance to some higher form of understanding or even existence, and ultimately perhaps even escaping the matrix altogether? Or even if not actively saving us, might they be signs we are "brushing up against the edge of the program," as Wilde (2025a) puts it, and are the precursor to us "breaking out of the simulation."[106] And as for us humans, does that mean we ourselves might be the creation of some form of NHI, whether the mysterious conscious agents in Hoffman's schema or some Ur computer programmer in Bostrom's?

Whatever the answers to these questions, one point on which many observers seem to agree is that our perceptual and cognitive limitations hinder us from fully apprehending and understanding the phenomenon and more broadly the true nature of reality. As Semivan put it, "The phenomenon is a natural part of our universe, and we're living in it but we don't recognize it. The same way that insects and animals don't recognize the human universe. A cat and a dog could be running through a library, but they don't have the faintest idea what the books are all about and what libraries are all about. We might be walking through our existence and there's a whole other reality that surrounds us that we just simply don't have the ability to see or interact with" (cited in (Verma, 2023a). Making a similar point, Alain Juillet — former director of the French foreign intelligence service — suggested that although UAP may be usually outside the boundaries of our perception and cognition, they may sometimes become perceptible for some reason: "For comparison, a fly with its faceted eyes can see dimensions other than ours even though it lives in our world. Perhaps, therefore, there are things that are in our universe that we cannot see in normal times because they are not in our field of vision. But perhaps, from time to time, something happens, that a phenomenon passes through our field of perception before disappearing" (cited in Verma, 2022a).

like UAP can seemingly even be found on historic works of art, such as the 17th Century Svetishoveil Cathedral Fresco depicting the crucifixion of Christ (Open-Minded Approach, 2024).

[106] Wilde (2025) moreover suggests previous civilizations have reached this point and then "disappeared," leaving behind "breadcrumbs."

> We always assume that if a civilization reaches a certain level of technological advancement, they must create simulations … But what if we're thinking about this all wrong? What if a civilization before us reached this same realization…but instead of making a simulation, they figured out they were already in one? And then they left? Really think about it. We've been toying with simulation theory, quantum weirdness, and consciousness anomalies more and more lately. But what if this happens to every advanced civilization? What if there's a point of no return...a stage where reality itself starts to unravel when you get too close to the truth? Maybe that's the real answer to the Fermi Paradox. We don't see advanced civilizations because they don't stick around. Once they discover the simulation, they find the exit. And what if we're at that threshold now? The Mandela Effect, glitches in reality, the Oz Effect during UAP encounters, the growing suspicion that time and consciousness don't work the way we thought… what if these are signs that we're brushing up against the edge of the program? What if every civilization that gets this far starts seeing the same things...anomalies, inconsistencies, eerie signs that something is off? And every time, those who figure it out disappear? If they left, where did they go? Did they ascend to a higher layer of reality? Did they break out of the simulation only to find themselves inside another one? Or did they simply cease to exist here the moment they crossed over? Did they leave clues for us? Maybe ancient texts weren't just metaphors. Maybe certain knowledge...hidden teachings, lost civilizations, inexplicable artifacts...are breadcrumbs left behind by those who escaped. So here we are, approaching the same realization they did!

Moreover, just as we may be barely able to comprehend the mysteries surrounding us, there is also a distinct sense that *our* existence is likewise fundamentally mysterious, and that we may be much more than we commonly think of ourselves as being. This intuition was expressed by Sean Cahill for example — retired US Navy Chief Master-at-Arms who was one of the witnesses of the famous Nimitz UAP incident of 2004 — in an interview with Ford (2023), in which he said, "What we're dealing with is something that can change the entire world … If these non-human intelligences are not coming from a planet like our own within the physical universe that we inhabit, because those distances are quite vast, then it speaks to a universe that we have nearly no understanding of other than at a mathematical level … So we're looking at aspects of our of ourself, we're looking at aspects of our reality, we're tiptoeing up to the idea that we may be more than just this body, and that there are things involved with this technology that have to do with whatever we are when we are not this body. Those are heavy, heavy concepts, and confused species."

Finally, whatever the ultimate metaphysical nature of the universe — materialist, idealist, or something beyond even these categories — one wonders where these speculations about ultimate causes and origins may be headed. Even some ostensibly secular discourse along these lines — such as some kind of overarching NHI being in charge of the "phenomenon" as a whole — begin to sound rather like religious ideas of a creator. This has been one interpretation for example of Vallée's (2008) proposal that the phenomenon overall is a "control system" that is guiding and manipulating human development, even if Vallée himself might not see it in these quasi-religious terms.[107] So too, for example, Prasad (2025) suggests

[107] Vallée has proposed the UAP phenomenon overall is a "control system" guiding and manipulating human development. As he writes in Dimensions (Vallée, 2008), "the UFO phenomenon is one of the ways through which an alien form of intelligence of incredible complexity is communicating with us symbolically" (p.243), and that paranormal phenomena like UFOs are one of the manifestations of a "spiritual control system for human consciousness" (p.257). We should note thought that, despite this reference to "spiritual," Vallée himself does not necessarily view this system in "Godlike" terms. As he explains (Vallée, 1990):

> In the mid-70's I proposed to approach the UFO phenomenon as a control system, reserving judgment as to whether the control would turn out to be human, alien or simply natural. Such control systems, governing physical or social events, are all around us. They can be found in the terrestrial, ecological and economic balancing mechanisms that rule nature, some of which are well understood by science. This theory admits two interesting variants: (1) An Alien intelligence, possibly earth-based, could be training us towards a new type of" behavior. It could represent the "Visitor Phenomenon" of Strieber (1987) or some form of "super-nature," possibly along the lines of a "Gaia" hypothesis. (2) Alternately, in a Jungian interpretation of the same theme, the human collective unconscious could be projecting ahead of itself the imagery which is necessary for our own long-term survival beyond the unprecedented crises of the 20th century.

However, others have drawn parallels with more traditional ideas of God. Nolan (2024) for instance was asked about the possibility of this control system directing evolution. In response, while Nolan himself was cautious about attributing to such a system phenomena that could already be explained in more conventional terms, he certainly saw the resonances between this theory and conventional notions of God.

> He [Vallée] talks about the control system as a system of systems, that is in a contiunual reinforcement pattern of doing something, nudging, seeing the effect, looking for the feedback, nudging, nudging again, all driving humanity in a certain direction. Now, it appears that that's what's happening, at least from the way that Jacques often talks about it. But from a human evolution point of view, you could say that this is what's happening, and I'm not disagreeing with it, I'm just saying we have to be careful not to claim that that's what's happening, because there are perfectly normal ways, I say mainstream ways, to talk about it … The control system, and Jacques will probably kill me for saying this, is almost as easy as claiming it's God, it's a *deus ex machina*.

that if spacetime is a "manifold" ("a smooth fabric where geometry unfolds"), with there moreover being a "meta-manifold" ("a higher space containing many such fabrics"), then God is "the structural witness and participant in the entire meta-manifold." One therefore wonders if all these ideas are ultimately headed back, albeit clothed in modern language and concepts, to arguably the oldest, most mysterious, and enduring human belief of all, namely in God.[108]

🕮 References

Afifi-Sabet, K. (2024, March 6). AI singularity may come in 2027 with artificial "super intelligence" sooner than we think, says top scientist. *Live Science*. https://www.livescience.com/technology/artificial-intelligence/ai-agi-singularity-in-2027-artificial-super-intelligence-sooner-than-we-think-ben-goertzel

Ajay, K. (2020, January 8). Robert Oppenheimer, the atom bomb and the famous verse. *Medium*. https://medium.com/@ajay.kashi/robert-oppenheimer-the-atom-bomb-and-the-famous-verse-b533c1a84fd

Algaze, G. (2009). *Ancient Mesopotamia at the Dawn of Civilization: The Evolution of an Urban Landscape*. University of Chicago Press.

Ali, M. (2025, January 25). PROOF That Jake Barber's Psionic Asset Program Does NOT Align with Michael Herrera's Story. *MSN*. https://www.msn.com/en-us/technology/artificial-intelligence/proof-that-jake-barber-s-psionic-asset-program-does-not-align-with-michael-herrera-s-story/ar-AA1xVUKw

All-domain Anomaly Resolution Office. (2024, November 14). Fiscal Year 2024 Consolidated Annual Report on Unidentified Anomalous Phenomena. *Department of Defense*. https://media.defense.gov/2024/Nov/14/2003583603/-1/-1/0/FY24-CONSOLIDATED-ANNUAL-REPORT-ON-UAP-508.PDF

Allison Jr, D. C. (2009). *The Historical Christ and the Theological Jesus*. Wm. B. Eerdmans Publishing.

Altman, S. (2025a, March 3). !! *X*. https://x.com/sama/status/1896651354648818121

Altman, S. (2025b, October 1). OpenAI CEO Sam Altman: AI Warfare, Freedom & Immortality | MD MEETS Episode #1. *MDMEETS - Essential Talks with Mathias Döpfner*. https://www.youtube.com/watch?v=rF0tQtDMwHM

Andrews, C. (2009, October 15). Eye witness to the formation of a crop circle opposite Stonehenge. *Www.Colinandrews.Net*. https://colinandrews.net/JuliaSetStory.html

Aniftos, A. (2020, April 28). A timeline of Tom DeLonge's connection with UFOs. *Billboard*. https://www.billboard.com/music/rock/tom-delonge-ufo-timeline-8071145/

[108] Grusch (2023) spoke about revisiting his religious assumptions in a recent interview in which was asked if "The Phenomenon" — UAP, together with whatever NHIs might be responsible for these — is going to be "the next big great religion in the world?" To this, he replied, "Yeah, basically the phenomenon has probably already influenced all the other religions already. So … maybe we're looking at the source code … We're at the graphic user interface level … and we're finally getting into the information flow." Of himself, Grusch said that as a younger man he was, "reasonably religious, but nothing like crazy, kind of average," but then when he studied physics, he "became kind of agnostic, I was like 'I don't know about this all this kind of woo-woo you know stuff that the church espouses.'" However, he then says that, "oddly enough I've kind of come full circle in some sense, where there is this higher sentience … I think we're created beings in some manner, whether it be panspermia from Little G gods or Big G God."

Archaeology news network. (2022, January 13). 300 million year old enigmatic ancient wheel found deep in mine? *Archaeology News Network*.

Ay, N., & Löhr, W. (2015). The Umwelt of an embodied agent — a measure-theoretic definition. *Theory in Biosciences*, *134*(3), 105–116. https://doi.org/10.1007/s12064-015-0217-3

Bader, C., Mencken, F. C., & Baker, J. O. (2011). *Paranormal America: Ghost Encounters, UFO Sightings, Bigfoot Hunts, and Other Curiosities in Religion and Culture*. New York University Press.

Bajo, P., Drysdale, R. N., Woodhead, J. D., Hellstrom, J. C., Hodell, D., Ferretti, P., Voelker, A. H. L., Zanchetta, G., Rodrigues, T., Wolff, E., Tyler, J., Frisia, S., Spötl, C., & Fallick, A. E. (2020). Persistent influence of obliquity on ice age terminations since the Middle Pleistocene transition. *Science*, *367*(6483), 1235–1239. https://doi.org/10.1126/science.aaw1114

Barbosa, D. S., Abreu, A. F. L., Fernandes, A. T., Cristino, L. C., Rezola, M. I., Penteado, P., & de Castro, Z. O. (2013). *Documentação Crítica de Fátima Seleção de documentos (1917-1930)*. Santuário de Fátima.

Barentine, J. C. (2015). *The lost constellations: a history of obsolete, extinct, or forgotten star lore*. Springer.

Barham, L., Duller, G. A. T., Candy, I., Scott, C., Cartwright, C. R., Peterson, J. R., Kabukcu, C., Chapot, M. S., Melia, F., Rots, V., George, N., Taipale, N., Gethin, P., & Nkombwe, P. (2023). Evidence for the earliest structural use of wood at least 476,000 years ago. *Nature*. https://doi.org/10.1038/s41586-023-06557-9

Barlament, J. (2021, February 6). The Oldest Story Ever Told: Unraveling Orion. *Medium*. https://medium.com/interfaith-now/the-oldest-story-ever-told-unraveling-orion-c24aacd7a1a5

Barnett, D. (2017, November 22). Vrillon: the alien voice hoax that became a legend. *The Independent*. https://www.independent.co.uk/news/long_reads/vrillon-hacking-alien-voice-seventies-extra-terrestrial-hoax-unexplained-mysteries-a8069926.html

Barnhart, E. (2023, January 5). Aztec Origins Revealed. *Ancient Aliens*. https://www.youtube.com/watch?v=5nXvGryLGIo

Barrow, J. D., & Tipler, F. J. (1986). *The Anthropic Cosmological Principle.* Clarendon Press.

Baugh, S. (2023, June 29). Anunnaki: Mesopotamian mythology. *Encyclopedia Britannica*. Encyclopedia Britannica

Bauval, R. G. (1989). A master plan for the three pyramids of Giza based on the configuration of the three stars of the Belt of Orion. *Discussions in Egyptology*, *13*(7), 7–18.

Bell, K. (2000). Merlin as Historian in "Historia Regum Britannie." *Arthuriana*, 14–26.

Bialy, S., & Loeb, A. (2018). Could solar radiation pressure explain Oumuamua's peculiar acceleration? *The Astrophysical Journal*, *868*(1), L1. https://doi.org/10.3847/2041-8213/aaeda8

Billings, A. (2021, February 1). Astronomer Avi Loeb says aliens have visited, and he's not kidding. *Scientific American*. https://www.scientificamerican.com/article/astronomer-avi-loeb-says-aliens-have-visited-and-hes-not-kidding1/

Biondi, F., & Malanga, C. (2022). Synthetic aperture radar doppler tomography reveals details of undiscovered high-resolution internal structure of the Great Pyramid of Giza. *Remote Sensing*, *14*(20), 5231. https://doi.org/10.3390/rs14205231

Black, S., Wright, T., & Erickson, L. (2001). Polynesian folklore: An alternative to plastic toys. *Children's Literature in Education*, *32*(2), 125–137. https://doi.org/10.1023/A:1010386512636

Bledsoe, C. (2023). *UFO of GOD: The Extraordinary True Story of Chris Bledsoe*. Chris Bledsoe.

Bond, S. E. (2018, November 13). Pseudoarchaeology and the racism behind Ancient Aliens. *Hyperallergic*. https://hyperallergic.com/470795/pseudoarchaeology-and-the-racism-behind-ancient-aliens/

Bostrom, N. (2003). Are we living in a computer simulation? *The Philosophical Quarterly*, *53*(211), 243–255.

Brady-Estevez, A. (2025, June 29). UFOs, The Government, and Entrepreneurs. *The Good Trouble Show*. https://www.youtube.com/live/L1GdZVPm7EA

Brandenburg, J. E. (2014). Evidence of a Massive Thermonuclear Explosion on Mars in the Past, The Cydonian Hypothesis, and Fermi's Paradox. *Journal of Cosmology*, 12229–12280.

Brown, M. (2025, December 16). Taxonomies of the invisible frontier. *Invisible Frontiers*. https://sunofabramelin.substack.com/p/taxonomies-of-the-invisible-frontier-ba7?

Browne, E. (2021, March 22). Viral Mars conspiracy theory video claims humans lived on Mars, destroyed it in nuclear war. *Newsweek*. https://www.newsweek.com/viral-mars-conspiracy-theory-video-toktok-claims-humans-destroyed-nuclear-war-1577823

Bruehl, S., & Villarroel, B. (2025). Transients in the Palomar Observatory Sky Survey (POSS-I) may be associated with nuclear testing and reports of unidentified anomalous phenomena. *Scientific Reports*, *15*(1), 34125. https://doi.org/10.1038/s41598-025-21620-3

Bullard, T. E. (2016). *The Myth and Mystery of UFOs*. University Press of Kansas.

Burbery, T. J. (2021). *Geomythology: How Common Stories Reflect Earth Events*. Routledge.

Burlison, E. (2025, June 27). TRUMPS AMERICA WINS ALL WEEK. SCOTUS. UAP. BBB. @RepEricBurlison. *X*. https://x.com/diligentdenizen/status/1938661549322707376

Cajete, G. (2000). *Native Science: Natural Laws of Interdependence*. Clear Light Publishers.

Campbell, J. (1991). *The Power of Myth*. Anchor.

Campbell, T., Owhadi, H., Sauvageau, J., & Watkinson, D. (2017). On testing the simulation theory. *Https://Arxiv.Org/Pdf/1703.00058*.

Capra, F. (2010). *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism*. Shambhala Publications.

Carlotto, M. J. (1997). Evidence in support of the hypothesis that certain objects on Mars are artificial in origin. *Journal of Scientific Exploration*, *11*(2), 1–26.

Carter, J. (2005). *Sex and rockets: The occult world of Jack Parsons*. Feral House.

Chalker, B. (2005). *Hair of the Alien: DNA and Other Forensic Evidence of Alien Abductions*. Simon and Schuster.

Chalmers, D. (2015). Panpsychism and panprotopsychism. *Consciousness in the Physical World: Perspectives on Russellian Monism*, 246–276.

Chen, S. (2024, September 7). China's super-radar detects plasma bubble over the pyramids in Giza. *South China Morning Post*. https://www.scmp.com/news/china/science/article/3277286/chinas-super-radar-detects-plasma-bubble-over-pyramids-giza

Childress, D. (2022, December 6). Genetic evolution of interstellar gods (S6, E7). *Ancient Aliens*. https://www.youtube.com/watch?v=4AMLPMt_mog

Church, G. M., Gao, Y., & Kosuri, S. (2012). Next-generation digital information storage in DNA. *Science*, *337*(6102), 1628–1628. https://doi.org/10.1126/science.1226355

Cicero (1883). *Somnium Scipionis*. W.D. Pearman, ed. & trans. http://www.tertullian.org/fathers/cicero _dream_of_scipio oz_trans.htm.

Clarke, A. S. (2012). *Encounters with Star People: Untold Stories of American Indians*. Anomalist Books.

Coffey, J. R. (2023, March 8). The Schist Disk: Egypt and "Advanced" Technology. *History Defined*. https://www.historydefined.net/the-schist-disk

Colavito, J. (2011). *Ancient Atom Bombs*. Creative Commons.

Collins, J. J. (1982). The apocalyptic technique: Setting and function in the Book of Watchers. *The Catholic Biblical Quarterly*, *44*(1), 91–111.

Coomaraswamy, A. K. (1972). *The Flood in Hindu Tradition*. Pembridge Design Studio.

Corbell, J. (2024, January 9). Today we release the RAW footage of a military filmed UAP incursion... *X*. https://twitter.com/JeremyCorbell/status/1744790827254313423

Corbell, J. (2025a, February 9). Jeremy Corbell Explains NEW THEORY About Aliens, Ai and Humans. *Vetted*. https://www.vetted.show/episodes/jeremy-corbell-explains-new-theory-about-aliens-ai-and-humans

Corbell, J., & Knapp, G. (2023, October 17). Inside the DIAs Secretive UFO Investigation - Guests: Dr. James Lacatski & Dr. Colm Kelleher. *Weaponized with Jeremy Corbell & George Knapp*. https://podcasts.apple.com/us/podcast/weaponized-with-jeremy-corbell-george-knapp/id1664299388

Corbell, J., & Knapp, G. (2025a, October 2). Dylan Borland Unloads - The Truth About Legacy UFO Programs: PART 2: WEAPONIZED: EP #91. *Weaponized*.

Corbell, J., & Knapp, G. (2025b, May 13). Immaculate Constellation - A Whistleblower Honors His Oath: WEAPONIZED: Episode #76: PART 3. *Weaponized*. https://www.youtube.com/watch?v=PtBVAxoHeaY

Corbell, J., & Knapp, G. (2025c, November 4). Scientist reveals details of top-secret UFO research in Las Vegas. *8 News Now — Las Vegas*. https://www.youtube.com/watch?v=xIIUtrXqv-w&t=2s

Corbell, J., & Knapp, G. (2025d, December 23). Jacques Vallee - The Bizarre Nature of UFOs. WEAPONIZED: Episode #102. https://www.youtube.com/watch?v=sOOAVlatb2E

Corbell, J., & Knapp, G. (2026, January 8). Alien Mummies or Ancient Humans Butchered And Sold By Grave-Robbing Conmen? Weaponized. https://www.youtube.com/watch?v=HgoGBoNmoBg

Côté, A. (2025, October 18). A lot of zany stuff makes sense when you consider perhaps Earth is an alien-maintained civilization incubator. *X*. https://x.com/Andercot/status/1979734356194455919

Coulthart, R. (2023a, July 6). Ross Coulthart, Franc Milburn and Christopher Sharp discuss UAP issues and latest breaking news. *Close Encounters Australia*. https://www.youtube.com/watch?v=OlCBLFnjYCY

Coulthart, R. (2023b, August 17). Ross Coulthart at the Victorian State Library 12 August 2023 - Part 1. *Close Encounters Australia*. https://www.youtube.com/watch?v=JClRunq-NdI

Coulthart, R. (2025a, January 18). Whistleblower reveals UAP retrieval program; object caught on video. *News Nation*. https://www.youtube.com/watch?v=3dtA9w5ldHw

Coulthart, R. (2025b, January 25). Former nuclear officer, green beret says he believes UAP whistleblower | Reality Check. *News Nation*. https://www.youtube.com/watch?v=q38SwPmObho&t=2s

Coulthart, R. (2025c, April 2). Jake Barber: Skywatcher is 'finding things that are not known objects' 'Reality Check.' *NewsNation*. https://www.youtube.com/watch?v=t5e5z1bcBgQ

Coulthart, R. (2025d, August 5). Exclusive: Astronomer's new data finds possible nonhuman intelligence in space | Reality Check. *News Nation*. https://www.youtube.com/watch?v=Ylw_NRxJEgM

Coulthart, R. (2025e, November 2). Ross Coulthart Q&A: Is the sun a portal for aliens? *Reality Check*.

Coulthart, R., & Zabel, B. (2022). *UFO & UAP "Need to Know" News Documentary with Coulthart & Zabel*. Spotlight, 7NEWS.

Crick, F. H. C., & Orgel, L. E. (1973). Directed panspermia. *Icarus*, *19*(3), 341–346. https://doi.org/10.1016/0019-1035(73)90110-3

Cruikshank, G. (2024, December 21). The Hidden Truth Behind a 1960s Nuclear Test: A Non-Human Craft Fell Down To Earth. *Liberation Times*. https://www.liberationtimes.com/home/the-hidden-truth-behind-a-1960s-nuclear-test-a-non-human-craft-fell-down-to-earth

Curry, A. (2021, August 21). An immense mystery older than Stonehenge. *The BBC*. https://www.bbc.com/travel/article/20210815-an-immense-mystery-older-than-stonehenge

Da Silva, F. (2025, February 12). The Techno-Terrestrial Hypothesis: AI, Alien Intelligence, and the Evolution of Homo Techno - Part 1. *Substack*. https://frankdasilva.substack.com/p/the-techno-terrestrial-hypothesis-part-1

Dalleur, P. (2021). Fatima pictures and testimonials: in-depth analysis. *Scientia et Fides*, *9*(1), 9–45. https://doi.org/10.12775/SetF.2021.001

Dani, R. (2019, March 22). Researchers find proof of ancient 'atomic war' a great many years prior. *The Times of India*. https://timesofindia.indiatimes.com/blogs/thedanispost/researchers-find-proof-of-ancient-atomic-war-a-great-many-years-prior/

Däniken, E. Von. (1968). *Erinnerungen an die Zukunft: Ungelöste Rätsel der Vergangenheit (Chariots of the Gods? Unsolved Mysteries of the Past)*. Berkeley Books.

Davenport, D., & Vincenti, E. (1979). *Atomic Destruction in 2000 B.C.* Sugarco.

Davidson, R. M. (2004). The Genesis flood narrative: Crucial issues in the current debate. *Andrews University Seminary Studies*, *42*(1), 49–77.

Davis, E. (2020). Gnostic Psychedelia. *Gnosis: Journal of Gnostic Studies*, *5*(1), 97–120. https://doi.org/10.1163/2451859X-12340078

Dawkins, R. (2009). *The God Delusion*. Random House.

Dean, R. (2014, May 12). Cosmic Clearance. *Leeds University, UK*. https://www.youtube.com/watch?v=JDjsWThJOK8

DeLonge, T., & Levenda, P. (2024). *Sekret Machines: War*. To The Stars.

Demertzi, A., Tagliazucchi, E., Dehaene, S., Deco, G., Barttfeld, P., Raimondo, F., Martial, C., Fernández-Espejo, D., Rohaut, B., & Voss, H. U. (2019). Human consciousness is supported by dynamic complex patterns of brain signal coordination. *Science Advances*, *5*(2), eaat7603. https://doi.org/10.1126/sciadv.aat7603

Dennett. (2018). Undersea UFO Base: An In-Depth Investigation of USOs in the Santa Catalina Channel. CreateSpace Independent Publishing Platform.

Diamandis, P. (2025, October 18). We are in the midst of the Singularity. From our perspective it feels and looks like a smooth and continuous process. The Singularity is Now! *X*. https://x.com/PeterDiamandis/status/1979711675646575001

Dolan, R. (2019, December 3). The Chris Bledsoe Story Pt 3 'The Lady.' The Richard Dolan Show. *The Richard Dolan Show*. https://www.youtube.com/watch?v=OwCLm_qRric&t=36s

Donahue, J. R. (1978). Jesus as the Parable of God in the Gospel of Mark. *Interpretation: A Journal of Bible and Theology*, *32*(4), 369–386. https://doi.org/10.1177/002096437803200403

Drake, F., Vakoch, D. A., & Dowd, M. F. (2015). *The Drake Equation: Estimating the Prevalence of Extraterrestrial Life through the Ages*. Cambridge University Press.

Drew, H. (2025, May 31). One of the greatest crop pictures in history appeared.... *X*. https://x.com/RedCollie1/status/1928967971021705481

Dumpert, J. (1998). In the presence of the goddess: Bowing before the mirror in Shinto. *Journal of Ritual Studies*, *12*(1), 27–37.

Dundes, A. (1988). *The Flood Myth*. University of California Press.

Dunn, C. (1998). *The Giza Power Plant: Technologies of Ancient Egypt*. Simon and Schuster.

Durant, F. C. (1953, February 16). Memorandum for the Assistant Director for Scientific Intelligence from F C Durant, 'Report of Meetings of the Office of Scientific Intelligence Scientific Advisory Panel on Unidentified Flying Objects, January 14–18, 1953, 16th February 1953. *Office of Scientific Intelligence Scientific Advisory Panel on Unidentified Flying Objects*. http://www.ufxufo.org/robertson/durantrept.htm

Einstein, A., Podolsky, B., & Rosen, N. (1935). Can quantum-mechanical description of physical reality be considered complete? *Physical Review*, *47*(10), 777–780. https://doi.org/10.1103/PhysRev.47.777

Eliade, M. (1968). *Myth and Reality*. Harper Collins.

Elizondo, L. (2024). *Imminent: Inside the Pentagon's Hunt for UFOs*. HarperCollins.

Emparan, R., Grado-White, B., Marolf, D., & Tomašević, M. (2021). Multi-mouth traversable wormholes. *Journal of High Energy Physics*, *2021*(5), 1–28.

Encyclopedia Britannica. (2025, March 8). Pyramids of Giza. *Encyclopedia Britannica*. https://www.britannica.com/topic/Pyramids-of-Giza

Endres, R. G. (2025, July 25). The unreasonable likelihood of being Origin of life, terraforming, and AI. *Arxiv*. https://arxiv.org/pdf/2507.18545

Evslin, B. (1984). *Heroes, Gods and Monsters of the Greek Myths*. Laurel Leaf.

Fanger, C. (1998). *Conjuring Spirits: Texts and Traditions of Medieval Ritual Magic*. Penn State Press.

Farah, D. (2025). The Age of Disclosure. *Farah Films*.

Farrell, J. P. (2012). *Saucers, Swastikas and Psyops: A History of A Breakaway Civilization: Hidden Aerospace Technologies and Psychological Operations*. Adventures Unlimited Press.

Fenton, B. (2019, February 2). Fingerprints of Our Ancient Alien Genetic Engineers. *Medium*. https://medium.com/@brucerfenton/fingerprints-of-our-ancient-alien-genetic-engineers-10b4b829eb2e

Fenton, B. R., & Fenton, D. (2020). *Exogenesis: Hybrid Humans: A Scientific History of Extraterrestrial Genetic Manipulation*. New Page Books.

Finkel, I. (2025, December 12). Deciphering Secrets of Ancient Civilizations, Noah's Ark, and Flood Myths | Lex Fridman Podcast #487. Lex Fridman Podcast. www.youtube.com/watch?v=_bBRVNkAfkQ&list=PLrAXtmErZgOdP_8GztsuKi9nrraNbKKp4&index=1

Fitzenreiter, R., Ernstson, K., Kletetschka, G., LeCompte, M. A., Moore, C. R., Kennett, J. P., Bizimis, M., Hofmann, F., Takac, M., Adedeji, A. V., Witwer, T., Chouinard, J. E., Perez, J. P., Young, M. D., Eaton, T. M., Valente, M. J., Lanning, D. B., Rapoport, Y., Ellison, K., … West, A. (2025). Evidence of a 12,800-year-old shallow airburst depression in

Louisiana with large deposits of shocked quartz and melted materials. *Airbursts and Cratering Impacts*, *3*(1). https://doi.org/10.14293/ACI.2025.0004

Fontenrose, J. E. (1981). *Orion: The Myth of the Hunter and the Huntress*. University of California Press.

Ford, M. (2023, July 16). UFO Bombshell: Sean Cahill on Congressional legislation on UFOs/UAPs by Senator Schumer & Rounds. *The Good Trouble Show with Matt Ford*. https://www.youtube.com/watch?v=Qf5BtOm8_gI&t=3631s

Fort, C. (1919). *Book of the Damned*. New Lands.

Forterre, P. (2016). To be or not to be alive: How recent discoveries challenge the traditional definitions of viruses and life. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, *59*, 100–108. https://doi.org/https://doi.org/10.1016/j.shpsc.2016.02.013

Fox, J. (2025, November 4). Groundbreaking testimony: Neurosurgeon confesses to making alien contact | Reality Check. *Reality Check: NewsNation*. https://www.youtube.com/watch?v=5Zit-08rtkE&t=336s

Frazer, J. (2013). *The Great Flood: A Handbook of World Myths*. Create Space.

Furukawa, Y., Sunami, S., Takano, Y., Koga, T., Hirakawa, Y., Oba, Y., Naraoka, H., Saigusa, D., Yoshikawa, T., Tanaka, S., Glavin, D. P., Dworkin, J. P., Connolly, H. C., & Lauretta, D. S. (2025). Bio-essential sugars in samples from asteroid Bennu. Nature Geoscience. https://doi.org/10.1038/s41561-025-01838-6

Gallaudet, T. (2023, September 28). The new scientific revolution of anomalous phenomena. The Scientific Coalition for UAP Studies. https://www.youtube.com/watch?v=I5J3uqrV_8c&t=874s

Gallaudet, T. (2024a, March 19). Ret. Rear Admiral Tim Gallaudet talks UFO's, USO's, Sol Foundation, China threat etc. *Daily UAP News Channel*. https://www.youtube.com/watch?v=4YNfDyxOlwY

Gallaudet, T. (2024b, May 30). Unexplained UAP sightings over oceans. NBC News. See https://twitter.com/UAPJames/status/1796148637342290276

George, A. (2002). *The Epic of Gilgamesh: The Babylonian Epic Poem and other Texts in Akkadian and Sumerian*. Penguin.

Gethin, R. (1998). *The Foundations of Buddhism*. Oxford University Press.

Ginsburg, I., Lingam, M., & Loeb, A. (2018). Galactic panspermia. *The Astrophysical Journal Letters*, *868*(1), L12. https://doi.org/10.3847/2041-8213/aaef2d

Glavin, D. P., Dworkin, J. P., Alexander, C. M. O., Aponte, J. C., Baczynski, A. A., Barnes, J. J., Bechtel, H. A., Berger, E. L., Burton, A. S., Caselli, P., Chung, A. H., Clemett, S. J., Cody, G. D., Dominguez, G., Elsila, J. E., Farnsworth, K. K., Foustoukos, D. I., Freeman, K. H., Furukawa, Y., … Lauretta, D. S. (2025). Abundant ammonia and nitrogen-rich soluble organic matter in samples from asteroid (101955) Bennu. *Nature Astronomy*. https://doi.org/10.1038/s41550-024-02472-9

Gleiberman, O. (2020, April 12). 'Close Encounters of the Fifth Kind': Film Review. *Variety*. https://variety.com/2020/film/reviews/close-encounters-of-the-fifth-kind-review-dr-steven-greer-1234574140/

Goff, M., Stuckenbruck, L. T., & Morano, E. (2016). *Ancient Tales of Giants from Qumran and Turfan Contexts, Traditions, and Influences. Mohr Siebeck*. Mohr Siebeck.

Gould, S. J. (1997). Nonoverlapping magisteria. *Natural History*, *106*, 16–22.

Greenblatt, S. (2017). *The rise and fall of Adam and Eve: the story that created us*. WW Norton & Company.

Greer, S. (2025, October 17). Buga Sphere Metallurgical Analysis and Preliminary Summary: October 17, 2025. *Www.Drstevengreer.Com*. https://drstevengreer.com/buga-sphere-metallurgical-analysis-and-preliminary-summary/

Greer, S. M. (2006). *Hidden Truth, Forbidden Knowledge*. Quality Books.

Griaule, M. (1948). *Dieu d'eau: Entretiens avec Ogotemmeli [Conversations With Ogotemmeli: An Introduction to Dogon Religious Ideas]*. Anté-Matière.

Griaule, M., & Dieterlen, G. (1950). Un système soudanais de Sirius. *Journal de La Societe Des Africanistes*, *20*, 273–294.

Griffin, D. Ray. (1998). *Unsnarling the World Knot: Consciousness, Freedom and the Mind-Body Problem* . University of California Press.

Haines, G. K. (1999). CIA's role in the study of UFOs, 1947–90: A die-hard issue. *Intelligence and National Security*, *14*(2), 26–48. https://www.cia.gov/resources/csi/static/cia-role-study-UFOs.pdf

Hakim, B., Wibowo, U. P., van den Bergh, G. D., Yurnaldi, D., Joannes-Boyau, R., Duli, A., Suryatman, Sardi, R., Nurani, I. A., Puspaningrum, M. R., Mahmud, I., Haris, A., Anshari, K. Al, Saiful, A. M., Arman Bungaran, P., Adhityatama, S., Muhammad, P. H., Akib, A., Somba, N., … Brumm, A. (2025). Hominins on Sulawesi during the Early Pleistocene. *Nature*. https://doi.org/10.1038/s41586-025-09348-6

Haldane, J. B. S. (1927). *Possible worlds and other papers by J. B. S. Haldane*. Harper & Brothers Publishers.

Harloff, K. (2025, May 1). BOMBSHELL UFO BRIEFING! Astrophysicist Eric Davis briefs Congressional panel on 4 ALIEN SPECIES! *Down To Earth With Kristian Harloff (UAP NEWS*. https://www.youtube.com/watch?v=JRWV5i_J3o4&t=5s

Harris, P. (2011, November 7). Interview of the month – Kim Arnold. https://paolaharris.com/home-page/interview-of-the-month-kim-arnold

Haselhoff, E. (2001). *The Deepening Complexity of Crop Circles*. Frog.

Haselhoff, E. H., Boerman, R. J., & Bobbink, J. W. (2014). An experimental study for reproduction of biological anomalies reported in the Hoeven 1999 crop circle. *Journal of Scientific Exploration*, *28*(1), 17–33.

Hernàndez-Huaripaucar, E., Zúñiga-Avilés, R., Becerra-Canales, B., Suarez-Canlla, C., Mendoza-Vizarreta, D., & Zúñiga-Almora, I. (2024). Biometric morpho-anatomical characterization and dating of the antiquity of a Tridactyl humanoid specimen: Regarding the case of Nasca-Peru. *Revista de Gestão Social e Ambiental*, *18*(5), e06916. https://doi.org/10.24857/rgsa.v18n5-137

Herodotus. (2008). *The History Of Herodotus, Volume 2 (trans. G. C. Macaulay)*.

Hibberd, A., Crowl, A., & Loeb, A. (2025). Is the Interstellar Object 3I/ATLAS Alien Technology? *ArXiv:2507.12213*. https://arxiv.org/abs/2507.12213

Hiscock, P. (2012). Cinema, Supernatural Archaeology, and the Hidden Human Past. *Numen*, *59*(2–3), 156–177. https://doi.org/10.1163/156852712X630761

Hoagland, R. (1992). *The Monuments of Mars: A City on the Edge of Forever*. North Atlantic Books.

Hoagland, R., & Bara, M. (2007). *Dark Mission: The Secret History of NASA*. Feral House.

Hoffman, D. (2019). *The case against reality: Why evolution hid the truth from our eyes*. WW Norton & Company.

Holberg, J. B., & Wesemael, F. (2007). The discovery of the companion of Sirius and its aftermath. Journal for the History of Astronomy. *Journal for the History of Astronomy*, *38*(2), 161–174.

Horowitz, G. T. (2005). Spacetime in string theory. *New Journal of Physics*, *7*(1), 201.

Horowitz, W. (1998). *Mesopotamian Cosmic Geography*. Eisenbrauns.

Hubilla, C. N. (2023, December 26). Aluminum Wedge of Aiud: What Makes This Ancient Romanian Metal Artifact Mysterious? *The Science Times*. https://www.sciencetimes.com/articles/47855/20231226/aluminum-wedge-aiud-what-makes-ancient-romanian-metal-artifact-mysterious.htm

Hublin, J.-J., Ben-Ncer, A., Bailey, S. E., Freidline, S. E., Neubauer, S., Skinner, M. M., Bergmann, I., Le Cabec, A., Benazzi, S., Harvati, K., & Gunz, P. (2018). Author Correction: New fossils from Jebel Irhoud, Morocco and the pan-African origin of Homo sapiens. *Nature*, *558*(7711), E6–E6. https://doi.org/10.1038/s41586-018-0166-3

Hurowitz, J. A., Tice, M. M., Allwood, A. C., Cable, M. L., Hand, K. P., Murphy, A. E., Uckert, K., Bell, J. F., Bosak, T., Broz, A. P., Clavé, E., Cousin, A., Davidoff, S., Dehouck, E., Farley, K. A., Gupta, S., Hamran, S.-E., Hickman-Lewis, K., Johnson, J. R., … Wolf, Z. U. (2025). Redox-driven mineral and organic associations in Jezero Crater, Mars. *Nature*, *645*(8080), 332–340. https://doi.org/10.1038/s41586-025-09413-0

Hynek, J. A. (1972). *The UFO Experience: A Scientific Inquiry*. Henry Regnery Company.

Hynek, J. A., & Vallée, J. (1975). *The Edge of Reality: A Progress Report on Unidentified Flying Objects.* Regnery.

Infini, J. L. (2024, January 9). Flying jellyfish ... *X*. https://twitter.com/InfiniLuc/status/1744789431968575877

Interstellar UAP. (2025, December 11). J2 Psionic Asset For Skywatcher - UFO's - The Lady - Skinwalker Ranch - Consciousness #UFO #UAP. *Interstellar UAP Podcast*. https://www.youtube.com/watch?v=hY2HEfRT9VY

Jackson, P. (2025). *The Sphere Network*. Independently Published.

Jacobsen, T. (1994). The Eridu genesis. In R. S. Hess & D. T. Tsumuro (Eds.), *Ancient Near Eastern Literary and Linguistic Approaches to Genesis* (pp. 129–130). Eisenbraun.

Jaimungal, C. (2021a, June 23). Luis Elizondo: UFOs, Skinwalker, Remote Viewing [Part 1] [Video podcast episode]. *Theories of Everything with Curt Jaimungal*. https://www.youtube.com/watch?v=aAmFlLfsZKM

Jaimungal, C. (2021b, October 21). Luis Elizondo: Gov't Has Biological UFO Samples [Part 2] [Video podcast episode]. *Theories of Everything with Curt Jaimungal*. https://www.youtube.com/watch?v=wULw64ZL1Bg

Jeans, J. (1937). *The Mysterious Universe*. Macmillan.

Jensen, P. (1906). *Das Gilgamesh-Epos in der Weltliteratur*. Trübner.

Jorjani, J. R. (2023a). Closer Encounters. Arktos Media Ltd.

Jorjani, J. (2023b, December 6). Jason Jorjani | UFO Secrets Revealed! *Break The Rules*.

Joseph, R. G., & Schild, R. (2023). Mars: Humanoids, Bodies, Bones, Skulls, UFOs, UAPs,Spacecraft Wreckage. *Journal of Astrophysics and Aerospace Technology*, *11*(2), 1–58.

Jung, C. C. (1957). *Letter to Gilbert A. Harrison.* .

Jung, C. C. (1959). *Flying Saucers: A Modern Myth of Things Seen in the Skies*. Princeton University Press.

Kamalu, C. (2018). *The Word at Face Value: An abridged account of Dogon cosmology*. Lulu.

Kastrup, B. (2023, September 2). 1/ Within the next 20 years (perhaps sooner) ... *Twitter*. https://twitter.com/BernardoKastrup/status/1697780865923719202

Keel, J. A. (1970). *Operation Trojan Horse*. IllumiNet Press.

Kent, S. (2025, October 20). Our Sun is a living plasma being. *X*. https://x.com/covertress/status/1980248782655869279

Klein, C., & Barron, A. B. (2016). Insect consciousness: Commitments, conflicts and consequences. *Animal Sentience*, *1*(9), 21. https://doi.org/10.51291/2377-7478.1181

Kloor, K. (2023, August 25). How wealthy UFO fans helped fuel fringe beliefs: There is a long U.S. legacy of plutocrat-funded pseudoscience. Congress just embraced it. *Scientific American*. https://www.scientificamerican.com/article/how-wealthy-ufo-fans-helped-fuel-fringe-beliefs/

Knight, C. & Butler, A. (2006). *Who Built the Moon?* Watkins Publishing.

Kokotajlo, D., Alexander, S., Larsen, T., Lifland, E., & Dean, R. (2025, March 3). AI 2027. *Https://Ai-2027.Com/*. https://ai-2027.com/

Kripal, J. J. (2024). *How to Think Impossibly About Souls, UFOs, Time, Belief, and Everything Else*. Chicago University Press.

Kuhn, T. S. (1962). *The structure of scientific revolutions*. University of Chicago press.

Lacatski, J., Kelleher, C. A., & Knapp, G. (2021). *Skinwalkers at the Pentagon: An Insiders' Account of the Secret Government UFO Program*. Independently published.

Lambert, W. G. (2013). *Babylonian Creation Myths*. Eisenbrauns.

Lapointe, E. (2025, March 26). Secret CIA files claim Ark of the Covenant has been found. *The Daily Mail*. https://www.dailymail.co.uk/sciencetech/article-14534941/cia-document-sacred-ark-covenant-chest-found.html

Laskow, S. (2016, January 5). A short history of Martians. *Slate*. https://slate.com/human-interest/2016/01/how-humans-have-imagined-martians-and-mars-in-literature-and-other-media-since-the-late-19th-century.html

Laslo, M. (2024, November 15). Gillibrand previews Senate UAP hearing: "We don't know it. It's not off the shelf stuff". *Www.Askapol.Com*. https://www.askapol.com/p/sen-gillibrand-previews-senate-uap-hearing

Lazar, B. (1989). Bob Lazar on Religion 1989 interview. *YouTube*. https://www.youtube.com/watch?v=Jd-VAyxQ5ao

Leick, G. (2002). *A dictionary of ancient Near Eastern mythology*. Routledge.

Levengood, W. C., & Talbott, N. P. (1999). Dispersion of energies in worldwide crop formations. *Physiologia Plantarum*, *105*(4), 615–624. https://doi.org/10.1034/j.1399-3054.1999.105404.x

Lewis, C. S. (1964). *The Discarded Image: An Introduction to Medieval and Renaissance Literature.* Cambridge University Press.

Library of Congress. (2023). Seeing and interpreting Martian oceans and canals. *Library of Congress*. https://www.loc.gov/collections/finding-our-place-in-the-cosmos-with-carl-sagan/articles-and-essays/life-on-other-worlds/seeing-and-interpreting-martian-oceans-and-canals

Lieb, M. (1998). *Children of Ezekiel Aliens, UFOs, the Crisis of Race, and the Advent of End Time*. Duke University Press.

Lifting the Lamp. (2024a, March 9). Decoding the Sigillum Dei Aemeth. *YouTube*. https://www.youtube.com/watch?v=5Yw7klusr_g

Lifting the Lamp. (2024b, September 21). Unveiling The Mysteries Of The Angel Aborymon. *YouTube*. https://www.youtube.com/watch?v=XWD7hZS36Ak

Lin, A. (2020, November 10). The Occult History Behind NASA's Jet Propulsion Laboratory. *Supercluster*. https://www.supercluster.com/editorial/the-occult-history-behind-nasas-jet-propulsion-laboratory

Liu, C. (2008). *Three-Body Problem*. Macmillan.

Live Science (2012, May 3). Photos: Mysterious objects spotted on the moon. Live Science. https://www.livescience.com/33883-gallery-weird-moon.html

Loeb, A. (2022, December 24). No High-Rise Left Standing from Early Mars or Earth. *Medium*. https://avi-loeb.medium.com/no-high-rise-left-standing-from-early-mars-or-earth-9376389ae070

Loeb, A. (2024a, January 20). Coincidences of our sun and moon: Are we exceptionally lucky? *Medium*. https://avi-loeb.medium.com/coincidences-of-our-sun-and-moon-are-we-exceptionally-lucky-aee4dfa52577

Loeb, A. (2024b, October 16). Tiny Astronauts in Interstellar Objects. *Medium*. https://avi-loeb.medium.com/tiny-astronauts-in-interstellar-objects-78837d50eedd

Loeb, A. (2025a, January 16). Is Terrestrial Life a Manifestation of von-Neumann's Self-Replicating Machines of Extraterrestrial Origin? *Medium*.

Loeb, A. (2025b, May 28). Is Consciousness Our Monolith? *Medium*. https://avi-loeb.medium.com/is-consciousness-our-monolith-e889f1d01aae

Loeb, A. (2025c, October 17). A Sunward Jet from 3I/ATLAS, Imaged by the Two-meter Twin Telescope. *Medium*. https://avi-loeb.medium.com/a-sunward-jet-from-3i-atlas-imaged-by-the-two-meter-twin-telescope-d37ba1808ed2

Loeb, A., & Kirkpatrick, S. M. (2023). Physical constraints on unidentified aerial phenomena. *Paper under Review; Draft Version Dated March 7, 2023*. https://www.mentealternativa.com/ma_media/2023/03/LK1.pdf.

Lomas, T. (2023a). Stranger than we can imagine: The possibility and potential significance of non-human forms of consciousness and wellbeing. *Journal of Positive Psychology*, *18*(6), 807–826. https://doi.org/10.1080/17439760.2022.2131608

Lomas, T. (2023b). The person as an extended field: Querying the ontological binaries and dominant "container" metaphor at the core of psychology. *New Ideas in Psychology*, *70*, 101035. https://doi.org/10.1016/j.newideapsych.2023.101035

Lomas, T. (2023c). The ultraterrestrial hypothesis: A case for scientific openness to an "interdimensional" explanation for Unidentified Anomalous Phenomena. *Journal of Transpersonal Psychology*, *55*(1), 43–98.

Lomas, T. (2024a). A history of scientific approaches to Unidentified Anomalous Phenomena: Time to rethink their relegation to the paranormal and engage seriously? *Journal of Scientific Exploration*, *38*(1), 91–109. https://doi.org/10.31275/20243163

Lomas, T. (2024b). The extraterrestrial hypothesis: A case for scientific openness to an interstellar explanation for Unidentified Anomalous Phenomena. *Philosophy and Cosmology*, *32*.

Lomas, T., & Case, B. (2023a). A history of psychogeography and psychocosmology: Humankind's evolving orientation on earth and in space. *Current Research in Ecological and Social Psychology*.

Lomas, T., & Case, B. (2023b). From angels to aliens: Humankind's ongoing encounters with, and evolving interpretations of, the genuine celestial unknown. *Zygon®*, *58*(3), 614–635. https://doi.org/10.1111/zygo.12891

Lomas, T., Case, B., & Masters, M. (2024). The cryptoterrestrial hypothesis: A case for scientific openness to a subterranean earthly explanation for Unidentified Anomalous Phenomena. *Philosophy and Cosmology*, *33*.

Lomas, T., Masters, M., & O'Malley, A. (2025). Conspiracies, cover-ups, compartmentalization, and containment: The complex, secrecy-related information dynamics of Unidentified Anomalous Phenomena. *World Futures*. https://doi.org/10.1080/02604027.2025.2585942

Lomas, T., O'Malley, A., Masters, M. P., & Vernet, R. (2025). The UAP Assessment Matrix: A proposed framework for evaluating evidence and understanding regarding Unidentified Anomalous Phenomena. *Acta Astronautica*. https://doi.org/10.1016/j.actaastro.2025.04.012

Lusthaus, D. (2002). *Buddhist Phenomenology: A Philosophical Investigation of Yogācāra Buddhism and the Ch'eng Wei-shih Lun*. Routledge.

Mack, J. E. (2007). *Abduction: Human encounters with aliens*. Simon and Schuster.

Madden, J. (2023). *Unidentified Flying Hyperobject: UFOs, Philosophy, and the End of the World*. Ontocalypse Press.

Malanga, C., Mei, A., & Biondi, F. (2025, March 15). Press Conference. *Press Conference*. https://x.com/TheProjectUnity/status/1902687885758800323

Malmgren, H. (2024, August 19). 60+ years ago.... *X*. https://x.com/Halsrethink/status/1825658208175702074

Malville, J. M. (2015). Astronomy at Nabta Playa, Southern Egypt. In *Handbook of Archaeoastronomy and Ethnoastronomy* (pp. 1079–1091). Springer.

Marinatos, N. (2009). The so-called hell and sinners in the Odyssey and Homeric cosmology. *Numen*, 185–197.

Martinez-Conde, S., & Macknik, S. L. (2012). A faithful resemblance. Scientific American Mind. *Scientific American*, *23*(4), 19–21.

Mashour, G. A., & Alkire, M. T. (2013). Evolution of consciousness: phylogeny, ontogeny, and emergence from general anesthesia. *Proceedings of the National Academy of Sciences*, *110*(Supplement 2), 10357–10364. https://doi.org/10.1073/pnas.1301188110

Masters, M. (2019). *Identified Flying Objects: A Multidisciplinary Scientific Approach to the UFO Phenomenon*. Masters Creative LLC.

Masters, M. (2021). Ancient astronauts, anthropology, and pseudoscientific claims. *The SCU Review*, *2.4*(7), 10–13.

Masters, M. (2022). *The Extratempestrial Model*. Full Circle Press.

Mathiowetz, M., Schaafsma, P., Coltman, J., & Taube, K. (2015). The darts of dawn: the Tlahuizcalpantecuhtli Venus complex in the iconography of Mesoamerica and the American Southwest. *Journal of the Southwest*, *57*(1), 1–102.

Mayeux, D. (2023, March 22). Group pairs meditation, energy to attempt contact with extraterrestrials. *The Journal*. https://www.the-journal.com/articles/group-pairs-meditation-energy-to-attempt-contact-with-extraterrestrials/

McCormick, P. (2024, November 30). The enigma of the Ummo case: Letters from the stars or a complex hoax? *Www.Encyclopediastrange.Com*.

McFadden, J. (2007). Conscious Electromagnetic (CEMI) Field Theory. *NeuroQuantology*, *5*(3). https://doi.org/https://doi.org/10.14704/nq.2007.5.3.135

McFall, M. R. (2025, January 24). Republican Suggests Alien Bases Hiding Under Ocean. Newsweek. https://www.newsweek.com/tim-burchett-matt-gaetz-aliens-hiding-under-sea-2020487

McHardy, M. (2024, September 7). Donald Trump's Ex-National Security Adviser on UFO Reports: "Inexplicable." *Newsweek*.

McRaven, W. (2021, July 15). Jocko Podcast 290: Sea Stories and Tales of Terror, with Admiral William McRaven. *Jocko Podcast 290*. https://www.youtube.com/watch?v=cG_i1I1V8q0&t=293s

Meder, T. (2005). To Believe or Not to Believe... The Crop Circle Phenomenon in the Netherlands. *CULTUUR*, *1*(2), 42–59.

Meijer, D. K. F., & Geesink, H. J. H. (2017). Consciousness in the universe is scale invariant and implies an event horizon of the human brain. *NeuroQuantology*, *15*(3–79). https://doi.org/10.14704/nq.2017.15.3.1079

Mellon, C. K. (2022, September 1). The Paradox of Fermi's Paradox. *The Debrief*. https://thedebrief.org/the-paradox-of-fermis-paradox/

Mellon, C. K. (2024, April 12). *The Pentagon's New UAP Report is Seriously Flawed*. https://thedebrief.org/the-pentagons-new-uap-report-is-seriously-flawed/

Mellon, C. K. (2025, June 4). I was asked to create a video for a conference ... *UAP Disclosure Fund*. https://x.com/ChrisKMellon/status/1930321042939228375

Meyer, S. (2009). *The Signature in the Cell: DNA and the Evidence for Intelligent Design*. HarperOne.

Meyer, S. (2021). *The Return of the God Hypothesis: Three Scientific Discoveries that Reveal the Mind Behind the Universe.* HarperOne. Kindle edition.

Michels, J. (2023, September 10). UFO whistleblower Dave Grusch tells me everything [Video podcast episode]. *American Alchemy*. https://www.youtube.com/watch?v=kRO5jOa06Qw

Michels, J. (2025a). What's Happening Beneath the Pyramids? (Ft. Luke Caverns). *American Alchemy*. https://www.youtube.com/watch?v=92XrddiKjHY

Michels, J. (2025b, January 13). UFO Whistleblower: "I Saw Alien Tech In An Underground Base." *American Alchemy*. https://www.youtube.com/watch?v=Sct30Qijfv8

Michels, J. (2025c, March 1). CIA Psychic Spy: "Mars Used To Have Alien Life." *American Alchemy*. https://www.youtube.com/watch?v=JpLThEF2dTM

Michels, J. (2025d, March 13). Top Physicist: "There Was A Nuclear Catastrophe On Mars" (ft. Dr. John Brandenburg). *American Alchemy*. https://www.youtube.com/watch?v=p0S0BfoZy0w

Michels, J. (2025e, March 18). Campbell is working to prove that we live in a computer simulation... *X*. https://x.com/AlchemyAmerican/status/1902108999148835064

Michels, J. (2025f, April 22). Presidential Advisor: "I Directly Handled UFO Material" (Ft. Harald Malmgren). *American Alchemy*. https://www.youtube.com/watch?v=09KP8XVf5nY

Michels, J. (2025g, July 24). "DMT Opens The Alien Realm!" (Ft. Andrew Gallimore). *American Alchemy*. https://www.youtube.com/watch?v=8XD1ZiuhXoY

Michels, J. (2025h, August 12). Alien Mummies Found In Peru (DNA Test REVEALED!) | Exclusive Documentary. *American Alchemy*. https://www.youtube.com/watch?v=HxQN2tkQHs8

Michels, J. (2025i, September 27). "Aliens Invented Religion To Control Humanity!" -Top Philosopher Jason Jorjani. *American Alchemy*. https://www.youtube.com/watch?v=EzPmG_7WhXc

Michels, J. (2025j, October 8). UFOs, Human Experiments & Rockefeller's Dystopian Health System (ft. Brigham Buhler). *American Alchemy*. https://www.youtube.com/watch?v=q7Czo77qhHA

Michels, J. (2025k, November 1). "Hitler Had A Secret UFO Program!" -Jason Jorjani. *American Alchemy*. https://www.youtube.com/watch?v=ABw7EsWh2Us&t=1s

Michels, J. (2025l, October 17). "The NSA Hired Me To Speak To Aliens!" - Sargeant Dan Sherman. *American Alchemy*. https://www.youtube.com/watch?v=Rfmy5oW_r9c

Michels, J. (2025m, November 22). CIA Historian: "Aliens Control Our Government" (ft. Peter Levenda). American Alchemy. https://www.youtube.com/watch?v=Y7PLeu5rTv4

Michels, J. (2025n, November 30). Joe Rogan: The Truth About Aliens (He Finally Says It). American Alchemy. https://www.youtube.com/watch?v=C_Na1tI5qpw&t=1s

Michels, J. (2025o, December 7). I Met The Scientist That Scanned Beneath The Pyramids. American Alchemy. https://www.youtube.com/watch?v=zrmG2jBckgk&t=1s

Michels, J. (2025p, December 14). "I Was Taken By Aliens In 1997!" -President of Russian Republic. American Alchemy. https://www.youtube.com/watch?v=IFaXi-NrPV0

Michels, J. (2026, January 6). "My UFO Prophecy Reached the President!" -Chris Bledsoe. American Alchemy. https://www.youtube.com/watch?v=bM18PJY6_Zc

Misra, B. D. (2020, September 25). The Mystery of the Seven Sages: Were They Visitors from the Stars? *Https://Grahamhancock.Com/*. https://grahamhancock.com/dmisrab14/

Mocombe, P. C. (2021). The consciousness field. *Adv Bioeng Biomed Sci Res*, *5*(1), 11–16.

Moffett, M. (1996, June 28). Tale of Stinky Extraterrestrials Stirs Up UFO Crowd in Brazil. *The Wall Street Journal*. https://www.wsj.com/articles/SB835915673862027500

Monroe, R. A. (1992). *Far journeys*. Harmony.

Musk, E. (2025a, October 18). True. *X*. https://x.com/elonmusk/status/1979740607083139105

Musk, E. (2025b, November 2). Perhaps our purpose is to make the mind of a sentient sun. *X*. https://x.com/elonmusk/status/1985048731818094950

Myakishev-Rempel, M. (2025). Preliminary evidence of traces of alien genetic manipulation in humans. *Preprint: Https://Www.Researchgate.Net/Publication/392237093_Preliminary_evidence_of_traces_of_alien_genetic_manipulation_in_humans*.

Nagel, T. (1974). What Is It Like to Be a Bat?". *Philosophical Review*, *83*(4), 435–450.

Nagel, T. (1979). *Mortal Questions*. Cambridge University Press.

Nallapu, R. teja, Dektor, G., Kenia, N., Uglietta, J., Ichikawa, S., Herreras-Martinez, M., Choudhari, A., Chandra, A., Schwartz, S., Asphaug, E., & Thangavelautham, J. (2020). Trajectory design of Perseus: A CubeSat mission concept to Phobos. *Aerospace*, *7*(12), 179. https://doi.org/10.3390/aerospace7120179

NASA. (1973, March). APOLLO 17 MISSION REPORT. LYNDON B. JOHNSON SPACE CENTER. https://an.rsl.wustl.edu/apollo/data/A17/resources/A17_MissionReport.pdf

NASA. (2020, March 3). Sol 2692: Mast Camera (Mastcam). *NASA/JPL-Caltech/MSSS*. https://mars.nasa.gov/raw_images/787528/

NASA. (2025a, September 10). NASA to Share Details of New Perseverance Mars Rover Finding. *NASA Video*. https://www.youtube.com/watch?v=-StZggK4hhA

NASA. (2025b, December). Sugars essential for life ... X. https://x.com/NASASolarSystem/status/1995896667485188462

Nell, K. (2023, November 18). The Schumer Amendment and Controlled Disclosure. *Sol Foundation Conference*. https://www.youtube.com/watch?v=-1QCFtod6i8

News Nation. (2023, June 27). Rubio on UFO whistleblower claims: "we're taking it seriously." *News Nation*. https://www.newsnationnow.com/video/full-interview-rubio-on-ufo-whistleblower-claims-were-taking-it-seriously-newsnation/8770746/

Nicastro, N. (2008). *Circumference: Eratosthenes and the ancient quest to measure the globe*. Macmillan.

Nicholson, A. J. (2010). *Unifying Hinduism: Philosophy and Identity in Indian Intellectual History*. Oxford University Press.

Nickel, J. (2001). Alien implants. In *X-Files: Investigating the Paranormal,* (pp. 204–209). University of Kentucky.

Nickelsburg, G. (1977). Apocalyptic and myth in Enoch 6-11. *Journal of Biblical Literature*, *96*(3), 383–405.

Nix, E. (2015, August 28). Who named the planets? *History*.

Nolan, G. (2025, July 17). "Something Non-Human Has Been Here A Long Time" | Dr. Garry Nolan | EP 563. *The Dr. Jordan B. Peterson Podcast*. https://www.youtube.com/watch?v=HxVVz2Jorzk&t=3s

Nolan, G. P., Vallee, J. F., Jiang, S., & Lemke, L. G. (2022). Improved instrumental techniques, including isotopic analysis, applicable to the characterization of unusual materials with potential relevance to aerospace forensics. *Progress in Aerospace Sciences*, *128*, 100788. https://doi.org/https://doi.org/10.1016/j.paerosci.2021.100788

Norris, R. P., & Hamacher, D. W. (2009). The astronomy of aboriginal Australia. *Proceedings of the International Astronomical Union*, *5*, 39–47.

Nunn, P., & Cook, M. (2022). Island tales: culturally-filtered narratives about island creation through land submergence incorporate millennia-old memories of postglacial sea-level rise. *World Archaeology*, *54*(1), 29–51. https://doi.org/10.1080/00438243.2022.2077821

Observing The Anomaly. (2023, October 28). The Classified Chapel Bell Moon Experiment. Medium. https://medium.com/predict/the-classified-chapel-bell-moon-experiment-c9ea1157c82e

Ojha, L., Troncone, B., Buffo, J., Journaux, B., & McDonald, G. (2022). Liquid water on cold exo-Earths via basal melting of ice sheets. *Nature Communications*, *13*(1), 7521. https://doi.org/10.1038/s41467-022-35187-4

Open-Minded Approach. (2024, January 9). The jellyfish-like UAP appeared in the past... *X*. https://twitter.com/OMApproach/status/1744815216209117242

Orlov, A. A. (2012). The Watchers of Satanail: The Fallen Angels Traditions in 2 Enoch. In *New Perspectives on 2 Enoch* (pp. 149–180). BRILL. https://doi.org/10.1163/9789004230149_010

Osmanov, Z. (2020). On the interstellar Von Neumann micro self-reproducing probes. *International Journal of Astrobiology*, *19*(3), 220–223. https://doi.org/10.1017/S1473550419000259

Parkin, K. L. G. (2018). The Breakthrough Starshot system model. *Acta Astronautica*, *152*, 370–384. https://doi.org/https://doi.org/10.1016/j.actaastro.2018.08.035

Parks-Ramage, J. (2016, November 18). Jesus Was an Alien: Inside the strange theology of the Aetherius Society. *MEL Magazine*.

Pasulka, D. W. (2019). *American Cosmic: UFOs, Religion, Technology*. Oxford University Press.

Pasulka, D. W. (2026). *The Others: UFOs, AI, and the Secret Forces Guiding Human Destiny*. St. Martin's Publishing Group.

PBS NewsHour. (2025, May 2). The UFO "cookbook": How the American government investigates the unexplainable. *PBS NewsHour*. https://www.youtube.com/watch?v=6NrAQbco7dQ

Peters, T. (2014). *UFOs: God's Chariots?: Spirituality, Ancient Aliens, and Religious Yearnings in the Age of Extraterrestrials*. Weiser.

Peterson, J. H. (2003). *John Dee's Five Books of Mystery: Original Sourcebook of Enochian Magic*. Peterson, J. H.

Phelan, M. (2024, March 5). Aliens or hoax? Filmmakers say three-fingered "mummified humanoids" found in Peruvian cave "are real" - and believe 30% "unknown" DNA might be proof of "new species." *The Daily Mail*. https://www.dailymail.co.uk/sciencetech/

article-13160889/Aliens-hoax-Filmmakers-say-three-fingered-mummified-humanoids-Peruvian-cave-real-believe-30-unknown-DNA-proof-new-species.html

Phillips, T. (2025, July 1). What Does the Government Really Know About UFOs? A Conversation with Timothy Phillips. *Podcast UFO Live Shows*. https://www.youtube.com/live/XjOjMI_OkxE

Plain, C. (2024, September 23). Look: Over 300 New Nazca Lines Geoglyphs Have Been Revealed By AI. *Liberation Times*. https://thedebrief.org/look-over-300-new-nazca-lines-geoglyphs-have-been-revealed-by-ai/

Pope, N., Burroughs, J., & Penniston, J. (2014). *Encounter in Rendlesham Forest: The inside story of the world's best-Documented UFO incident.* St. Martin's Press.

Post Disclosure World. (2025, February 11). Inside Skywatcher: Psionic Asset James Hodgkins Breaks His Silence. *Post Disclosure World*. https://www.youtube.com/watch?v=QU-wJ-O5VzI

Prasad, D. (2025, September 29). A Metaphysics Theory of Everything. *Substack*. https://deepprasad.substack.com/p/a-theory-of-everything

Prisco, J. (2024, July 29). The discovery of a possible sign of life in Venus' clouds sparked controversy. Now, scientists say they have more proof. *CNN*. https://www.cnn.com/2024/07/29/science/venus-gases-phosphine-ammonia/index.html

Puthoff, H. E. (2022). Ultraterrestrial models. *Journal of Cosmology*, *29*(1), 20001–20016.

Raikar, S. P. (2025, July 11). Kardashev scale. *Encyclopedia Britannica*. https://www.britannica.com/science/Kardashev-scale

Raychaudhuri, H. (1998). *Political History Of Ancient India, 8th Edition*. Oxford University Press.

ReadMultiplex. (2025, March 21). Below The Giza Pyramid Plateau — New Radar Discoveries Will Shock The World. *ReadMultiplex*. https://readmultiplex.com/2025/03/21/below-the-giza-pyramid-plateau-new-radar-discoveries-will-shock-the-world/

rhea-15510 (2025). You wanted Disclosure.... I am a whistleblower recently "retired" from the inside. And you're only getting part of the truth. *Reddit*. https://www.reddit.com/r/UFOs/comments/1p92xe7/you_wanted_disclosure_i_am_a_whistleblower/

Richter, J. (2012). Traces of the Gods: Ancient Astronauts as a Vision of Our Future. *Numen*, *59*(2–3), 222–248. https://doi.org/10.1163/156852712X630798

Roemmele, B. (2025, March 23). Does The Recent China Observation Of Plasma Over The Great Pyramid Form A Sort Of "Earth Battery"? *X*. https://x.com/BrianRoemmele/status/1903831945999741213

Rogan, J. (2024, June 27). Joe Rogan Experience #2028 - Jermey Corbell & George Knapp. *Joe Rogan Experience*. https://www.youtube.com/watch?v=dre-5Zy4f7c

Rogan, T. (2020, April 24). Review: Close Encounters of the Fifth Kind. *Washington Examiner*. https://www.washingtonexaminer.com/opinion/2044160/review-close-encounters-of-the-fifth-kind/

Rossiaky, D. (2023, August 26). Do we live in a simulation? Elon Musk thinks so, here's why. *Slashgear*. https://www.slashgear.com/1377266/do-we-live-in-a-simulation-elon-musk/

Rozsa, M. (2022, April 7). Declassified Pentagon documents discuss UFOs causing "unaccounted-for pregnancies." *Salon*. https://www.salon.com/2022/04/07/ufo-documents-pentagon/

Ryan, S. (2025). Chris Bledsoe - The Episode We Never Censored | SRS #165. *Shawn Ryan Show*. https://www.youtube.com/watch?v=Em7P9g9zCYc&t=2s

Sagan, C. (1980). *Broca's Brain*. Ballantine Books.

Sakai, M., Sakurai, A., Lu, S., & Freitag, M. (2024). AI-accelerated Nazca survey nearly doubles the number of known figurative geoglyphs and sheds light on their purpose. *Proceedings of the National Academy of Sciences*, *121*(40), e2407652121.

Sampson, B. (2023, July 11). Pulsar fusion to build nuclear fusion-fueled rocket engine. *Aerospace Testing International*. https://www.aerospacetestinginternational.com/news/space/pulsar-fusion-to-build-nuclear-fusion-fueled-rocket-engine.htm

San, T. K. (2014). *Dynastic China: an elementary history*. The Other Press.

Sandberg, A., Drexler, E., & Ord, T. (2018). Dissolving the Fermi paradox. *ArXiv Preprint ArXiv:1806.02404*.

Schiele, A., & Schiele, B. (2022). Archaeological representations in the media: The dominance of pseudo-Archeology. *Review of Science, Mathematics and ICT Education*, *16*(1), 19–48.

Schiffman, L. H. (2005). Enoch and the Enoch Tradition. In G. Boccaccini (Ed.), *Enoch and Qumran Origins; New Light on a Forgotten Connection* (pp. 152–161). William B. Eerdmans Publishing Company.

Schlehaider, I. (2023). 'Apart from the experiences of subjects there is nothing, nothing, nothing, bare nothingness.' *Histories*, *3*(2), 176–188. https://doi.org/10.3390/histories3020012

Schoch, R. M. (1992). Redating the great Sphinx of Giza. *KMT: A Modern Journal of Ancient Egypt*, *3*(2), 52–59.

SciTechDaily. (2025, February 27). Mars' Lost Ocean? Stunning New Evidence Found Beneath the Surface. *SciTechDaily*. https://scitechdaily.com/mars-lost-ocean-stunning-new-evidence-found-beneath-the-surface/

Semivan, J. (2025, July 5). Senior CIA Officer: Even We Don't Know What the Phenomenon Is. *Lehto Files*. https://www.youtube.com/watch?v=Gb0QsymVCcs

Seth, A. K., Baars, B. J., & Edelman, D. B. (2005). Criteria for consciousness in humans and other mammals. *Consciousness and Cognition*, *14*(1), 119–139. https://doi.org/https://doi.org/10.1016/j.concog.2004.08.006

Sevim-Erol, A., Begun, D. R., Sözer, Ç. S., Mayda, S., van den Hoek Ostende, L. W., Martin, R. M. G., & Alçiçek, M. C. (2023). A new ape from Türkiye and the radiation of late Miocene hominines. *Communications Biology*, *6*(1), 842. https://doi.org/10.1038/s42003-023-05210-5

Sewiło, M., Rocha, W. R. M., van Gelder, M., Navarro, M. G., Charnley, S. B., Jin, M., Oliveira, J. M., van Loon, J. Th., Francis, L., Wiseman, J., Indebetouw, R., Chen, C.-H. R., Golshan, R. H., & Qasim, D. (2025). Protostars at subsolar metallicity: First detection of large solid-state complex organic molecules in the Large Magellanic Cloud. *The Astrophysical Journal Letters*, *992*(2), L30. https://doi.org/10.3847/2041-8213/ae0ccd

Shapiro, J. (1986). *Origins: A Skeptic's Guide to the Creation of Life on Earth*. Bantam.

Sharp, C. (2024, April 24). Retired Rear Admiral and Former Agency Chief Calls For Expanded UFO Investigation And Greater White House Involvement. *Liberation Times*. https://www.liberationtimes.com/home/retired-rear-admiral-and-former-agency-chief-calls-for-expanded-ufo-investigation-and-greater-white-house-involvementnbsp

Sharp, C. (2025a, June 2). Hidden Factions, Conflicting Narratives, and Dark Truths Behind Alleged Non-Human Species on Earth. *Liberation Times*. https://www.liberationtimes.com/home/hidden-factions-conflicting-narratives-and-dark-truths-behind-alleged-non-human-species-on-earth

Sharp, C. (2025b, October 6). Former Air Force Insider: Intelligence Personnel Were Shown Images of an Ancient 'Tic Tac' UFO. *Liberation Times*. https://www.liberationtimes.com/home/former-air-force-insider-intelligence-personnel-were-shown-images-of-an-ancient-tic-tac-ufo

shCherbak, V. I., & Makukov, M. A. (2013). The "Wow! signal" of the terrestrial genetic code. *Icarus*, *224*(1), 228–242. https://doi.org/10.1016/j.icarus.2013.02.017

Sheldrake, R. (2021). Is the Sun conscious? *Journal of Consciousness Studies, 28*(3–4), 8–28.

Simala, I. (2015). Orality, modernity and African Development: Myth as dialogue of civilisations. In G. A. Adeoti (Ed.), *African Literature and the Future* (pp. 15–31). Codesria.

Sitchin, Z. (1995). *A Complete Zecharia Sitchin Earth Chronicles Nine-Book Series Set, Includes: Twelfth Planet, Stairway to Heaven, War of Gods and Men, Lost Realms, When Time Began, Cosmic Code, End of Days, Genesis Revisited, and Divine Encounters*. Avon Harper Non-Fiction.

Skywatcher. (2025, April 7). Skywatcher Part II: Mapping the Unknown. *X*. https://x.com/SkywatcherHQ/status/1909386048406167856

Smart, J. M. (2012). The transcension hypothesis: Sufficiently advanced civilizations invariably leave our universe, and implications for METI and SETI. *Acta Astronautica*, *78*, 55–68. https://doi.org/10.1016/j.actaastro.2011.11.006

Coulthart, R., & Zabel, B. (2022). *UFO & UAP "Need to Know" News Documentary with Coulthart & Zabel*. Spotlight, 7NEWS.

Steele, E. J., Al-Mufti, S., Augustyn, K. A., Chandrajith, R., Coghlan, J. P., Coulson, S. G., Ghosh, S., Gillman, M., Gorczynski, R. M., Klyce, B., Louis, G., Mahanama, K., Oliver, K. R., Padron, J., Qu, J., Schuster, J. A., Smith, W. E., Snyder, D. P., Steele, J. A., … Liu, Y. (2018). Cause of Cambrian Explosion - terrestrial or cosmic? *Progress in Biophysics and Molecular Biology*, *136*, 3–23. https://doi.org/10.1016/j.pbiomolbio.2018.03.004

Steenhuisen-Siemonsma, M. J. (2022). *Orbs in the skyscape: An exploration of spiritual experiences with anomalous light phenomena*. Publication No. 2784392140. Doctoral dissertation, University of Wales, Trinity Saint David, United Kingdom. https://www.proquest.com/docview/2784392140.

Strieber, W. (1987). *Communion: A True Story*. Avon.

Strieber, W., & Kripal, J. J. (2016). *The Super Natural: A New Vision of the Unexplained*. Penguin.

Sullivan, J. W. N. (1931, January 25). Interviews with great scientists VI: Max Planck, interview. *The Observer*. https://theguardian.newspapers.com/article/121386587/the-observer-sunday-january-25-1931m/

@SunOfAbramelin. (2025, June 5). Hey @elonmusk, interested in a real asymmetric advantage ... *X*. https://x.com/SunOfAbramelin/status/1930791280260550830

Suzuki, Y., Webb, S. J., Kouduka, M., Kobayashi, H., Castillo, J., Kallmeyer, J., Moganedi, K., Allwright, A. J., Klemd, R., Roelofse, F., Mapiloko, M., Hill, S. J., Ashwal, L. D., & Trumbull, R. B. (2024). Subsurface microbial colonization at mineral-filled veins in 2-billion-year-old mafic rock from the Bushveld Igneous Complex, South Africa. *Microbial Ecology*, *87*(1), 116. https://doi.org/10.1007/s00248-024-02434-8

Swaminathan, S. (2011, May 6). Is Brahmastra a nuclear weapon? *Tamil and Vedas*. https://tamilandvedas.com/2011/06/05/is-brahmastra-a-nuclear-weapon/

Sweatman, M. B. (2024). Representations of calendars and time at Göbekli Tepe and Karahan Tepe support an astronomical interpretation of their symbolism. *Time and Mind*, 1–57. https://doi.org/10.1080/1751696X.2024.2373876

Takenaka, K. (2019, April 26). Factbox: Japan's "Three Sacred Treasures" symbolise emperor's legitimacy. *Reuters*.

Tauss, E. (1952, August 1). Memorandum for Deputy Assistant Director, SI (Philip Strong). *Memorandum*.

Taylor, D. B. (2021, September 26). How Blink-182's Tom DeLonge became a U.F.O. researcher. *The New York Times*. Retrieved from https://www.nytimes.com/2019/09/26/science/tom-delonge-ufo-research.html

Taylor, R. (2011). Coming soon to a field near you. Physics World, 24(08), *Physics World*, *August*, 2–7.

Teller, J. T., Glennie, K. W., Lancaster, N., & Singhvi, A. K. (2000). Calcareous dunes of the United Arab Emirates and Noah's Flood: the postglacial reflooding of the Persian (Arabian) Gulf. *Quaternary International*, *68–71*, 297–308. https://doi.org/10.1016/S1040-6182(00)00052-5

Temple, R. K. (1982). The Sirius Mystery. *Nature*, *283*(5744), 242–242.

Terry, J. P., Karoro, R., Gienko, G. A., Wieczorek, M., & Lau, A. A. (2021). Giant palaeotsunami in Kiribati: Converging evidence from geology and oral history. *Island Arc*, *30*(1), e12417.

The Croppie. (2023, September 23). Oliver's Castle 1996: The Video That Won't Go Away. *The Croppie*. https://thecroppie.com/2023/09/23/olivers-castle-1996-the-video-that-wont-go-away/

The Discovery. (2024, September 30). The Discovery. *Dan Go Thoughts*. https://www.youtube.com/watch?v=8bSbmn9ghQc

The New York Times. (1960, February 28). AIR FORGE ORDER ON "SAUCERS" CITED; Pamphlet by the Inspector General called objects a "serious business." *The New York Times*. https://www.nytimes.com/1960/02/28/archives/air-forge-order-on-saucers-cited-pamphlet-by-the-inspector-general.html

The Why Files. (2023, May 4). Sacred Object or Ancient Weapon? Where is the Ark of the Covenant and what technology did it use? *The Why Files*. https://www.youtube.com/watch?v=56OmlPWDRjs&t=12s

Thigpen, P. (2024). NHI, UAP, and the Catholic Faith How Will the Church Respond? *The White Papers of the Sol Foundation*, *1*(5).

thinktank. (2025, April 2). did somebody say flying jelly fish with electrical pulses... *X*. https://x.com/528vibes/status/1907679390692958342

Tikkanen, A. (2026). Hathor. Britannica. https://www.britannica.com/topic/Hathor-Egyptian-goddess

Todd, S. (2021). The head of NASA says life probably exists outside Earth. *Quartz*. https://qz.com/2078505/the-head-of-nasa-says-life-probably-exists-outside-earth/

Tonnies, M. (2011). *The cryptoterrestrials: A meditation on indigenous humanoids and the aliens among us*. Anomalist Books.

Tritten, T. (2022, March 7). How Believers in the Paranormal Birthed the Pentagon's New Hunt for UFOs. *Military.Com*. https://www.military.com/daily-news/2022/03/07/how-believers-paranormal-birthed-pentagons-new-hunt-ufos.html

Turner, B. (2025, January 29). Asteroid Bennu contains the "seeds of life," OSIRIS-REx samples reveal. *Live Science*. https://www.livescience.com/chemistry/asteroid-bennu-contains-the-seeds-of-life-osiris-rex-samples-reveal

Turner, D. D., & Turner, M. I. (2021). "I'm not saying it was aliens": An archaeological and philosophical analysis of a conspiracy theory . In *Explorations in Archaeology and Philosophy* (pp. 7–24). Springer Cham.

U. S. Department of Energy. (2000). *United States Nuclear Tests: July 1945 Through September 1992*. Office of Scientific and Technical Information.

@UAPWatchers. (2025, June 12). Something strange is happening, and it feels like a signal ... *X*. https://x.com/UAPWatchers/status/1933123083843301786

University of Maryland. (2025, October 20). Scientists Discover Building Blocks of Life in Ice Around a Forming Star in Neighboring Galaxy. *University of Maryland*. https://cmns.umd.edu/news-events/news/marta-sewilo-discovers-building-blocks-life-ice-around-forming-star

Updated American Standard Version. (2023, September 23). Was Giant Gilgamesh Found Intact In His Tomb After The Euphrates River Dried Up? *Updated American Standard Version*.

Urban, H. (2008). The yoga of sex: Tantra, orientalism, and sex magic in the Ordo Templi Orientis. In *Hidden Intercourse* (pp. 401–443). BRILL. https://doi.org/10.1163/ej.9789004168732.i-544.95

Vallée, J. (1969). *Passport to Magonia: On UFOs, folklore, and parallel worlds*. Contemporary Books.

Vallée, J. (1975). *The invisible college: What a group of scientists has discovered about UFO influences on the human race*. Dutton.

Vallée, J. (2008). *Dimensions: A Casebook of Alien Contact*. Anomalist Books.

Vallée, J., & Aubeck, C. (2009). *Wonders in the Sky: Unexplained Aerial Objects from Antiquity to Modern Times*.

Vallée, J. F. (1990). Five arguments against the extraterrestrial origin of unidentified flying objects. *Journal of Scientific Exploration*, *4*(1), 105–117.

Van Beek, W. E. (2004). Haunting Griaule: Experiences from the restudy of the Dogon. *History in Africa*, *31*, 43–68.

Verma, V. (2022a, November 6). Ex-head Of French spy agency claims UFOs are not from Earth, perhaps interdimensional. *How & Why's*. https://www.howandwhys.com/ex-head-of-french-spy-agency-alain-juillet-on-ufos/

Verma, V. (2022b, November 9). Ex-Apollo astronaut claimed humans are ancient aliens, visited Earth from space. *How and Why's*. https://www.howandwhys.com/ex-apollo-astronaut-claimed-humans-are-ancient-aliens-visited-earth-from-space/

Verma, V. (2023a, March 9). Ex-CIA officer: Truth about UFOs is terrifying & interdimensional beings are within us. *How & Why's*. https://www.howandwhys.com/ex-cia-officer-truth-about-ufos-is-terrifying/

Verma, V. (2023b, June 22). Ret. US Army Colonel claimed aliens in Roswell UFO crash were bio-robots built for space travel. *How and Why's*. https://www.howandwhys.com/philip-corsoaliens-in-roswell-ufo-crash-were-bio-robots/

Verma, V. (2024, April 30). Does this FBI document suggest that Nikola Tesla was an alien from Venus? *How's and Why's*. https://www.howandwhys.com/fbi-document-suggest-that-nikola-tesla-was-an-alien-from-venus/?

Villarroel, B., Solano, E., Guergouri, H., Streblyanska, A., Bruehl, S., Andruk, V., Mattsson, L., Bär, R., Mimouni, J., Geier, S., Gupta, A., Okororie, V., Laggoune, K., Shultz, M., & Freitas, R. (2025). Aligned, multiple-transient events in the First Palomar Sky Survey. *Preprint*.

Villarroel, B., Watters, W. A., Streblyanska, A., Solano, E., Geier, S., & Mattsson, L. (2025). A cost-effective search for extraterrestrial probes in the solar system. *Monthly Notices of the Royal Astronomical Society*. https://doi.org/10.1093/mnras/staf1158

Villmoare, B., Kimbel, W. H., Seyoum, C., Campisano, C. J., DiMaggio, E. N., Rowan, J., Braun, D. R., Arrowsmith, J. R., & Reed, K. E. (2015). Early Homo at 2.8 Ma from Ledi-Geraru, Afar, Ethiopia. *Science*, *347*(6228), 1352–1355. https://doi.org/10.1126/science.aaa1343

Vincent, B. (2024, November 14). 'The truly anomalous': New AARO chief unveils Pentagon's annual UAP caseload analysis, new efforts. *Defense Scoop*. https://defensescoop.com/2024/11/14/uap-aaro-chief-unveils-pentagon-annual-caseload-analysis-new-efforts/?utm_content=316428172

Virk, R. (2019). *The simulation hypothesis: An MIT computer scientist shows why AI, quantum physics and Eastern mystics all agree we are in a video game*. Bayview Labs.

von Däniken, E. (2018). *Chariots of the Gods: 50th Anniversary Edition*. Berkley.

Von Franz, M. L. (2017). *Creation myths: revised edition*. Shambhala Publications.

Von Rennenkampff, M. (2021). In dramatic shift, national intelligence director does not rule out "extraterrestrial" origins for UFOs. *The Hill*. https://thehill.com/opinion/international/581710-in-dramatic-shift-national-intelligence-director-does-not-rule-out

Von Uexküll, J. (1928). *Umwelt und innenwelt der tiere*. Springer.

Waichulis, A. (2023, April 21). How many exoplanets have been discovered? *Space Explored*. https://spaceexplored.com/2023/04/21/how-many-exoplanets-discovered/

Wainwright, M., Wickramasinghe, N. C., & Tokoro, G. (2021). Neopanspermia – Evidence that life continuously arrives at the Earth from space. *Advances in Astrophysics*, *6*(1). https://doi.org/10.22606/adap.2021.61002

Wallace, B. A. (Ed.). (2003). *Buddhism and Science: Breaking New Ground*. Columbia University Press.

Wang, M. ., & Shi, G. (2020). The evolution of Chinese jade carving craftsmanship. *Gems & Gemology*, *56*(1), 30–53.

Ward, C. (2023, August 9). Aliens Will Reveal Themselves in 2027, Claims Former CIA Agent. *Yahoo Entertainment*. https://www.yahoo.com/entertainment/aliens-reveal-themselves-2027-claims-190158829.html

Waugh, R. (2025, October 5). Scientist finds evidence of "alien DNA" in humans. *The Daily Mail*. https://www.dailymail.co.uk/sciencetech/article-15091825/evidence-humans-alien-dna-genetic-manipulation.html

Weidman, B. S. (2006). Native American languages in print: A student research project. *American Indian Quarterly*, *30*(1), 166–263.

Weisdorf, J. L. (2005). From Foraging To Farming: Explaining The Neolithic Revolution. *Journal of Economic Surveys*, *19*(4), 561–586. https://doi.org/10.1111/j.0950-0804.2005.00259.x

Wendorf, M. (2019, July 12). Explore the recent mysteries and controversies about Area 51. *Interesting Engineering*. https://interestingengineering.com/culture/explore-the-recent-mysteries-and-controversies-about-area-51

Wendt, A., & Duvall, R. (2008). Sovereignty and the UFO. *Political Theory*, 36(4), 607–633. https://doi.org/10.1177/0090591708317902

Westby, T., & Conselice, C. J. (2020). The astrobiological copernican weak and strong limits for intelligent life. *The Astrophysical Journal*, *896*(1), 58. https://doi.org/10.3847/1538-4357/ab8225

Whitehead, A. N. (1928). *Process and Reality*. Gifford Lectures Delivered in the University of Edinburgh during the Session.

Whitehead, A. N. (1933). *Adventures of Ideas*. The MacMillan Company.

Wilde, J. (2025a, February 22). What if we're not the first to realize we're in a simulation? *X*.

Wilde, J. (2025b, May 14). Most people still think we're at the top of the food chain... *X*. https://x.com/JasonWilde108/status/1922635961327820846

Wilde, J. (2025c, June 1). In the early 1960s, mysterious, typed letters. *X*. https://x.com/JasonWilde108/status/1929162420800324059

Wilkins, A. (2024). Complex form of carbon spotted outside solar system for first time. *New Scientist*. https://www.newscientist.com/article/2452199-complex-form-of-carbon-spotted-outside-solar-system-for-first-time/

Wilkins, A. (2025, April 17). Astronomers claim strongest evidence of alien life yet. *New Scientist*. https://www.newscientist.com/article/2477008-astronomers-claim-strongest-evidence-of-alien-life-yet/

Williams, M. (2016, January 26). How Long Would It Take To Travel To The Nearest Star? *Universe Today*. https://www.universetoday.com/15403/how-long-would-it-take-to-travel-to-the-nearest-star/

Wood, B. (2017). Evolution: Origin(s) of Modern Humans. *Current Biology*, *27*(15), R767–R769. https://doi.org/10.1016/j.cub.2017.06.052

Worms, E. A. (1955). Contemporary and prehistoric rock paintings in Central and Northern North Kimberley E. A. Source: Anthropos, Bd. 50, H. 4./6. (1955), pp. 546-566. *Anthropos*, *50*(4/6), 546–566.

Wright, J. T., Desch, S., & Raymond, S. (2023, July 19). Oumuamua: Natural or artificial? *Medium*. https://medium.com/@astrowright/oumuamua-natural-or-artificial-f744b70f40d5

Yingling, M. E., Yingling, C. W., & Bell, B. A. (2023). Faculty perceptions of unidentified aerial phenomena. *Humanities and Social Sciences Communications*, *10*(1), 246. https://doi.org/10.1057/s41599-023-01746-3

Yıldırım, E. (2022). A comparative approach to the Oannes narrative in Mesopotamia and the Prometheus myth in the ancient Greek world. *Belleten*, *86*(305), 39–60. https://doi.org/10.37879/belleten.2022.039

Yoo, D., Rhie, A., Hebbar, P., Antonacci, F., Logsdon, G. A., Solar, S. J., Antipov, D., Pickett, B. D., Safonova, Y., Montinaro, F., Luo, Y., Malukiewicz, J., Storer, J. M., Lin, J., Sequeira, A. N., Mangan, R. J., Hickey, G., Monfort Anez, G., Balachandran, P., … Eichler, E. E. (2025). Complete sequencing of ape genomes. *Nature*, *641*(8062), 401–418. https://doi.org/10.1038/s41586-025-08816-3

Part II:
NATURE AND CIVILIZATION

What is a Human Being?[1]

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The author explores three questions: "What is human nature as a physical system?", "What is the foundation of this physical system?", and "What is the 'habitual' manner for it?" The following results are presented. (1) Human nature is proposed as a state of a free "molecular field," described by the propositional formula "Psyche exists/is in the 'habitual' C/X manner." (2) Molecular evolution within the Earth system is viewed as a whole-part relationship and examined as a free "molecular field" or system. (3) The free "molecular field" achieves global synchronicity with geodynamic and astronomical processes through changing (state-dependent) properties, or in other words, the "habitual" C/X manner. C/X ratios (where X = N, S, or H) highlight the properties of carbon to form various compounds with many other elements, and the C/X manner itself involves properties that interact with other "fields" via the complexity of carbon cycles.

Keywords: human nature, ethics, psyche, "habitual" manner

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[1] The article presents the initial findings of the author's new research on human nature.

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Introduction

I understand and implement[1] *dialegesthai*[2] and *dialegomai*,[3] "to practice dialectics," "to reveal results in discussion," or "to think discursively" as an opportunity to go through the present into the past. I investigate unconcealed, more precisely, equal to *alēthēs* (true),[4] literally "what can't be hidden,"[5] which determines the Fundamental (natural) Rights for human nature.

The expression "human nature" takes into account current discussions[6] but goes beyond the relationship between Neuroscience and Psychology, on the one hand, and Anthropology and Sociology, on the other hand.[7] The article focuses on molecular evolution[8] and, specifically, on the ability of the fundamental and applied sciences to conceptualize in data the processes that shape the Earth's carbon reservoirs and ensure their global synchronicity with geodynamic and astronomical events. Discussions about evolutionary processes at the molecular level, which argue for "the distinctiveness of the processes of molecular evolution from organismal evolution"[9] and, consequently, the difference between human nature and other "natures,"[10] remain basic. At the same time, the article stresses the equally obvious unity in molecular evolution that human nature is obliged to express. This unity also follows from the "human nature" concept itself and its history,[11] an important place in which is occupied by the meanings of the Greek concept *physis*, "origin; the natural form or constitution of a person or thing as the result of growth; the regular order of nature."[12] That is, nature itself as a real physical world (*physis*) and human nature is a whole-part relationship within which researchers observe and study pure and mixed states of the system instead of inorganic, organic, intelligent, etc. systems. The relationship between the quantum state and the actual properties of the system is probabilistic.

This is why the proposed study is an ascent into the past of human nature rather than a "study of humans here and now."[13]

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[2] "This is the word appropriated by Plato's own medium to designate itself: 'to engage in [Socratic] dialogue' or 'to practice dialectic'" (Nagy, 2002: 32).

[3] Dialegesthai (διαλέγεσθαι, verb) and dialegomai (δῐᾰλέγομαι, verb), "to practice *dialektikē*," "to reveal results in discussion," or "to think discursively." Gregory Nagy states, "*dialegesthai* is key to the survival of Socrates' language and of his message" (Nagy, 2002: 32).

[4] Alēthēs (ἀληθής, adjective) unconcealed, true; opposite *lēthē*.

[5] Alēthēs, "stresses *undeniable reality* when something is fully tested, i.e. it *will* ultimately be shown to be *fact* (authentic)" (Thayer, 1995).

[6] (Nathan, 2024; Ramsey, 2023; Roughley, 2023).

[7] (Nathan, 2024; Turner, 2020; Graziano, 2018).

[8] (Yi, 2020: 25).

[9] (Dietrich & Suarez-Diaz, 2016).

[10] (Corti & Schülein, 2023; Riley, 2021; Weidman, 2021; Turner, 2020; Graziano, 2018).

[11] (Corti & Schülein, 2023; Stevenson et al., 2018).

[12] (Liddell & Scott, 1940). I follow Gregory Vlastos (2005: 4-19) and Werner Jaeger (1961), which indicate the difference between the meanings of *physis* and naturalism.

[13] "My argument in this Element has been that human nature is not occult, that we wear our nature on our sleeve. To study human nature is to study humans here and now, our psychology and behavior and morphology. There is nothing to the nature of the river other than its form and behavior. Studying how the water flows – how it erodes the banks, how it speeds up in narrow channels, how it thunders at the base of cataracts – is studying the nature of the river. No sacred scripture is needed to tell of its nature, no prophets required to divine its hidden essence, no history to speak to what the river is at its core" (Ramsey, 2023).

The purpose of the study is to abstract the whole-part relationship in which human nature is included as the pure state of the system and to clarify the three questions, "What is human nature as the state of the system?", "What is the foundation and the only rightful for human nature?", and "What is the 'habitual' manner and right (just) for human nature?"

Niels Bohr's experience guides us to use a unified language[14] to describe the type and states of a system that does not violate Leibniz's Principle of the Identity of Indiscernibles, and that is an important participant in surface processes on Earth and other planetary bodies. Therefore, the free "molecular field" and its three states — the cryosphere, biosphere, and psychosphere — are abstracted using linguistic concepts that link our network abstraction[15] to a similar abstraction proposed in Plato's dialogues. In our case, Network science and Linguistics are used to organize a *dia-logos* between two network abstractions, where Plato's dialogues are considered as the earliest extant collection of writings in which a comprehensive understanding of human nature within a whole-part relationship can be recognized. Plato's key terms (they are in parentheses) are proposed as "unmixed names" for a unified language describing the *genesis*[16] of human nature as the third state of the free "molecular field." They are the "nodes" of the proposed network abstraction by means of which, firstly, disparate networks of knowledge are linked into a multiple dynamic (temporal) network and, secondly, the evolving human nature is visualized in the time evolution of the free "molecular field."

As a consequence, our way to follow (*methodos*)[17] is to use Plato's *logos* metaphorically and literally as an authoritative basis for abstracting human nature and conceptualizing current data in the molecular sciences into an authoritative "theory of human nature."

The greatest unsolved problem in human nature

I want to draw attention to the greatest unresolved problem that exists in the modern understanding of human nature. If we compare modern approaches with ancient ones, it becomes especially noticeable.

The current understanding of human nature is based on the interaction between philosophical (anthropological, sociological, etc.) and scientific (biological, neurobiological, etc.) studies.[18] Human nature is studied as the "evolution of the modern human brain"[19] or otherwise as an

[14] "Later Niels Bohr expressed the same view in an often quoted passage: "It is decisive to recognize that, however far the phenomena transcend the scope of classical physical explanation, the account of all evidence must be expressed in classical terms. The argument is simply that by the word 'experiment' we refer to a situation where we can tell to others what we have done and what we have learned and that, therefore, the account of the experimental arrangement and of the results of the observations must be expressed in unambiguous language with suitable application of the terminology of classical physics (*APHK*, p. 39)" (Faye, 2019).

[15] "The features of a network abstraction include at least the following: individual elements; pairwise relationships between those elements; and a global or macro- patterning that can be considered as network structure. This basic description may not be sufficient for all circumstances (e.g., think of longitudinal phenomena) and can be extended in many different ways, but these are fundamental features if we are to call the abstraction a network" (Brandes et al., 2013).

[16] Genesis (γένεσις, noun, from *gignomai*) coming into being, production, generation.

[17] Methodos (μέθοδος, noun), path of pursuit (meta-), to pursue one's inquiry, or literally "the way to follow."

[18] (Nathan, 2024; Ramsey, 2023; Roughley, 2023).

[19] (Beaudet et al., 2019).

evolving phylogeny of hominin species[20] that originated in the Earth's biosphere approximately 8 million years ago[21] and that exists or is, or equivalently, "exists/is (*eimi*)"[22] as a physical system on Earth and possibly other planets.[23]

In modern thought, René Descartes' truth "I think, therefore I am,"[24] is predominant. The Latin *cōgitō*, "I think/ponder/visualize," determines the context of the proposition "I am, I exist… necessarily is true."[25] As a result, the proposition "I (human) exist/am" and consequently human nature in the understanding of scholars began to express events that happen that "prove the certainty of our existence"[26] and "show that this I which is thinking is an immaterial substance with no bodily element."[27] For example, Nature Portfolio indicates that Neuroscience encompasses "the evolution, development, cellular and molecular biology, physiology, anatomy and pharmacology of the nervous system, as well as computational, behavioural and cognitive neuroscience."[28] That is, its multiple knowledge networks are limited to the study of the structure and function of the nervous system. In essence, Neuroscience continues to manifest Hegel's "… to apprehend what is is the task of philosophy, because what is is reason."[29]

At the same time, the current understanding of human nature provokes anthropocentrism, the "human planet" project, when "*all* value and ethics is limited to humanity."[30] It allows the question "What is human nature?" to be displaced with another, "What kind of human nature should humans want to create for themselves?"[31] As a result, social and human sciences rethink the recent advances in Neuroscience and legalizes human evolutionary history as an "autonomous and self-governing" system capable of implementing "a shared blueprint for peace and prosperity for people and the planet, now and into the future."[32] "The acquisition

[20] See (Turner, 2020; Beaudet et al., 2019; McNulty, 2016).

[21] "When DNA differences among modern humans and the great apes are calibrated using the best paleontological evidence for the split between the apes and the Old World Monkeys, and if we assume that most of the DNA differences are neutral, those differences predict that the most recent common ancestor (MRCA) of modern humans and chimpanzees/bonobos lived between about 8 and 6 million years ago (Ma)" (Beaudet et al., 2019).

[22] Eimi (εἰμί, verb), exist, be; и Ón (ὄν, participle, noun) the things which actually exist, the present, reality.

[23] (Vernadsky, 1987; Lovelock, 2010; Lomas et al., 2024).

[24] Et remarquant que cette vérité, je pense, donc je suis, était si ferme et si assurée, que toutes les plus extravagantes suppositions des Sceptiques n'étaient pas capables de l'ébranler, je jugeai que je pouvais la recevoir sans scrupule pour le premier principe de la Philosophie que je cherchais ("Discourse on the Method," 1637). "And as I observed that this truth, I think, therefore I am, was so certain and of such evidence that no ground of doubt, however extravagant, could be alleged by the Sceptics capable of shaking it, I concluded that I might, without scruple, accept it as the first principle of the philosophy of which I was in search." Translated by Elizabeth S. Haldane and G.R.T. Ross (1911).

[25] hoc pronuntiatum: Ego sum, Ego existo, quoties a me profertur, vel mente concipitur, necessario esse verum (Meditations on first philosophy, 1641). "this proposition: I am, I exist, whenever it is uttered by me, or conceived by the mind, necessarily is true." Translated by Elizabeth S. Haldane and G.R.T. Ross (1911).

[26] (Descartes, 1991: 159).

[27] "I, on the other hand, use the argument to show that this I which is thinking is an immaterial substance with no bodily element" (Descartes, 1991: 159).

[28] https://www.nature.com/subjects/neuroscience

[29] (Hegel, 2001: 19).

[30] (Kopnina et al., 2018).

[31] (Gregg, 2022).

[32] https://sdgs.un.org/goals

and application of collective knowledge, operating at a planetary scale, which is integrated into the function of coupled planetary systems," or otherwise, the idea of "planetary intelligence," is gaining credibility in the scientific community.[33] At best, the discussions and debates are conducted "whether values in nature are anthropocentric (human-centered) or ecocentric (nonhuman-centered)."[34]

As a consequence, the future of human nature is seen in unraveling unidentified anomalous phenomena (UAP), which are supposed to "reflect the activities of intelligent beings,"[35] and in cooperating with extraterrestrial intelligence, whose nature is understood to be a more advanced form of human nature: "they should be able to sustain life and support the evolution of technological civilizations."[36]

Modern physical science distances itself from the current understanding of human nature because it is a formula for deadlock. If we accept it as a basis, then in accordance with the physical laws and conservation principles that describe our physical world, we must declare that human nature is a mixed state of a system that will lose its own identity and individuality in an ever-changing universe. Because the pure state of the system cannot have an eight-million-year history within the 13.7 billion years of evolutionary history of our Universe. I mean the distinction between pure and mixed states of the system and their study in quantum mechanics. In particular, it is the understanding of the system as a "property-oriented ontology," which follows from the interpretation of quantum theory proposed by Carlo Rovelli and Andrea Oldofredi.[37] I also take into account the alternative conception of quantum particles proposed by Dennis Dieks and Andrea Lubberdink. "One of its key consequences is that particles in quantum theory are not fundamental but emergent; another that once they have emerged, quantum particles are always physically distinguishable and thus possess a physically grounded identity."[38] Laurie Ann Paul's "mereological bundle theory" offers a perspective for harmonizing current research on human nature with new fundamental physical theories.[39]

The distinction between pure and mixed states of a system, and as a consequence between possible and actual properties, guides us to investigate human nature as a derived (emergent) property or relation in planetary evolution, rather than as a phylogeny of hominin species. We have to define the type of system to which human nature belongs and describe its states at each moment of its history. "In sum, this proposal suggests that physical systems in Relational Quantum Mechanics should be defined as mereological bundles of properties, where (i) the intrinsic properties characterizing a certain species of particles have constant values, (ii) the extrinsic qualities take definite values relative to particular observers, and (iii) not every observable defining a system can have a definite value in virtue of the contextual nature of the quantum formalism."[40]

Thus, the question "What is human nature as the pure state of the system?" expresses the greatest unsolved problem to date. Human nature is explored as something that "comes into being to exist/be (*eimi*)." Instead, modern physical laws and conservation principles direct us to define and measure it as either a pure or a mixed state of the system.

[33] (Frank et al., 2022).
[34] (Kopnina et al., 2018).
[35] See (Lomas et al., 2024).
[36] (Montebugnoli et al., 2021).
[37] (Oldofredi, 2021).
[38] (Dieks & Lubberdink, 2022).
[39] (Paul, 2017).
[40] (Oldofredi, 2021).

The challenge for human nature "to exist/be (*eimi*) either a pure or a mixed state of the system" means much more than merely describing in terms of operational definition. In fact, the difference between pure and mixed states determines the human ability or inability to ever advance and protect one's own identity and individuality in an ever-changing universe. Fundamentally, it is a verdict in favor of either *genesis* (coming to be) or *phthora* (passing away)[41] or, equivalently, to ever be or not to be.

It is worth emphasizing that genetic engineering is developing methods to manipulate genetic material, but at the same time, the question "What is unmixed/pure (*eilikrinēs*)[42] in human nature that provides the *genesis* (coming to be) and protects against *phthora* (passing away)?" is not understood or even raised as an issue. Where the Greek adjective *eilikrinēs* ("sincere because transparent") "describes something *proven* because *well-examined* (totally scrutinized) – therefore, *certified as sincere* (*inwardly pure*)."[43]

Thus, the question "What is human nature as a pure state of the system that is able to advance and protect its own identity and individuality in an ever-changing universe?" is a question of the highest priority for us. To follow the physical laws and conservation principles, but at the same time, to establish the ultimate ethical value, we will designate the key "node" in our network abstraction with the concept of "exist/be (*eimi*) unmixed/pure (*eilikrinēs*)." In this case, only philosophy can clarify what is unmixed/pure (*eilikrinēs*) in human nature and persuade that human nature is indeed a physical system (or its state) that comes into being to exist/be (*eimi*) unmixed/pure (*eilikrinēs*) as far as possible. We must remember that the unmixed/pure (*eilikrinēs*) is equal to *alēthēs*,[44] the unconcealed, "*true*, as it accords with *fact* (*reality*), i.e. *attested* because *tested.*"[45]

Human nature as a physical system

The question "What is unmixed/pure (*eilikrinēs*) in human nature?" leads to the foundation of the system, which generates unchanging (or "state-independent") and changing (or "state-dependent") properties. Historically, the unchanging properties of human nature were linked by the parallel series *themis* ↔ *themethla* ↔ *themitos*, where "justice, right"

[41] Phthora (φθορά, noun, from *phtheirō*), passing out of existence, ceasing to be. Περί Γενέσεως και Φθοράς by Aristotle, Latin: De Generatione et Corruptione, literally "On Coming to Be and Passing Away."

[42] Eilikrinēs (εἰλικρινής, adjective; from *heilē*, "*shining of the sun*" and */krystallízō*, "to judge"), *rightly* judged because seen in *full light* (Thayer, 1995); unmixed, without alloy, pure. See (*Philebus* 52d9).

[43] (Thayer, 1995).

[44] (*Philebus* 52d9). The Greek text is cited according to Burnet, 1901; 1903; 1978; 1907; Duke et al., 1995. The author follows the translation (unless otherwise indicated) *of Plato's in twelve volumes*, 1967-1979. The passages quoted demonstrate Plato's views and/or argue for a linguistic concept. I selectively use Plato's semantics and vocabulary. In most cases, these are primary words in Transliteration B according to the *Liddell, Scott, Jones Ancient Greek Lexicon* (https://lsj.gr/wiki/Main_Page). They are shown in italics. Greek words are used as technical terms, so I do not stick to grammatical cases except for direct quotations. For me, the original meanings of words, indicated in footnotes and partially in the Glossary, are essential. I primarily use Plato's dialogues, the Platonic corpus, the *Liddell, Scott, Jones Ancient Greek Lexicon* (LSJ), and *Thayer's Greek-English Lexicon of the New Testament* (Thayer, 1995). Many Greek words have several significant connotations. In this case, I single out the most important ones for my research and separate them with a forward slash ("/"). The reader does not need to know Ancient Greek. Plato's vocabulary helps me restore discussions' primary meanings and use them as an authoritative beginning for my study.

[45] (Thayer, 1995).

(*themis*), "foundations, lowest part, roots" (*themethla*),[46] and "the only rightful" (*themitos*)[47] came from the verb *tithēmi*, which primarily means "to place" or "to set." In the Greco-Roman world, *tithēmi* and derivative words often reflected cultural practices, emphasizing the intentionality and authority behind actions and decisions.[48] Whereas the changing properties of human nature were linked by the parallel series *dikē* ↔ *diken* ↔ *dikaios*, where the concept *dikē*, "custom, usage, normal course of nature"[49] underpins the concepts of "habitual" manner (*diken*)[50] and "right, righteous" (*dikaios*).[51] In ancient Greek culture, *dikē* was viewed as a fundamental principle that maintained social harmony.[52]

It should also be noted that in Greek mythology Themis was the goddess of divine justice, enforcing the rules of the gods and the natural laws of the world, while Dike regulated human laws and ensured the "right, righteous" (*dikaios*) way of human life.

We use the above parallel series to abstract possible properties of the system whose state human nature is. Consider their current understanding and basic meanings.

(1) I want to draw attention to the famous article "Did the Ancient Greeks Have the Concept of Human Rights?" and expand the meanings that Myles Fredric Burnyeat makes in it.[53] Burnyeat's article focuses us on the difference between the emphases in Plato's and Descartes' philosophy and, consequently, between ancient and modern thinking about the important question, "What is the only rightful (*themitos*) for human nature?"

In the above article, Burnyeat emphasizes that ancient politics never put the individual first.[54] Plato wrote in the *Laws*, "Of all a man's own belongings, the most divine is his *psychē,*[55] since it is most his own."[56] At the same time, "Thus it is that in charging men to honor their own *psychē* next after the gods who rule and the secondary divinities, I am giving a right injunction."[57] That is, other more authoritative "natures" also possessed *psychē*. It follows

[46] (Liddell & Scott, 1940).

[47] Themitos (θεμιτός, adjective from *thémis*), "allowed by the laws of God and men, righteous" (Liddell & Scott, 1940).

[48] "In the Greco-Roman world, the concept of placing or setting something was significant in both everyday life and religious practices. Objects were placed in specific locations for worship, and people were appointed to roles within society and religious institutions. The use of 'tithémi' in the New Testament often reflects these cultural practices, emphasizing the intentionality and authority behind actions and decisions" (Thayer, 1995).

[49] (Liddell & Scott, 1940).

[50] δίκην (from *díkē*), in the manner of (Liddell & Scott, 1940). "The "habitual" manner is in reality an obligation of nature or convention" (Benveniste, 1973: 559).

[51] Dikaios (δίκαιος, adjective, derived from *díkē*), right, righteous.

[52] "In ancient Greek culture, *dikē* was personified as a goddess representing justice and moral order. The Greeks viewed justice as a fundamental principle that maintained societal harmony" (Thayer, 1995).

[53] (Burnyeat, 2012: 282-288).

[54] "But the idea lived on, and because it lived on our politics puts the individual first in a way that ancient politics did not. The difficulty is not that the statement just quoted from the Declaration of Rights could not be translated into ancient Greek. It could. But it would sound strange and pointless in a world which never seriously challenged the institution of slavery" (Burnyeat, 2012: 288).

[55] Psychē (ψῡχή, noun, from *psychō*). Plato's research was aimed at affirming the two main meanings of *psychē*: (1) the *psychē* is immortal, (ἀθάνατος ἂν ἡ ψυχὴ εἴη (*Meno* 86b)) and its nature differs from the nature of the body (*Phaedo* 115c-116a; *Phaedrus* 245c-249d; *Timaeus* 34c). (2) *Epistēmē* is stored in the *psychē*, therefore to seek something (ζητεῖν ἄρα) and to know (τὸ μανθάνειν), in general, was called *anamimnēskō* (*Meno* 81d).

[56] (*Laws* 5.726a3). Translated by R.G. Bury.

[57] (*Laws* 5.726a6-5.727a1-2). Translated by R.G. Bury.

that "giving honor to their own *psychē*"[58] did not at all imply anthropocentrism, i.e., "putting the individual first." The Greeks did not separate human nature from the preceding natures. Therefore, the properties that the parallel series *themis* ↔ *themethla* ↔ *themitos* described were "state-independent", i.e. characterizing both divine and human natures.

On the contrary, the first principle of Descartes' philosophy and "the proposition: I am, I exist, whenever it is uttered by me, or conceived by the mind, necessarily is true,"[59] affirmed and defined "the individual first." In Descartes' philosophy, reason was put first and above everything else. It came to be regarded as a self-sufficient "base, foundation" (*themethla*),[60] which was capable of independently determining "the only rightful" (*themitos*) for its nature. The titles and content of today's authoritative scientific studies, such as "Human Rights and Human Nature,"[61] "Killer Instinct: The Popular Science of Human Nature in Twentieth-Century America,"[62] etc., develop this view.

In essence, Burnyeat demonstrated the "reversal" in the understanding of "What is equal to human nature?" that has occurred in modern thought. The Greeks developed the unity of the parallel series *themis* ↔ *themethla* ↔ *themitos.* They legitimized that everything that comes into being has a common "base, foundation" (*themethla*) and therefore it exists/is (*eimi*) according to the "only rightful" (*themitos*). To abstract human nature for the Greeks meant to harmonize controversial social practices and ideologies with the movement (work) of the "base, foundation" (*themethla*), which was the one for all natures. The Pythagorean Symbol "Don't step over the yoke"[63] emphasized the necessity to "pull together" and "unite (join) to move (work) together as one."[64] That is, the "only rightful" (*themitos*) was not only the right to represent one's own nature, but also obliged human nature to unite (join) with equals in order to advance and protect the identity and individuality of the common "base, foundation" (*themethla*) in an ever-changing universe.

Instead, modern thought develops the idea of a self-sufficient human nature that has its own authoritative "base, foundation" (*themethla*) that is distinct from and perhaps superior to other foundations observed in the evolving Earth system. As a consequence, we can see a significant gap between the understanding of the common "base, foundation" (*themethla*) (i.e., the universe), the only rightful (*themitos*) that the universe establishes for all types of systems, and the rights and duties by which human nature controls its own guiding perspective. As a result, modern thought and the science of jurisprudence clearly understand that "Rights belong to individuals and bring benefit to them. Duties are imposed on individuals and restrict their freedom. So to take rights as basic and derive duties from them, instead of the other way round, is to take individuals as the prime beneficiaries of the civil order – all individuals

[58] τιμῶν τὴν αὐτοῦ ψυχήν (*Laws* 5.727b6), where the verb "*timáō* – properly, *assign value* (give honor), as it reflects the *personal* esteem (value, preciousness) attached to it by the *beholder*" (Thayer, 1995).

[59] hoc pronuntiatum: Ego sum, Ego existo, quoties a me profertur, vel mente concipitur, necessario esse verum. (Meditations on First Philosophy, 1641). Translated by Elizabeth S. Haldane and G.R.T. Ross (1911).

[60] *Themethla* (in Homer *themeília*) is a building term meaning "base, foundation" (Benveniste, 1973: 549).

[61] (Albers et al., 2014).

[62] (Weidman, 2021).

[63] τὸ δὲ ζυγὸν μὴ ὑπερβαίνειν (Diogenes Laertius, 8.1.18).

[64] The meaning of the Greek ζυγός, "properly, a yoke; a wooden bar placed over the neck of a *pair* of animals so they can pull *together*; (figuratively) what *unites* (*joins*) two people to move (work) together as *one*" (Thayer, 1995).

equally."[65] At the same time, legalized "human rights" are not really *themis* (justice, right) in the literal sense, because they do not express the work of the whole-part relationship in which the "base, foundation" (*themethla*) (the universe) establishes the only rightful (*themitos*) for all the equals it begets. Therefore, Burnyeat quite rightly concluded that "The negative aim was as important as the positive": rights should not be more important than duties.[66]

In other words, human nature does have the right to develop an understanding of its own self-sufficient foundation. At the same time, it must realize the difference between the foundation for the pure (or mixed) state of the system and the "base, foundation" (*themethla*) of the system. In the parallel series *themis* ↔ *themethla* ↔ *themitos*, the "base, foundation" (themethla) are "state-independent" properties characterizing certain species of particles that permanently implement the "only rightful" (*themitos*) for all states of the system. I mean the right and the duty to move (work) together as one, in a yoke, to advance and protect one's own identity and individuality in an ever-changing universe. It is the "base, foundation" (*themethla*) of the system that establishes the "only rightful" (*themitos*) for all its states: the right to come into being to exist/be (*eimi*) either unmixed/pure (*eilikrinēs*) or mixed. This is why exploring one's own "base, foundation" (*themethla*) and the "only rightful" (*themitos*) for the system is actually of paramount importance to human nature. This is the only way to know one's own guiding perspective, including the possible properties of the system and their corresponding probabilities.

Thus, we find that current discursive thinking through of human nature and its history in planetary evolution is based on the knowledge that ignores the properties that the parallel series *themis* ↔ *themethla* ↔ *themitos* described. The researchers "forget" that human nature has the right to differ from the genome of bonobos and chimpanzees by only 2%.[67] Despite the obvious common "base, foundation" (*themethla*), they establish that the only rightful (*themitos*) for human nature is the right to decide "how we must live today if we want a better tomorrow, by meeting present needs without compromising the chances of future generations to meet their needs."[68] That is, the "justice, right" (*themis*) for equals begotten by the "base, foundation" (*themethla*) is totally ignored. The result is a violation of the Pythagorean Symbol "Don't step over the yoke" or "Don't step over equal/equivalent (ísos[69]) and right/righteous (*dikaios*)" as interpreted by Diogenes Laertius.[70]

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[65] (Burnyeat, 2012: 287).

[66] "The negative aim was as important as the positive. There had earlier been a vote on whether a declaration of rights should be accompanied by a declaration of duties. 'If a declaration is necessary', said the Bishop of Chartres on 3 August, 'there is a pitfall to avoid. There is a risk of awakening egoism and pride. The flattering expression of *rights* must be accompanied by *duties as a corrective*.' The opposition replied that duties were simply the corollary of rights and so needed no explicit declaration of their own. The opposition won. The demand for a declaration of duties was defeated by 570 votes to 433: not a huge majority, but enough to ensure that in the new social order rights would be prior to duties" (Burnyeat, 2012: 287-288).

[67] "…which showed that bonobos and chimpanzees are 99.7% alike whereas bonobos and modern humans are 98.7% alike" (Beaudet et al., 2019).

[68] https://www.un.org/sustainabledevelopment/blog/2023/08/what-is-sustainable-development/#:~:text=Sustainable%20development%20is%20how%20we%20must%20live%20today

[69] Ísos (ἴσος, adjective, probably from οἶδα), equal, "equality; having the same (similar) level or value; equivalent, equal in substance or quality"; "(*ísos*) is the root of the English terms, "*isometric*" and "*isosceles*" – referring to *equivalencies*" (Thayer, 1995); "repeated to denote equal relations; equal in rights" (Liddell & Scott, 1940; *Laws* 6.774c4).

[70] τὸ δὲ ζυγὸν μὴ ὑπερβαίνειν, τουτέστι τὸ ἴσον καὶ δίκαιον μὴ ὑπερβαίνειν (Diogenes Laertius, 8.1.18).

Therefore, to clarify the question "What is unmixed/pure (*eilikrinēs*) in human nature?" we need to reconstruct the parallel series *themis* ↔ *themethla* ↔ *themitos* and use modern knowledge to answer two questions: (i) "What is the 'base, foundation' (*themethla*) for human nature?" and (ii) "What is the 'only rightful' (*themitos*) for all states of the system?" That is, we must specify the type of system that human nature represents and describe its unchanging properties. Thus, the concepts of "base, foundation" (*themethla*) and "the only rightful" (*themitos*) become the next "nodes" in our network abstraction.

(2) The question "What is human nature as an unmixed/pure physical system?" raises the problem of changing (or "state-dependent") properties. The time evolution of at least 13.8 billion years, as well as current knowledge of human nature, planetary evolution, and the chronology of the universe, always points to one condition. Namely, something physically real and ever expresses its own individuality in an ever-changing universe is a system that "drinks a measure of water" and "does not drink more than the measure."[71] That is, the prospect of existing/being (*eimi*) either pure or mixed is determined by the "habitual" manner (*diken*) that characterizes the state of the system at each moment in its history.

Thus, the "habitual" manner (*diken*) ensures the coherence of the physical system with the "'formula of normality' prescribing what must be conformed to"[72] and what is right/just (*dikaios*/*iustus*) for it. Whereas the Greco-Latin concept of *dikaios/iustus*[73] clarifies the doctrinal and situational motives of the physical system "to show the 'measure' which is to be imposed in such and such a dispute"[74] in order to advance and protect the identity and individuality of its own "base, foundation" (*themethla*).

As a result, we find that the Greeks used another parallel series *dikē* ↔ *diken* ↔ *dikaios* to describe the property of "showing the measure" at each moment of the evolving system. Where measure — *metron*[75] — is "not 'measurement,' but 'moderation' (Lat. *modus*, *modestus*) – designed to restore order in a sick body (Lat. *medeor* 'care for,' *medicus*), in the universe (Hom. 'Zeus the moderator') and in human affairs."[76] According to current concepts, the changing

[71] "They were all required to drink a measure of the water, and those who were not saved by their good sense drank more than the measure, and each one as he drank forgot all things" (*Republic* 10.621a5-b1). Translated by Paul Shorey

[72] "Thanks to Iranian and Indic we are in a position to penetrate into the prehistory of the Latin word *ius*. The Indo-European word **yous* meant "the state of regularity, of the normality required by the rules of ritual." This state assumes the double aspect in Latin, which we have just distinguished in Indo-Iranian. The idea of *ius* admits of these two conditions. One is the factual situation, denoted by the derived adjective *iustus* in the legal expressions *iustae nuptiae* 'lawful marriage', *iusta uxor* 'legitimate wife', that is, "conforming to the state of *ius*." The other is implied in the expression *ius dicere*. Here *ius* denotes "the formula of normality," prescribing what must be conformed to. Such is the foundation of the idea of "law" in Rome" (Benveniste, 1973: 564).

[73] «The analysis of the uses of *díkē* has brought out the frequency of the correlations between the Greek *díkē* and the Latin *ius*. These two terms, although different in origin, enter into parallel series: *diken eipeîn* corresponds to *ius dicere*; *dikaios* to *iustus*, and finally, *dikaspólos* corresponds more or less to *iudex*» (Benveniste, 1973: 561).

[74] (Benveniste, 1973: 587).

[75] Metron (μέτρον, noun), "that by which anything is measured" (Liddell & Scott, 1940); "a *measure* (the actual measure *itself*); (figuratively) the *basis* for determining what is *enough* (or *not enough*), what is *fair* (or *not fair*), etc." (Thayer, 1995).

[76] "In historical times the root **med*- designated a great variety of different things: "govern," "think," "care for," "measure." The primary meaning cannot be determined simply by reducing all these to a vague common denominator nor by a confused agglomeration of the historically attested senses. It can

properties provide global synchronicity of the physical system within an ever-changing universe. This is probably why the Greeks developed the meanings of "right (as self-evident), justice" (*dikē*) and its derived meanings of "habitual" manner (*diken*) and right/righteous (*dikaios*) inextricably with the theme of "happiness, well-being, outward prosperity," i.e. with *eudaimonia.*[77]

In our network abstraction, the parallel series *dikē* ↔ *diken* ↔ *dikaios* will represent the current knowledge of the changing properties by which human nature advances and protects the identity and individuality of its own "base, foundation" (*themethla*) in an ever-changing universe. Changing properties make "their possessor happy to the farthest possible limit of human happiness"[78] because they provide "value" and "life cycle" to a physical system, or in other words, they are responsible for its moderation within the whole-part relationship at every moment of its history. Modern Biology and Neurosciences study state-dependent properties as "changeability," "adaptability," "flexibility," "agility," etc.[79] Whereas Sociology and Anthropology develop the understanding of "habitual" manner (*diken*) and right/just (*dikaios*/*iustus*) for human nature mainly in two directions. The first is research into "the fundamental differences between humans and our nearest relatives, the great apes,"[80] which allows us to "address the role that human nature plays in the foundation of human rights."[81] The second is the study of "organic life as a crossroads between philosophy and the natural sciences,"[82] which guides to solve "significant socio-ecological challenges such as global biodiversity loss and climate change."[83] or otherwise "the triple planetary crisis."[84]

The accumulated experience and knowledge allow us to extend this understanding. On the one hand, we will clarify the relationship between the "state-dependent" properties that the parallel series *dikē* ↔ *diken* ↔ *dikaios* describes and the external qualities that take definite values relative to particular observers.[85] On the other hand, we will show that changing properties do determine a right and happy life.

By their nature, "state-dependent" properties are a showing of the measure of unmixed/pure (*eilikrinēs*) for any state of the system. They actually visualize the movement (work) of a controlling "base, foundation" (*themethla*) that "takes appropriate measures" (**med*-)[86] to

be defined as "measure" – not "measurement," but "moderation" (Lat. *modus*, *modestus*) – designed to restore order in a sick body (Lat. *medeor* 'care for', *medicus*), in the universe (Hom. *Zeùs* (*Idēthen*) *medéōn* 'Zeus the moderator'), in human affairs, including the most serious like war, or everyday things like a meal" (Benveniste, 1973: 576).

[77] Eudaimonia (εὐδαιμονία, noun), happiness, well-being, outward prosperity, to be happy, in the sense of living a good life, etc. In understanding ancient thinkers, *eudaimonia* meant the quality of life deserving respect, approval, and imitation in society.

[78] (*Phaedrus* 277a1-3). Translated by Harold N. Fowler.

[79] (Sullivan et al., 2023).

[80] (Frey et al., 2011: 1).

[81] (Albers et al., 2014).

[82] (Corti & Schülein, 2023).

[83] (Misiune et al., 2022).

[84] "The triple planetary crisis refers to the three main interlinked issues that humanity currently faces: climate change, pollution and biodiversity loss." https://unfccc.int/news/what-is-the-triple-planetary-crisis#:~:text=The%20triple%20planetary%20crisis%20refers%20to%20the%20three

[85] (Oldofredi, 2021; Paul, 2017).

[86] **med*- Proto-Indo-European root meaning "take appropriate measures." It forms all or part of: accommodate; accommodation; commode; commodious; commodity; empty; immoderate; immodest; Medea; medical; medicament; medicaster; medicate; medication; medicine; medico; medico-; meditate;

ensure the "value" and "life cycle" of the system. "The ultimate reason why we should respect each other's rights is because justice is an essential part of our own happiness."[87] It follows that knowledge one's own "habitual" manner (*diken*) opens up the perspective of knowing the controlling "base, foundation" (*themethla*) and the unmixed/pure (*eilikrinēs*) within one's own system. We will call this perspective the right/just (*dikaios*/*iustus*) or the right (just) guiding perspective. Thus, the concepts of "habitual" manner (*diken*) and right/just (*dikaios*/*iustus*) become the next "nodes" in our network abstraction. They underpin two important questions for us, "What is the 'habitual' manner (*diken*) for human nature?" and "What is right/just (*dikaios*/*iustus*)?"

As becomes clear from the above, we will abstract human nature as a physical system by discursively thinking through three questions. The first question directs us to think through the key "node" of our abstraction, namely, what is the unmixed/pure (*eilikrinēs*) in human nature that ensures its continuous coming into being (*genesis*) rather than passing away (*phthora*). The first question has the highest priority for us:

(1) "What is human nature as a pure state of the system?"

The second question is about the unchanging properties of the physical system. It directs us to think through the "base, foundation" (*themethla*) of a physical system in order to determine a way of describing its states and properties that are the only rightful (*themitos*) within the whole-part relationship.

(2) "What is the foundation for human nature and the only rightful?"

The third question is about the changing properties of this physical system, which we will think through by developing the meanings of the parallel series *dikē* ↔ *diken* ↔ *dikaios*:

(3) "What is the "habitual" manner for human nature and the right (just) guiding perspective?"

The questions posed do not imply answers. They are beacons between truth and oblivion (*alētheia* and *lēthē*)[88] that make it possible to realize one's own wandering[89] in the borderland between human nature and the preceding natures that the "base, foundation" (*themethla*) begets as the states of the system. Therefore, the proposed network abstraction is just the next step in the "eternal" step-by-step renewal of the human paradigm. The paradigm helps to find a way out of the impasse and to go through the view on the Self and "my own *psychē*"

meditation; Medusa; meet (adj.) "proper, fitting;" mete (v.) "to allot;" modal; mode; model; moderate; modern; modest; modicum; modify; modular; modulate; module; modulation; mold (n.1) "hollow shape;" mood (n.2) "grammatical form indicating the function of a verb;" must (v.); premeditate; premeditation; remedial; remediation; remedy. https://www.etymonline.com/word/mete

87 (Burnyeat, 2012: 287) with modification.

88 (*Republic* 10.621a5-b1). "The myths of the *Republic* and the *Phaedrus* recount two sides of the human destiny that necessarily go together: we are equally under the power of ἀλήθεια and λήθη, we emerge into this life from both the plain of ἀλήθεια and the plain of λήθη" (Gonzalez, 2009: 240-241).

89 The verb πλανάω (πλανωμένων (*Sophist* 230b7), to cause to wander, to wander. A passage from the *Sophist* (230b4-d4), "in which the Eleatic Visitor stresses the necessity of the wandering soul's being made aware of its wandering" was thought out by James M. Ambury (Ambury, 2018: 93-95).

to begin to know "What is equal to human nature?" i.e. Other equals. At the same time, the cognition of "What is equal to human nature?" is done only to discover one's own right (just) guiding perspective and make the Self happy but not the Others. Myles Fredric Burnyeat rightly noted that "All the ancient thinkers insist that evil-doing brings misery: only the good are truly happy. So the ultimate reason for respecting animal life is not that it will make the animals happy, but that it will make me happy."[90]

That is, each nature as a state of the system embodies specific properties of the "base, foundation" (*themethla*), which continuously and non-linearly provides global synchronicity of the system in an ever-changing universe. Therefore, the right/just (*dikaios*/*iustus*) for any nature that determines its happy life is to exist/be (*eimi*) in a "habitual" manner (*diken*), or in other words, to ever practice its own *ethos*, and never the *ethos* of Others. Where the concept of *ethos* — "usage prescribed by law, institute, prescription, rite"[91] — produces the meanings of *ēthos,* "'familiar morals,' referring to daily *life-style* (moral *habits*, behavioral *patterns*)."[92]

Consider the "habitual" manner (*diken*) in which human nature exists/is (*eimi*) unmixed/pure (*eilikrinēs*) as far as possible in the time evolution.

What is the "habitual" manner for human nature?

In the threefold scheme of philosophy inherited from Plato,[93] it was ethics that was developed as the way to follow (*metodos*) the "habitual" manner (*diken*) and the right/just (*dikaios*/*iustus*). We go through the current understanding of ethics as "moral principles that control or influence a person's behavior"[94] and begin to think through *ethos*, "a customary abode, dwelling-place, haunt, customary state" as Homer, Hesiod, Herodotus, and others understood it.[95] It is in this understanding that *ethos* expresses the pure properties of human nature and is equivalent to the "habitual" manner (*diken*).

The Greeks explored *ēthos* (an accustomed place) through *ethos* (custom, habit),[96] where the concept *ēthos* and its derivatives, the adjective *ēthikos* (of or for morals, ethical, moral) and the noun ethics, have a rich history of meaning development.[97] In Plato's *Laws*, ēthos defined an habitual place and a custom in the sense of frequent repetition of the same behavior or a mode of conduct common to many. *Ēthos* is "a personal characteristic (custom), which

[90] (Burnyeat, 2012: 286).

[91] (Thayer, 1995).

[92] (Thayer, 1995).

[93] "…a threefold scheme of philosophy inherited from Plato: one division dealt with conduct and morals, the second with the secrets of nature, the third with dialectic and with judgement of truth and falsehood, correctness and incorrectness, consistency and inconsistency, in rhetorical discourse" Fuit ergo iam accepta a Platone philosophandi ratio triplex, una de vita et moribus, altera de natura et rebus occultis, tertia de disserendo et quid verum quid falsum quid rectum in oratione pravumve quid consentiens quid repugnet iudicando. [p. 9] (Cicero, 1933: 1.19). Translated by H. Rackham (1933). See (Horky, 2020: 171-181).

[94] https://www.oxfordlearnersdictionaries.com/definition/english/ethic?q=ethics

[95] Strong's Greek Lexicon G2239: ἦθος.

[96] (*Laws* 7.792e2).

[97] *Ēthos* (ἦθος, noun, from *ethos*), an accustomed place: hence, in the plural, haunts or abodes of animals; of the abodes of men (Liddell & Scott, 1940). Aristot. Nic. Eth. 1103a17: ἡ δὲ ἠθικὴ ἀρετὴ ἐξ ἔθους περιγίνεται, ὅθεν καὶ τοὔνομα ἔσχηκε μικρὸν παρεγκλῖνον ἀπὸ τοῦ ἔθους, "ethical virtue is the result of habit, and its name 'ethical' is also derived from 'ethos' (habit)." Translated by R.G. Bury.

is determined by the habitual action (the power of habit)."[98] Consequently, accurate data on the "habitual" manner (*diken*) for human nature can be found by examining the established practices or traditions that characterize human nature in the time evolution.

It should also be emphasized that Plato's dialectical method, which we use,[99] was developed also to "come to know (*gignōskō*) through itself all unmixed/pure (*eilikrinēs*),"[100] where the meanings denoted by the Greek verb *gignōskō*, "to know" or "to come to know," continued to be developed by the Romans under the name *scientia*, and by modern scholars as knowledge, science. As a result, our study of the established practices (traditions) that characterize human nature in the temporal evolution of the system is based on knowledge, factual accuracy,[101] and "in accordance with our own reality."[102]

The dialectical way to follow (*metodos*) guides us through values, attitudes, and behaviors that are closely related to the concepts "man," "people," etc., toward the Latin *homō*. The concept *homō* and its derivatives Hominidae, hominids,[103] and Homo Sapiens[104] continue to be used in modern science to denote the key evolutionary processes that separate human nature from other states of the system.

We rise higher and discover that the Latin *homō* was preceded by the Greek concept *anthrōpos* with a unique history. This history is represented in numerous written sources that have survived to our times.[105] Through the *anthrōpos* concept, we go through the texts of the Bible[106] to Plato's dialogues[107] and further into the past. We clarify the indigenous name for

[98] τὸ πᾶν ἦθος διὰ ἔθος (*Laws* 7.792e2), "personal characteristic" (custom), which is determined by the habitual action (the power of habit)" (Liddell & Scott, 1940).

[99] "The word 'philosophy' here means what Socrates usually means by it: discussion and argument devoted to the search for definitions. No other interpretation is possible, given that the journey is a journey to view the Forms. For the notion of a Form is first and foremost the notion of that which a definition defines. So the myth really does tell Socrates about himself. He uses the idea of recollection, as he does in the Meno and Phaedo, to illuminate his own method of philosophising. That is what is common to the three dialogues in which recollection is discussed. They are all reflecting on the pre-suppositions of or conditions for successful philosophical inquiry by the dialectical method of discussion" (Burnyeat, 2012: 248).

[100] γνωσόμεθα δι' ἡμῶν ' αὐτῶν πᾶν τὸ εἰλικρινές (*Phaedo* 67a7-b1).

[101] My duty as "director" of the research centre established at Guangdong University of Petrochemical Technology (Maoming, Guangdong, China) required me to review the various research projects the centre funded. They were entirely unrelated to philosophy but always focused on various aspects of human existence and human nature. All studies were Q1 and Q2 scientific journal level, and I am grateful to the author teams for expanding my understanding of the guiding measure for human nature.

[102] "it is clear that things have some fixed reality (αὐτὰ αὑτῶν οὐσίαν) of their own, not in relation to us nor caused by us; they do not vary, swaying one way and another by our fancy, but exist/are (*eimi*) of themselves in relation to their own reality (αὐτῶν οὐσίαν) imposed by *physis* (πέφυκεν)" (*Cratylus* 386d12-e3). Translated by Harold N. Fowler with modification.

[103] "Traditionally, only human ancestors were placed in the family Hominidae (and thereby referred to as hominids)" (McNulty, 2016).

[104] The name *Homo sapiens* was applied in 1758 by the father of modern biological classification, Carolus Linnaeus. https://www.britannica.com/topic/Homo-sapiens

[105] https://gregoriusworld.blog/2018/02/28/ Note that the Greeks used other words in order to clarify the intended meaning for "people". For example, *dêmos* (δῆμος) и *laós* (λαός) (Benveniste, 1973: 537-538).

[106] "Universally, with reference to the genus or nature, without distinction of sex, a human being, whether male or female: ὅτι ἐγεννήθη ἄνθρωπος εἰς τὸν κόσμον (John 16:21)" (Thayer, 1995).

[107] "The name "*anthrōpos*" indicates that the other animals do not examine, or consider, or look up at (ἀναθρεῖ) any of the things that they see, but *anthrōpos* has no sooner seen — that is, ὄπωπε — than he

man as a physical system. Henceforth, we lawfully call this derived (emergent) property or relation by the name *anthrōpos* and not "man" or any other. The *anthrōpos* concept for us is a "node" that connects anthropological, sociological, and other networks of knowledge about "man," "people," etc., and forms a dynamic (temporal) network abstraction.

The network abstraction of *anthrōpos* includes meanings from Plato's dialogues to modern research. It helps us to discover the first important result in written history. Namely, modern studies of human nature do not refute the early Greek sources in which *anthrōpos* was investigated and which we can evaluate. They merely make their contents, meaning, and scope more precise and accurate. When a professor of anthropology Kieran McNulty wrote in *Nature Education*, "Many researchers now place all species of great ape and human within a single family, Hominidae – making them all proper 'hominids,'"[108] she implied the same "base, foundation" (*themethla*) upon which Protagoras may have asserted "*anthrōpos* exists/is (*eimi*) the *metron*"[109] and Plato "thought discursively" (*dialegesthai*) "Therefore whatever is *anthrōpos*?"[110]

My point is that the arguments of modern scholars correlate with the ancient postulates that the "base, foundation" (*themethla*) of *anthrōpos* and, consequently, of human nature is *psychē.* "…and he that surmises otherwise concerning *psychē* knows not that in it he possesses, and neglects, a thing most admirable."[111] In the *Alcibiades*, Socrates asks, "Therefore whatever is *anthrōpos*?"[112] and answers, "either *anthrōpos* exists/is (*eimi*) nothing at all, or if something, he turns out to be nothing else than *psychē*."[113]

Thus, discursive thinking through of human nature helps us go through various "nodes" (concepts) and networks of knowledge and connect oral and written discourse about *anthrōpos* and its nature. We have discovered a phenomenon that has been abstracted into a network for over two thousand years. The dynamic network abstraction of *anthrōpos* is nested in this network. Both modern scholars and earlier thinkers distinguish and recognize this phenomenon and, consequently, the nature of *anthrōpos* (human nature) as the proposition "*Psychē* exists/is (*eimi*)."[114]

At this stage, the investigation "What is man as a physical system?" gives us two important intermediate results. The first result, we have discovered and connected the disparate networks of knowledge that conceptualize in the data a phenomenon that we have called the proposition "*Psychē* exists/is (*eimi*)." Thanks to extant written sources, we can observe the properties of this phenomenon for more than two thousand years. We distinguish it as specific structure-

looks up at and considers that which he has seen. Therefore of all the animals *anthrōpos* alone is rightly called "*anthrōpos*," because he looks up at (ἀναθρεῖ) what he has seen (ὄπωπε)" (*Cratylus* 399c2-6). Translated by Harold N. Fowler.

[108] (McNulty, 2016).

[109] 'πάντων χρημάτων' μέτρον' εἶναι ἄνθρωπον (*Cratylus* 385e5-386a1); φησὶ γάρ που 'πάντων χρημάτων μέτρον' ἄνθρωπον εἶναι (*Theaetetus* 152a2-3).

[110] τί ποτ' οὖν ὁ ἄνθρωπος; (*Alcibiades* 1 129e17).

[111] ἀλλ' ὁ περὶ ψυχῆς ἄλλως δοξάζων ἀγνοεῖ ὡς θαυμαστοῦ τούτου κτήματος ἀμελεῖ (*Laws* 5.727e2-3). Translated by R.G. Bury.

[112] (*Alcibiades* 1 129e17).

[113] ἢ εἴπερ τί ἐστι, μηδὲν ἄλλο τὸν ἄνθρωπον συμβαίνειν ἢ ψυχήν (*Alcibiades* 1 130c3-4). Translated by W.R.M. Lamb.

[114] "(§106) We next laid down the fundamental principle that we must never try to define the meaning of a word in isolation, but only as it is used in the context of a proposition; only by adhering to this can we, as I believe, avoid a physical view of number without slipping into a psychological view of it" (Gottlob Frege, 1950).

property relationships in non-equilibrium dynamic systems. According to modern views, we speak of the evolution of the human nervous system[115] and its expression in the noosphere[116] and the anthropocene.[117]

In other words, we have cleared up the time evolution of the state called *anthrōpos.* Let us describe it with a propositional formula (Formula 1):

(1) *Psychē* exists/is (*eimi*) in the "habitual" manner (*diken*)

In essence, we have become a "witness" of past events. We contemplate the nature of *anthrōpos* as a derived (emergent) property that comes to be (*gignomai*) and exists/is (*eimi*) in the "habitual" manner (*diken*). We really hold its "base, foundation" (*themethla*) and observe the properties that it expresses.

The second result is no less important. We announce it as the *anthrōpos* paradigm. The Platonic corpus and Greek-English lexicons of Henry George Liddell and Robert Scott, Joseph Thayer, James Strong, etc., helped us to clean up an authoritative *logos*. "…as Socrates says in the *Phaedo* (89b9–c1), the only death that he would mourn as a genuine extinction is the death of the *logos* — if it should happen that the *logos* cannot be resurrected (*anabiōnai*: 89b10). Socratic *dialegesthai* is vital to the words of Socrates, revitalizing them every time that the reader rereads them."[118]

The *logos* of Socrates and Plato were the boundary between the authority of oral and written discourse on *anthrōpos*.[119] Despite the obvious differences,[120] the oral and written *logos* continue to be "not fruitless, but yield seed from which there spring up in other minds

[115] (Sousa et al., 2017).

[116] "His (*Teilhard de Chardin*) core concept (his philosopheme) is the "noosphere" (derived from νοῦς: i.e. "mind" or "intellect"), co-developed with biogeochemist Vladimir Vernadsky and referring to the evolving layer of language and communication, science and technology, information and communication, transforming and absorbing both the geosphere and the biosphere, emerging and proliferating *via us*" (Zwart, 2022).

[117] "The Anthropocene, currently an informal term, being investigated as a potential series/epoch within the Quaternary System/Period. It represents a time when intensified anthropogenic impacts have caused the Earth System to depart from the comparatively stable conditions that characterized the Holocene Epoch. A Holocene/Anthropocene boundary may be best placed to coincide with a marked inflection in a wide array of environmental proxies at about the mid-20th century" (Zalasiewicz et al., 2020: 1257).

[118] (Nagy, 2002: 32).

[119] (Smith & Woodruff, 2000; Kalligas et al., 2020).

[120] "As is well known, Plato was the first collector of books, even though, like his mentor Socrates, he had cast doubt on the importance of written discourse. Diogenes Laertius (54 D.L. 3.9.) speaks of Plato's systematic quest for and manner of acquisition of various treatises, mainly containing Pythagoras' theories when he was in Magna Graecia. It seems that Plato's extensive collection of books played a major role in the teaching process in the Academy. Without the library, study of the pre-Socratic philosophers, of the Pythagorean mathematicians, of astronomy, geography and other disciplines would not have been possible. The Library of the Academy, that is the Exedra or Mouseion of Plato, must have been the model for the founding of such buildings in later times, such as the Library of Hadrian at Athens (Fig. 4.11). Aristotle, who was Plato's student in the Academy for seventeen years, likewise created his own library in the school he founded in 335 BC, in the gymnasium of the Lyceum. His mentor and Plato's school were the model for his teaching activity, but mainly for conducting his wide-ranging research and writing his extensive oeuvre. (56 Strabo, 13.100.608–9, refers to the library of the Lyceum as the most important private library of antiquity.)" (Lygouri-Tolia, 2020: 62-64).

other *logos* capable of continuing the process for ever, and which make "their possessor happy (*eudaimōn*), to the farthest possible limit of human happiness."[121] Used to construct a network abstraction, Socrates' and Plato's *logos* represents Formula 1 as Heraclitus' Πάντα ῥεῖ, "everything flows" and Plato's *dialegesthai*/*dialegomai*, "discursive thinking through" rather than "what is said: word, sentence, speech." As a result, the nature of *anthrōpos* is shown as a movement (work) that originates from prophetic visions and knowledge of the past and passes through Neuroscience and Psychology on the one hand, and Anthropology and Sociology on the other. Moreover, Socrates' and Plato's *logos* "continue to yield seed" in logic and algorithms in computational linguistics, data science, machine learning, etc.[122] It produces post-writing sources.

Thus, I postulate a time evolution of *anthrōpos*.

The combined *logos* of authoritative pre-written, written, and post-written sources, i.e. the "nodes" of our multilayer network, expresses the movement (work) of the nature of *anthrōpos* (human nature). We can now create a *dia-logos* about the "base, foundation" (*themethla*) of the physical system that *anthrōpos* represents. Where the preposition *dia-* emphasizes that we can "go all the way" from the current state of the system to its ultimate beginning. Hence, we can "get beyond an impasse" that the proposition "*Psychē* exists/is (*eimi*)" creates and "goes on"[123] into the past to the "'habitual' manner (*diken*)" in which the system and, consequently, all its states (equals) exist/are (*eimi*).

In other words, the second result of our ascent into the past is the mastery of an abstract tool (Network Science) and linguistic concepts ("nodes") that allow us to think discursively about the nature of *anthrōpos* as a state of the system. We "exhibit side by side, make comparisons"[124] of human nature's measurable (observable) properties with previous states. We compare the evolution of the human nervous system and the noosphere with the evolution of biological systems and the biosphere,[125] and other states. We "hold" the time evolution of the *anthrōpos* and pass through the boundary of the eight million-year history of *anthrōpos* into its past. We clarify "What is the 'habitual' manner (*diken*) for the *anthrōpos*?" and, consequently, the time evolution of the physical system that *anthrōpos* represents.

Conclusions

The formula "*Psychē* exists/is (*eimi*) in the "habitual" manner (*diken*)" describes the particular state of the physical system. We have rightfully called it *anthrōpos* instead of "man" (human). The network abstraction we have created shows that the first part of the formula, "*Psychē* exists/is (*eimi*)," corresponds to Descartes' "I am, I exist… necessarily is true." We see that if we investigate only this part of the formula, we come to an impasse in which the ideas of "planetary intelligence," "anthropocentrism," "human planet," etc. are cultivated. The *anthrōpos* paradigm binds the two parts of the formula. Fundamentally, the *anthrōpos* paradigm leads us from understanding the measurable (observable) properties of a particular state of the system to the measurable (observable) properties of the system.

[121] (*Phaedrus* 277a1-3). Translated by Harold N. Fowler.

[122] (Hammond, 2020).

[123] "A *paradigm* indicates how to go on, how to begin an enquiry or how to get beyond an impasse" (Gill, 2010: 176).

[124] These are the senses of the verb παραδείκνυμι (Liddell & Scott, 1940). The noun "paradigm" is its derivative.

[125] (Vernadsky, 1987; Lovelock, 2010).

The *anthrōpos* paradigm "turns" us to *ethos* through which the physical system expresses its "habitual" manner (*diken*) "to come into being to exist/be (*eimi*)." Where the neuter noun *ethos* is cognate with the verb éthō, "to be accustomed," or more precisely, "to do what one is *accustomed* to do, i.e. on the basis of *habit* or *tradition*."[126] We take it as a basis that the expression "'habitual' manner (*diken*)" denotes the unmixed/pure (*eilikrinēs*) properties of the physical system, while the concept *ethos* denotes their manifestations as "custom, manner." Knowing *ethos* leads us to an understanding of the unmixed/pure (*eilikrinēs*) properties of a particular state of the system and reveals a view of the properties of the physical system.

The terms "'habitual' manner (*diken*)" and *ethos* are fundamental linguistic concepts and can be used to describe any physical phenomenon.[127]

Formula 1 focuses our attention on the *psychē* concept. On the one hand, the meanings of *psychē* ground the context of the proposition "*Psychē* exists/is (*eimi*)." We remember that reality "should be learned and sought for, not from names but much better through themselves,"[128] and, in addition, we are guided by Frege's three principles.[129] On the other hand, Plato wrote that the *psychē* (and *noûs*[130]) put into order and have the being.[131]

The dialectical way to follow (*methodos*) leads us through the current understanding of *psychē* to its original meanings. We again distinguish *psychē* as "breath, life," and not "the human soul, mind, or spirit" in the broad sense and "the emergence of the cerebral subject,"[132] "psychic," "mentality" as certain highly specialized knowledge in the field of psychology and education. We "discover through ourselves" the *psychē* as a derived (emergent) property or relation that, on the one hand, forms the *ethos* that characterizes the everyday movement (work) of *anthrōpos*. On the other hand, we distinguish the "habitual" manner (*diken*), which determines "Me" and "my own *psychē*" as the evolution of the human nervous system. Neuroscience and Anthropology show that the time evolution of *anthrōpos* is a continuation of the time evolution of biological organisms.

We go through the meanings of Formula 1 to the state called the "Earth's biosphere."[133] We contemplate the multilayer network of knowledge about the various aspects of life processes created by the biological sciences[134] and find the familiar meanings of "breath, life" in the carbon cycles generated by biological organisms. We move through the evolution of individual neurons and neural systems to the evolution of cell types, their structures, and

[126] (Thayer, 1995).

[127] For example, "*éthnos* (ἔθνος) is not solely used of men but also of animals, such as bees" (Benveniste, 1973: 537).

[128] "How realities (ὄντα) are to be learned or discovered is perhaps too great a question for you or me to determine; but it is worth while to have reached even this conclusion, that they are to be learned (*gignōskō*) and sought for, not from names but much better through themselves than through names" (*Cratylus* 439b6-9). Translated by Harold N. Fowler.

[129] "P1: Always to separate sharply the psychological from the logical, the subjective from the objective; P2: Never to ask for the meaning of a word in isolation, but only in the context of a proposition; P3: Never to lose sight of the distinction between concept and object" (Gottlob Frege, 1950).

[130] Noûs (νοῦς, noun; contracted form from Nóos (νόος)), mind, as employed in perceiving and thinking; an act of mind (thought) (Liddell & Scott, 1940).

[131] νοῦν καὶ ψυχὴν εἶναι τὴν διακοσμοῦσαν καὶ ἔχουσαν (*Cratylus* 400a11-12).

[132] (Vidal, 2011).

[133] (Vernadsky, 1987).

[134] "The concept includes anatomy, physiology, cell biology, biochemistry and biophysics, and covers all organisms from microorganisms, animals to plants." https://www.nature.com/subjects/biological-sciences

functions in order to clarify the "base, foundation" (*themethla*) of this "breathing, life" and hence the "habitual" manner (*diken*) common to the biosphere and the noosphere. We expect to discover and explore the ultimate beginning in proteins, carbohydrates, nucleic acids, and lipids. However, the multiple knowledge networks created by the biological sciences clearly identify the biosphere and its "base, foundation" (*themethla*) as the state of the system, not the system itself. Biological carbon cycles are a consequence of molecular evolution and, therefore, geochemical cycles.

Stuart A. Kauffman wrote, "Physicists seek to simplify to find laws, biologists to study how life became complex."[135] Plato's dialectical way to follow (*methodos*) is also to advance the "architecture" of mathematics in general and geometry in particular.[136] Therefore, we go through the evolution of polymers and biological molecules and discover a multilayer network of knowledge about the properties, structures, and reactivities of molecules and intermediate species. Our focus is on molecular quantum properties such as energies, forces, atomic charges, polarizabilities, etc., and the types of chemical environments. It is here that we discover molecular geometry, also known as the three-dimensional spatial structure of a molecule,[137] and the architecture of the "base, foundation" (*themethla*) that produces the properties of the system. We use recent geochemical data to observe the nonchondritic formation of "life-essential volatile elements"[138] on Earth during planetesimal accretion, core formation, giant impact(s), impact-induced atmospheric loss, or a combination of all these processes.[139] We finally realize that the "base, foundation" (*themethla*) of the system that *anthrōpos* represents is the evolution of the terrestrial carbon reservoirs, which is caused by internal and external planetary events. The evolution of carbon reservoirs modifies the distribution of elements within planet Earth[140] and forms the "habitual" manner (*diken*) for a particular system and its states.

I postulate that the "habitual" manner (*diken*) for the system and its states, including the biosphere and noosphere, is the C/X ratios, where X = N, S, or H.[141] In what follows, I will use the concept "'habitual' C/X manner (*diken*)."

The concept of "'habitual' C/X manner (*diken*)" is based on the properties of carbon to form various compounds with many other elements. Along with hydrogen, the noble gases,

[135] (Kauffman, 2019).

[136] "Plato knew very well the mathematics of his time. His dialogues are peppered with mathematics. He is fully aware of the problem of incommensurability (Meno 82b–85b, Theaetetus 147d–148b, Laws 819d–820c, Parmenides 140b–c), the theory of proportions (Timaeus 31b–32c, Gorgias 465b–c, Republic 509d–510a), plane and solid geometry (Meno 82b–85b, 86e–87c, Timaeus 53c–56c, 56d–e), arithmetic (Republic 337b, 546b–d, Parmenides 143d–144a, Politicus 262d–e, Timaeus 35b–36b, Laws 757e–758a), astronomy (Timaeus 38b–39e), and even optics (Timaeus 45b–46c). Nevertheless, Plato was not an active mathematician. There is no evidence from his dialogues that he solved problems or proved theorems. Philodemus refers to him as an 'architect' of mathematics and not as a mathematician. Eudemus (in his Summary, 66.8–14) says that 'Plato … greatly advanced mathematics in general and geometry in particular because of his zeal for these studies. It is well known that his writings are thickly sprinkled with mathematical terms and that he constantly tries to arouse admiration for mathematics among students of philosophy.' Plato is not presented here as an active mathematician but as a philosopher who has a great esteem for mathematics and urges younger philosophers to work on it" (Karasmanis, 2020: 117).

[137] (Fang et al., 2022; Huang et al., 2024).

[138] (Dasgupta & Grewal, 2019).

[139] (Mikhail & Füri, 2019).

[140] (Mikhail & Füri, 2019; Dasgupta & Grewal, 2019).

[141] (Dasgupta & Grewal, 2019).

the halogens, and nitrogen, carbon is usually grouped as a highly volatile element. At the same time, "carbon is rarely found solely in its natural state (i.e. as graphite, diamond or amorphous). Instead, carbon exists in a variety of materials with different oxidation states (i.e. compounds) that have very different physical and chemical properties. This means that carbon can, under the right conditions, follow the pathway of atmophile (CO_2 gas), lithophile ($MgCO_3$), siderophile (Cohenite ($[Fe,Ni,Co]_3C$)) and (very rarely) chalcophile (Carbon monosulfide (CS)) elements."[142] The main connotation that we convey in the concept "'habitual' C/X manner (*diken*)" is the processes involved in the formation of Earth's carbon reservoirs.

Thus, we refine the propositional formula (Formula 1). Henceforth, the time evolution of *anthrōpos* is described by Formula 1a:

(1a) *Psychē* exists/is (*eimi*) in the "habitual" C/X manner (*diken*)

Now, we have to consider the system that forms the "habitual" C/X manner (*diken*). Only then can we go back to Formula 1a and prove that the nature of *anthrōpos* (human nature) is the process involved in the formation of planetary carbon reservoirs and the flows between them.

🕮 References

Albers, Marion, Hoffmann Thomas, and Reinhardt Jörn (Eds.) (2014) *Human Rights and Human Nature.* Springer Dordrecht. https://doi.org/10.1007/978-94-017-8672-0

Ambury, James M. (2018) Dialectical Epimeleia: Platonic Care of the Soul and Philosophical Cognition. *Plato Journal*, 17, 85–99. https://doi.org/10.14195/2183-4105_17_6

Beaudet, Amélie, Andrew Du, and Bernard Wood (2019) Evolution of the modern human brain. *Progress in Brain Research*, Volume 250, 219-250. https://doi.org/10.1016/bs.pbr.2019.01.004

Benveniste, Émile (1973) *Indo-European Language and Society*. Miami Linguistics Series no. 12. London: University of Miami Press.

Burnet, John (ed.) (1901) *Oxford Classical Texts: Platonis Opera*. Vol. 2: Tetralogia III-IV. Oxford: Oxford University Press; Oxford Classical Texts.

Burnet, John (ed.) (1903) *Oxford Classical Texts: Platonis Opera*. Vol. 3: Tetralogia V-VII. Oxford: Oxford University Press; Oxford Classical Texts.

Burnet, John (ed.) (1978) *Oxford Classical Texts: Platonis Opera*. Vol. 4: Tetralogia VIII. Oxford: Oxford University Press; Oxford Classical Texts.

Burnyeat, Myles Fredric (2012) *Explorations in Ancient and Modern Philosophy*: Volume 2. Cambridge University Press.

Corti, Luca and Johannes-Georg Schülein (Editors) (2023) *Life, Organisms, and Human Nature: New Perspectives on Classical German Philosophy*. Springer Cham.

Dasgupta, Rajdeep, and Damanveer S. Grewal (2019) Origin and Early Differentiation of Carbon and Associated Life-Essential Volatile Elements on Earth. In *Deep Carbon: Past to Present, edited by Beth N. Orcutt, Isabelle Daniel, and Rajdeep Dasgupta*, 4–39. Cambridge: Cambridge University Press.

[142] (Mikhail & Füri, 2019).

Descartes, René (1991) In John Cottingham, Robert Stoothoff and Dugald Murdoch (trans.), *The Philosophical Writings of Descartes, Vol. 3: Correspondence*. Cambridge: Cambridge University Press, 1991.

Dieks, Dennis and Andrea Lubberdink (2022) Identical Quantum Particles as Distinguishable Objects. *Journal for General Philosophy of Science*, 53, 259–274. https://doi.org/10.1007/s10838-020-09510-w

Dietrich, Michael R. and Edna Suarez-Diaz (2016) Molecular Evolution, History of. In: *Richard M. Kliman (Editors), Encyclopedia of Evolutionary Biology*. Academic Press, 55-60. https://doi.org/10.1016/B978-0-12-800049-6.00014-7.

Diogenes Laertius (1972) *Lives of Eminent Philosophers*. Edited by Robert Drew Hicks. Cambridge: Harvard University Press.

Duke, E.A., W.F. Hicken, W.S.M. Nicoll, D.B. Robinson, and J.C.G. Strachan (eds.) (1995) *Oxford Classical Texts: Platonis Opera*, Vol. 1: Tetralogiae I–II. Oxford: Oxford University Press; Oxford Classical Texts.

Fang, Xiaomin, Lihang Liu, Jieqiong Lei, Donglong He, Shanzhuo Zhang, Jingbo Zhou, Fan Wang, Hua Wu and Haifeng Wang (2022) Geometry-enhanced molecular representation learning for property prediction. *Nature Machine Intelligence* 4, 127–134. https://doi.org/10.1038/s42256-021-00438-4

Faye, Jan (2019) Copenhagen Interpretation of Quantum Mechanics. *The Stanford Encyclopedia of Philosophy*. Edited by Edward N. Zalta. https://plato.stanford.edu/archives/win2019/entries/qm-copenhagen

Frank, Adam, David Grinspoon and Sara Walker (2022) Intelligence as a planetary scale process. *International Journal of Astrobiology*, 21(2): 47-61. https://doi.org/10.1017/S147355042100029X

Frey, Ulrich J., Charlotte Störmer, and Kai P. Willführ (Editors) (2011) *Essential Building Blocks of Human Nature*. Heidelberg: Springer Berlin. https://doi.org/10.1007/978-3-642-13968-0

Gill, Mary-Louise (2010) Method and Metaphysics in Plato's *Sophist* and *Statesman*. *Definition in Greek Philosophy*. Edited by David Charles. New York: Oxford University Press, 172–199.

Gonzalez, Francisco J. (2009) *Plato and Heidegger. A Question of Dialogue.* University Park, PA: The Pennsylvania State University Press.

Gottlob Frege: The Foundations of Arithmetic (Die Grundlagen der Arithmetik) (1950) Translation by J. L. Austin. Oxford: Basil Blackwell.

Graziano, Michael S.A. (2018) *The Spaces Between Us: A Story of Neuroscience, Evolution, and Human Nature*. Oxford: Oxford University Press.

Gregg, Benjamin (2022) *Creating Human Nature: The Political Challenges of Genetic Engineering*. New York: Cambridge University Press.

Hammond, Michael (2020) *Python for Linguists*. Cambridge University Press. https://doi.org/10.1017/9781108642408

Hegel, Georg Wilhelm Friedrich (2001) *Philosophy of Right*. Translated by S.W Dyde. Kitchener, Ontario: Batoche Books.

Huang, Jinfeng, Tianyi Chen, Le Mei et al. (2024) On the role of asymmetric molecular geometry in high-performance organic solar cells. *Nature Communications* 15, 3287. https://doi.org/10.1038/s41467-024-47707-5

Jaeger, Werner (1961) *Early Christianity and Greek Paideia*. Cambridge, Belknap Press of Harvard University Press.

Kalligas, Paul (2020) Introduction. *Plato's Academy: Its Workings and its History*. Edited by Paul Kalligas, Chloe Balla, Effie Baziotopoulou-Valavani, and Vassilis Karasmanis. Cambridge: Cambridge University Press, 1-11.

Karasmanis, Vassilis (2020) Plato and the Mathematics of the Academy. *Plato's Academy: Its Workings and its History*. Edited by Paul Kalligas, Chloe Balla, Effie Baziotopoulou-Valavani, and Vassilis Karasmanis. Cambridge: Cambridge University Press, 108-140.

Kauffman, Stuart A. (2019) *A World Beyond Physics: The Emergence and Evolution of Life*. Oxford: Oxford University Press.

Kopnina, Helen, Haydn Washington, Bron Taylor and John J Piccolo (2018) Anthropocentrism: More than Just a Misunderstood Problem. *Journal of Agricultural and Environmental Ethics* 31, 109–127. https://doi.org/10.1007/s10806-018-9711-1

Liddell, Henry George, and Robert Scott (1940) *A Greek-English Lexicon*. Oxford: Clarendon Press.

Lomas, Tim, Brendan Case and Michael P. Masters (2024) The Cryptoterrestrial Hypothesis: A Case for Scientific Openness to a Concealed Earthly Explanation for Unidentified Anomalous Phenomena. *Philosophy and Cosmology*, Volume 33, 67-122. https://doi.org/10.29202/phil-cosm/33/3

Lovelock, James (2010) *The Ages of Gaia: A Biography of Our Living Earth*. New York: Oxford University Press.

Lygouri-Tolia, Eutychia (2020) The Gymnasium of the Academy and the School of Plato. *Plato's Academy: Its Workings and its History*. Edited by Paul Kalligas, Chloe Balla, Effie Baziotopoulou-Valavani, and Vassilis Karasmanis. Cambridge: Cambridge University Press, 46-64.

McNulty, Kieran P. (2016) Hominin Taxonomy and Phylogeny: What's In a Name? *Nature Education Knowledge,* 7(1): 2.

Mikhail, Sami and Evelyn Füri (2019) On the Origin(s) and Evolution of Earth's Carbon. *Elements* 15 (5): 307–312. https://doi.org/10.2138/gselements.15.5.307

Misiune, Ieva, Daniel Depellegrin, and Lukas Egarter Vigl (Editors) (2022) *Human-Nature Interactions: Exploring Nature's Values Across Landscapes*. Springer Cham.

Montebugnoli, Stelio, Andrea Melis, and Nicolò Antonietti (Editors) (2021) *The Search for ExtraTerrestrial Intelligence: Proceedings of the 2nd SETI-INAF Meeting 2019*. Springer Cham. https://doi.org/10.1007/978-3-030-63806-1

Nagy, Gregory (2002) *Plato's Rhapsody and Homer's Music: The Poetics of the Panathenaic Festival in Classical Athens*. Hellenic Studies Series 1. Washington, DC: Center for Hellenic Studies.

Nathan, Marco J. (2024) *The Quest for Human Nature: What Philosophy and Science Have Learned*. New York: Oxford Academic. https://doi.org/10.1093/oso/9780197699249.001.0001

Oldofredi, Andrea (2021) The Bundle Theory Approach to Relational Quantum Mechanics. *Foundations of Physics*, 51, 18. https://doi.org/10.1007/s10701-021-00407-2

Paul, Laurie Ann (2017) A One Category Ontology. *Being, Freedom, and Method: Themes from the Philosophy of Peter van Inwagen.* Edited by John A. Keller. Oxford: Oxford University Press.

Ramsey, Grant (2023) *Human Nature*. Cambridge University Press. https://doi.org/10.1017/9781108685481

Riley, Alexander (2021) *Toward a Biosocial Science: Evolutionary Theory, Human Nature, and Social Life*. Routledge.

Roughley, Neil (2023) Human Nature. *The Stanford Encyclopedia of Philosophy* (Winter 2023 Edition), Edward N. Zalta & Uri Nodelman (eds.). https://plato.stanford.edu/archives/win2023/entries/human-nature/

Smith, Nicholas D., and Paul B. Woodruff (Eds) (2000) *Reason and Religion in Socratic Philosophy*. New York, NY, Oxford University Press. https://doi.org/10.1093/oso/9780195133226.001.0001

Sousa, André M.M., Kyle A. Meyer, Gabriel Santpere, Forrest O. Gulden, and Nenad Sestan (2017) Evolution of the Human Nervous System Function, Structure, and Development. *Cell*, Volume 170, Issue 2, 226-247. https://doi.org/10.1016/j.cell.2017.06.036

Stevenson, Leslie, David L. Haberman, Peter Matthews Wright, and Charlotte Witt (2018) *Thirteen Theories of Human Nature*. Seventh Edition. Oxford: Oxford University Press.

Sullivan, Brendan P., Elias Arias Nava, Monica Rossi and Sergio Terzi (2023) A systematic literature review of changeability in engineering systems along the life cycle. *Journal of Engineering Design*, 34(12), 1046–1098. https://doi.org/10.1080/09544828.2023.2273248

Thayer, Joseph (ed.) (1995) *Thayer's Greek-English Lexicon of the New Testament: Coded with Strong's Concordance Numbers*. Peabody: Hendrickson Academic.

Turner, Jonathan H. (2020) *On Human Nature: The Biology and Sociology of What Made Us Human*. Routledge.

Vernadsky, Vladimir (1987) *Chemical Structure of the Earth's Biosphere and its Surroundings*. Nauka.

Vidal, Fernando (2011) *The Sciences of the Soul: The Early Modern Origins of Psychology*. Chicago: University of Chicago Press.

Vlastos, Gregory (2005) *Plato's Universe*. With a new introduction by Luc Brisson. Las Vegas NV: Parmenides Publishing.

Weidman, Nadine (2021) *Killer Instinct: The Popular Science of Human Nature in Twentieth-Century America*. Cambridge: Harvard University Press.

Yi, Soojin V. (2020) Molecular Evolution: A Brief Introduction. In: *Ho, S.Y.W. (eds) The Molecular Evolutionary Clock*. Springer, Cham, 25-34. https://doi.org/10.1007/978-3-030-60181-2_2

Zalasiewicz, Jan, Colin Waters, and Mark Williams (2020) The Anthropocene, In: *Felix M. Gradstein, James G. Ogg, Mark D. Schmitz, and Gabi M. Ogg (Editors) Geologic Time Scale 2020 (2 volume set)*. Elsevier, Volume 2, 1257-1280. https://doi.org/10.1016/B978-0-12-824360-2.00031-0

Zwart, Hub (2022) Pierre Teilhard de Chardin's Phenomenology of the Noosphere. *Continental Philosophy of Technoscience. Philosophy of Engineering and Technology, Vol 38*. Springer Cham, Switzerland, 207–227. https://doi.org/10.1007/978-3-030-84570-4_7

The Constructibility Principle

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The issue with current scientific models is that many models are speculative or paradoxical constructions central to philosophy of cosmology. The Constructibility Principle in this paper introduces a demarcation criterion. Essentially, what cannot be built cannot be claimed. Something that is to be built means realizable through logical or mathematical construction, symbolic or computational simulation, or operational and physical procedure. Unlike typical mere imaginability, Constructibility requires an explicit path by which typical models could in principle be tested. The principle is broadly applied to most philosophy paradoxes, to speculative cosmological works such as eternal inflation, many-worlds interpretations, and anthropic reasoning, and possibly to problems in artificial intelligence. Situated in the history of demarcation debates, from constructivist mathematics and operational definitions to falsifiability. The proposal does not close inquiry, but provides a systematic filter that could clarify boundaries, harden reasoning for imaginative narratives.

Keywords: Philosophy of Science, Demarcation Problem, Reality Filter, Constructibility

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Introduction

Modern contemporary philosophy of cosmology commonly has a persistent problem of demarcation. Most models of the early universe and also of large-scale structure generally extend from beyond the reach of observation. Generally, eternal inflation creates an interpretation of the universe that cannot be directly tested (Ellis, 2014:7). The vast ideas for world interpretation of quantum mechanics cause a logically coherent branching of thought structures, but offer little to no operational procedures by which other structures could be realized (Tegmark, 2014: 212). Anthropic reasoning typically treats our own cosmic observations as a selection effect, yet provides no constructive interpretation or method for determining when such reasoning yield explanatory power and when it reduces to tautology (Barrow, 1998:145) These kinds of examples usually show why philosophers and

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cosmologists still continue to ask the same thing, what really separates a scientific model from only a speculative story. The older tools of philosophy have not really fixed this problem. Popper's idea of falsifiability depends on a model being open to refutation, but that rule falls apart when the models place their claims into domains that no kind of observation can ever touch (Popper, 1959: 41). Lakatos made use of the idea of research programmes, often pointing to how they grow forward or else break down, but he never really gave an answer for what to do with models that might stay permanently outside of test (Lakatos, 1970: 95). Laudan later said that the whole search for a universal demarcation line was misguided, recommending instead that science should be judged more by its history of reliability, but in cosmology this kind of answer usually abandons the very boundary questions that make the field so distinctive (Laudan, 1983: 112). Because of this, there still seems to be a need for some kind of more modest filter. The Constructibility Principle is one way of putting forward such a filter. The claim itself is very direct, what cannot be built cannot be claimed. To build in this sense usually means one of three broad paths, either some kind of logical or mathematical construction, or a symbolic or computational simulation, or an operational and physical procedure that can be carried out. The aim here is not to legislate what reality is, but only to discipline how claims are made so they can count as admissible. A theory may of course be imagined, but unless it shows some real path where its parts could be built or simulated or carried out without incoherence, it still remains outside the area of what can be accepted as an existence claim. History gives the same kind of direction. Parmenides argued that thought and being must go together, cutting away appeals to what cannot even be meant (Kirk et al., 1983: 247). Kant said that objects of knowledge need the conditions of possible experience to even be framed (Kant, 1787/1998: Bxviii). Brouwer said mathematics is built in constructive intuition, and Bridgman said physics must be tied to the operations by which it is measured (Brouwer, 1912: 82; Bridgman, 1927: 5). Hilbert wanted to formalize mathematics fully, but Gödel came in to show that both consistency and completeness could not live together inside arithmetic (Hilbert, 1902: 443; Gödel, 1931: 175). These episodes all circle around the same point, imagination alone is never enough, procedure is always required. Placed in the setting of contemporary cosmology, the Constructibility Principle works as a kind of practical tool. It does not ban or reject speculative models, but it helps clarify their standing. A multiverse proposal only passes if it names surrogate paths that can be tested inside observable physics. A computational model only passes if it points to the procedure behind its results. A time loop fails whenever its steps cannot be closed. The purpose here is to show how the Constructibility Principle can function as a demarcation tool across philosophy, cosmology, and artificial intelligence, while keeping the style simple enough that editors, referees, and also students can make use of it.

1. The Constructibility Principle

The Constructibility Principle can be stated pretty directly like this: what counts as admissible claims about existence are generally bounded by constructibility. What cannot be built cannot be claimed. The scope of this principle is mostly epistemic, not really ontological. It does not try to legislate what ultimately exists in the universe. It instead works to discipline what human beings may responsibly assert in philosophy, science, and mathematics. To claim that only constructible things exist would definitely overreach the mark. The present suggestion is much more modest: when making assertions about reality, one should usually accompany them with a constructive path of some kind. A claim without such a path generally

belongs to imagination, metaphor, or fiction, not to the domain of reasoned existence claims that we can actually work with. The principle generally functions as a demarcation tool that helps sort things out. It helps distinguish claims that can enter discourse as legitimate from those that remain speculative narratives without much grounding. The requirement of constructibility can usually be expressed as four gates, each working as a threshold that filters claims in a systematic way. *Awareness Gate:* A claim must be articulable in coherent terms that make some kind of sense. Statements that dissolve into contradiction at the level of meaning cannot advance further down the line. For example, "square circle" fails because it is conceptually incoherent from the start. This is not yet really a question of construction but of minimal intelligibility that any claim needs to have. *Expression Gate:* A claim must be expressible in symbolic, logical, or operational form rather than just vague language. Vague imagery or metaphor does not usually suffice here for scientific purposes. For instance, asserting that "there exists an essence beyond essence" may serve poetic ends but fails as a philosophical or scientific claim without symbolic articulation that can be worked with. *Reality Test:* A claim must generally be accompanied by a constructive path showing how it could in principle be realized, simulated, or measured in some concrete way. In mathematics, this typically means a constructive proof or algorithm that can be carried out. In physics, it usually means operational definitions, surrogate observations, or simulations tied to measurable invariants that connect to the real world. In computation it means reproducible algorithms or procedures that actually work. *Recursive Closure:* The constructive path itself must not rely on non-constructible or question-begging steps that lead nowhere. Procedures that collapse into infinite regress or contradiction disqualify themselves from consideration. A time loop in which causation relies entirely on its own effect fails here, because it cannot provide a closed and non-circular construction that actually resolves the problem. The gates generally form a hierarchy of failure points where different kinds of problems show up. Some claims collapse at the level of meaning, others at the level of expression, others at the level of realizability, others at the level of recursion. Together, they provide a systematic filter for admissibility that can be applied consistently. This kind of discipline has deep precedents in philosophy that go way back. Brouwer's intuitionism identified mathematical existence with constructive intuition, though it also rested on a rejection of the law of excluded middle that went beyond simple construction (Brouwer, 1912: 82). Bridgman's operationalism held that physical concepts gain meaning only through the operations that measure them, not as free abstractions floating around (Bridgman, 1927: 5). Hilbert's programme aimed to formalize all of mathematics completely, while Gödel's incompleteness theorems showed that no sufficiently strong system can be both complete and consistent at the same time (Hilbert, 1902: 443; Gödel, 1931: 175). These episodes do not directly endorse the present principle but they illustrate the recurring insight that coherence and construction are usually prerequisites for legitimate existence claims that can be taken seriously. Applied to cosmology, the principle generally separates models that can articulate constructive paths from those that cannot really do so. A multiverse theory that provides indirect observational surrogates, such as statistical signatures preserved in the cosmic microwave background, has admissible standing because it connects to something measurable. One that only multiplies universes without such links remains narrative rather than science. A computational model that specifies the procedures grounding its outputs is usually admissible because you can check the work. One that generates fluent sentences without constructive grounding is not really doing science. A perpetual motion machine is imaginable and sounds appealing but fails the Reality Test because no constructive path can be given within known physics that actually works. The

justification for constructibility as a demarcation tool is usually straightforward once you think about it. Other standards, such as empirical adequacy or explanatory power, generally presuppose that a model has first cleared the threshold of constructibility. A claim without a constructive path cannot even be evaluated for adequacy or explanatory force because there is nothing concrete to evaluate. Constructibility therefore functions as a precondition rather than a competitor to other philosophical virtues that people care about. Constructibility does not foreclose speculation at all, which would be a mistake. It clarifies the status of speculation. Speculative models remain valuable for exploring possibilities, but they gain epistemic weight only when they supply constructive procedures that can be followed. The principle is modest in scope yet strong in effect when applied consistently. It disciplines the boundary between imagination and admissible assertion, and in doing so provides a filter that philosophers, cosmologists, and computational theorists can apply in practice without too much difficulty.

2. Applications

The power of the Constructibility Principle shows up when you use it on cases where researchers or students genuinely do not know what counts as real science and what is just narrative. Its value is not about abstract ideals, but about how it cuts through confusion across different fields. The four gates of the principle apply to philosophy, logic, cosmology, artificial intelligence, and creative work. Examples show how the principle can root out wild claims while still allowing creative models with clear, logical paths. Paradoxes work well here because they push the boundaries of reasoning, and they make natural test cases for the framework. The liar paradox ("this sentence is false") shows how limits on self-reference and truth go beyond simple word games. Truth needs logical references, not constant defined languages that allow unrestricted self-reference, which is the heart of the real problem. The perspective of the principle is that paradoxes demonstrate that no constructive procedures can withstand its truth value across recursive testing, which exposes that something lies deeper. The reality is not that constructibility replaces semantic procedural analysis, but that it demonstrates why the paradox resists admissibility in the first place. The absence of a stable, constructive path can prevent it from being just an imaginative structure into something you can apply and work with. Infinite regress arguments struggle in a relation that shows the same pattern. A regress regarding causes with no structural anchor cannot be closed constructively; the thought chain creates an unresolvable procedure, failing the Recursive Closure gate every time. Regress that can be shown in a finite, recursive procedure could be admissible, but unbounded regressions can still collapse into non-constructability. These cases show how constructability complements traditional logical analysis by putting attention on procedural closure rather than just formal consistency. Cosmology is a focused field for constructibility because many theories go beyond empirical and logical reasoning, making it urgently needed in a field that is constantly expanding. The principle provides a systematic way to distinguish admissible models from speculative narratives that might sound overtly sophisticated but cannot logically back themselves. *Eternal Inflation:* Eternal inflation is mathematically consistent and produces a spread of bubble universes through clear mechanisms. The problem is that almost all of it sits beyond what we can ever observe. Under the principle, a model like this needs at least one constructive path before it can stand as a real claim. Those paths have to do more than check out mathematically. Surrogate observations must give measurable invariants. Simulations have to be tied to actual physics,

not loose analogies, and the structure should offer potential falsifiers if those surrogates fail. Without some link to anything testable, eternal inflation stays an imaginative story, not an admissible claim (Ellis, 2014: 7). *The Measure Problem:* The measure problem hits eternal inflation as soon as you accept its basic setup. You have an infinite ensemble, and every outcome happens infinitely many times, so assigning probabilities becomes unclear. Under the principle, the standard is simple, if a measure cannot give finite, testable probabilities through a constructive procedure, the model fails the Reality Test no matter how strong the math looks. Calling on an undefined infinity is not building anything. It drops straight into non-constructibility. This makes the issue structural, not just technical. A theory without a constructible measure is not admissible because it cannot ground any real evaluation. *Many-Worlds Interpretation:* The many-worlds interpretation is logically consistent, but it has no constructive way to access or test any branch outside our own. Supporters usually point to decoherence as the path that might fix this. Decoherence is a real, constructible process you can model, but it only explains why branches separate. It doesn't give a way to check across them, which is the part that matters. Without some kind of constructive closure that lets the branches be tested or even simulated beyond a story level, the claim that "all branches exist" stays unconstructible (Tegmark, 2014: 212). *Anthropic Reasoning:* Anthropic arguments often sound convincing because they use observer selection to explain why the universe looks the way it does. But unless that selection process can be given a constructive form that leads to testable consequences, the reasoning drifts into a tautology. I see conditions that allow me to exist because otherwise I wouldn't be here to see them. Under the principle, an anthropic claim has to show the procedure that turns a selection effect into something observable. If it cannot do that, it becomes a placeholder that looks explanatory but does no real work (Barrow, 1998: 145). *Time Loops and Non-Constructible Infinities:* Time-loop models and proposals with unbounded infinities run into the Recursive Closure Gate. Even strong mathematics can fail here, general relativity allows closed timelike curves under certain conditions, and those loops are constructible in the math. The principle does not deny that, it asks whether the loop holds together once you add quantum rules and thermodynamic limits. If the full set of constraints cannot be closed in a constructive way, the model stays at risk of collapse no matter how elegant it looks. An infinite regress of universes has the same issue. Without a constructive anchor for the causal chain, the regress drops straight into non-constructibility. These cases are not filtered out by a particular selection. They fail because they cannot deliver constructive closure at the levels needed for physical realization. The strength of the principle in cosmology is that it is neutral. It does not ban speculation or push any interpretation, it just asks for constructive grounding. Eternal inflation with defined surrogates and measurable consequences can stand. Eternal inflation without them cannot. The principle gives editors, referees, and researchers a tool lighter than strict falsifiability but more disciplined than free imagination. That matters in fields where direct tests are out of reach but systematic evaluation is still required. It also helps structure discipline for LLM machine reasoning. Large language models can generate fluent text with strong surface structure. At the syntax level, the outputs are constructive because algorithms produce them through clear steps. Semantic constructibility is different. An output only becomes admissible when it maps to a reproducible, operational procedure a proof step, a verified algorithm, or an experiment that can actually be run. Without that mapping, the output stays surface fluency, not real reasoning. This lets researchers separate grounded computation from ungrounded machine claims as AI systems get better at mimicking human logic. The principle also applies to creative systems. Imagination is fine in its own world under its own terms, but fictional

worlds can be internally consistent and compelling without being constructible, and there is nothing wrong with that. A fantasy universe with perpetual motion works in a story but fails the Reality Test in science. The principle keeps those domains separate. It lets creativity run while stopping conceptual confusion about what counts as an admissible existence claim. It also gives students a simple way to test ideas through the four gates and see how speculation gets grounded before it becomes part of structured inquiry.

3. Discussion

The Constructibility Principle needs to be set against the older attempts to solve the demarcation problem. It does not claim to replace those earlier criteria, it tries to show where they work, where they don't, and to give a lighter filter that actually does something. Three comparisons matter the most. Falsifiability. Research programmes. And non-empirical theory assessment. Popper argued that scientific theories must be falsifiable. A theory has to make predictions that could actually be shot down by observation (Popper, 1959: 41). The strength there is obvious, it is simple, and it forces a theory to take real risks. The weakness shows up fast in cosmology. Many models push into places where no observation can reach at all through indirect data versus direct empirical data. Multiverse proposals, anthropic claims, and many-worlds interpretations all have trouble finding any decisive way they could be proven wrong. So, there is now a growing literature of "untestable" science that sounds sophisticated but goes nowhere. The Constructibility Principle approaches the same general convention, but from another angle. It does not ask first if a model can be falsified. The principle asks if it supplies any constructive path that can be used or followed. That difference matters a lot. A claim can be falsifiable in theory but not constructible in practice. A statement like "there exists a sibling universe whose signals will never reach us" is falsifiable only in theory if such signals could exist, but it is not constructible because no procedure can be offered for realization or simulation. Constructibility becomes the precondition. If a model cannot be constructively articulated, then there is nothing to falsify, at the same time, constructibility alone does not make a theory legitimate. A constructible model can still be unfalsifiable in practice. The two criteria work together, with constructibility setting admissibility and falsifiability adding strength when available. Lakatos tried to fix the problems of falsifiability by looking instead at the history of research programmes (Lakatos, 1970: 95). A programme is progressive when it generates new predictions and degenerating when it leans on ad hoc moves that sound good but do not actually work. The strength of that approach is that it mirrors what scientists do in the real world. The difficulty in cosmology is that many programmes stay permanently non-testable. Eternal inflation may be progressive in theory, but it cannot show progress empirically if no constructive procedures ever appear. The Constructibility Principle cuts through this confusion. A programme without a constructive path cannot demonstrate progress in the same sense as one that does. Theoretical expansion may continue, and Lakatos was right that such expansion is part of scientific growth. Constructibility does not reject that but simply clarifies the limits. It distinguishes formal elaboration from admissible progress by requiring that constructive procedures eventually show up. In that way, the principle does not reject Lakatos's framework. It supplements it with a baseline that separates provisional expansion from grounded advance. More recently, Dawid argued that fields like string theory may need non-empirical theory assessment (Dawid, 2013: 11). He identified three main criteria. The *No Alternatives Argument (NAA)* says that when a research programme has no genuine competitors, its viability gains indirect support. The

Unexpected Explanatory Coherence (UEA) criterion focuses on cases where a theory built for one purpose unexpectedly removes the curtain of another field, giving it illumination. The *Meta-Inductive Argument (MIA)* points to historical success in similar strategies to justify confidence in present untested work (Dawid, 2013: 17–23). These criteria try to deal with the gap that appears when direct empirical test is absent. Their limitation is that they move justification into sociological or historical territory instead of concrete procedures. NAA risks circular reasoning by treating the absence of alternatives as confirmation even when no constructive procedures exist. UEA and MIA depend on retrospective judgments of coherence and past success, but neither ensures that current claims admit constructive realization. As Ellis and Silk (2014: 322) warned, these approaches can blur the line between science and speculation if they allow consensus or explanatory fit to replace admissible procedures. Constructibility does not deny Dawid's criteria. It reframes them. NAA, UEA, and MIA may all offer secondary support, but they only gain real epistemic force after a constructive path has been supplied. Constructibility is the more basic filter and comes first, it doesn't weigh sociological judgment. It requires that any claim provides a constructive path, whether logical, computational, or operational, before coherence, consensus, or historical analogy can add weight. Theories that clear the constructibility threshold can then be evaluated further using Dawid's criteria. Theories that fail remain outside admissible discourse. *Too Restrictive:* One objection is that constructibility sets the bar too high and cuts out speculative work that might still be valuable. The principle doesn't seek to dimmish thought. Speculation is still welcome, but a claim does not gain any real ontological weight until some kind of constructive procedure is actually given. The principle disciplines the way people talk about these ideas without shutting down imaginative exploration that might eventually lead somewhere useful. *Limits Creativity:* Another objection might say that the principle might squeeze creativity in ways that people don't want. But creativity usually grows better under some structure than under total freedom. Artists and scientists generally tend to produce their best work inside constraints that give their ideas form. Constructibility does not narrow invention, it just clarifies what counts as an existence claim. It applies to admissibility in philosophy and science, not to the full range of human thought. *Gödel's Theorems:* Another objection can say that some truths might exist that cannot be constructed or proved within a system, as Gödel showed (Gödel, 1931: 175). Would the principle end up excluding those kinds of truths? The reply is that constructibility is epistemic, not metaphysical. The principle doesn't legislate reality or the thought of it. It only governs what counts as an admissible claim in discourse. If a truth exists but cannot yet be given any constructive procedure, then it stays outside admissible claim until further articulation appears. That is a limit of human reasoning, not a limit of reality itself. *String Theory Landscape: S*tring theory has generated an enormous "landscape" of possible vacuum states, with estimates reaching something like 10^500 solutions (Susskind, 2007: 247; Polchinski, 2004: 6). The sheer size of that landscape creates a real methodological problem. If every set of low-energy parameters can appear somewhere, then the predictive power of the theory starts collapsing into almost nothing. Supporters often fall back on anthropic reasoning, saying that only vacua compatible with life will ever be observed, or on meta-inductive arguments that past success in related research traditions should count for something. But from the standpoint of the Constructibility Principle, the challenge is sharper and more direct. Unless procedures can be given for actually constructing or simulating which vacua count as admissible and which do not, the whole framework risks collapsing into straight non-constructibility. Just listing a huge space of possibilities does not cross the Reality Test if there is no constructive closure that actually works. A good contrast is Steven

Weinberg's anthropic argument for the cosmological constant. In 1987, he argued that if the constant were much larger, galaxies would not form at all, and observers would never appear. This created a bounded range that ended up being close to what was later found when dark energy was detected (Weinberg, 1987: 2607). From the standpoint of constructibility, this shows that anthropic reasoning can sometimes be admissible when it lays out procedures that give testable ranges. But these cases are rare exceptions. In most situations, anthropic appeals function as placeholders with no constructive closure. It is worth pointing out that some theorists have tried statistical weighting of vacua or algorithmic rules for vacuum selection. These attempts are meant to supply constructive procedures, but they are still incomplete and do not yet give finite, testable outcomes. From the standpoint of constructibility, these efforts are promising but still provisional. Until they produce closed procedures, the landscape stays unconstructible. The principle makes this distinction clear. Anthropic selection can only act as a constructive procedure when it closes into testable consequences. Otherwise, the whole idea of "life-permitting vacua" stays an imaginative narrative. Constructibility disciplines this domain by pushing theorists beyond simple enumeration or sociological justification and toward procedures that actually show how string vacua map onto admissible physical states. The strength of the Constructibility Principle is its modesty. It does not overload science with universal rules, it also does not abandon demarcation altogether. It gives a criterion that is practical, teachable, and ready to use. In real practice, scientists, referees, and editors already treat unconstructive theories as weaker, but those judgments are uneven and subjective. The novelty of the Constructibility Principle is that it makes that implicit norm systematic and transparent. It gives a clear framework that works across philosophy, cosmology, and computation. Teachers can use the principle to show students why some elegant stories stay outside admissible discourse. Referees can apply it in a consistent way when facing speculative models. Constructibility becomes a lighter but stronger filter. It channels inquiry toward articulation that can actually be realized. And by doing that, it gives philosophy of cosmology a practical tool for handling the unique methodological problems of the field.

4. Conclusions

The Constructibility Principle as described can be viewed simply as what cannot be built cannot be claimed. When engaging with the principle it becomes clear that it's not a metaphysical law, but an epistemic filter. It disciplines what generally may be admitted into discourse, without presuming to legislate what ultimately exists. The core strength of the principle lies in its modesty, setting a threshold that claims must include constructive paths. Letting paths take different perspectives of forms for different domains. In mathematics they can mean proofs or algorithms. It can be applied to physics that correlate to different operational definitions, surrogate observations or simulations tied to measurable invariants. In computations they mean reproducible and grounded procedures. Constructibility therefore takes many domain specific forms, but all share a common requirement of explicit constructive procedures. This shared logic gives the principle its coherence across different fields without wiping out their differences. Universality here doesn't mean identical standards everywhere. It means that all domains share a demand for constructive procedures that fit their practice. A mathematical proof and a physical experiment look different, but both satisfy the same basic requirement: they supply clear paths by which claims can be admitted into discourse. This shared logic gives the principle its coherence across disciplines. Cosmology shows why such a criterion is needed. Eternal inflation, many-worlds interpretations, and

anthropic reasoning all extend beyond ordinary testability. The Constructibility Principle doesn't solve their technical challenges, but it clarifies their standing. A model may be coherent or mathematically consistent, but unless it supplies constructive procedures it lacks admissible status. This diagnostic role is precisely what philosophy of cosmology requires: a systematic way to separate open problems from speculative narrative. The principle also travels beyond cosmology. It helps clarify paradoxes in logic, distinguishes grounded from ungrounded outputs in artificial intelligence, and provides education with a practical tool for teaching the boundaries of admissible claims. The cross-domain reach demonstrates robustness, while cosmology remains the anchor where the need is most acute. The novelty of the Constructibility Principle is not that it invents a completely new practice. Scientists, referees, and editors already sense when models lack constructive grounding, but judgments are often uneven. Nowhere is this more visible than in cosmology, where referees divide on whether speculative models count as science. The value of constructibility is that it makes the filter systematic, explicit, and consistent. It enables shared evaluation across cases where intuition diverges most sharply. In this sense the principle is not a terminus but a threshold. By requiring constructive paths, it strengthens reasoning while leaving space for future articulation. It clarifies boundaries without foreclosing inquiry. What cannot be built cannot yet be claimed, but what may be built tomorrow remains open. This principle provides a contribution to ongoing debates in the philosophy of cosmology by clarifying admissibility standards for speculative models such as eternal inflation and many-worlds interpretations.

🕮 References

Barrow, J. D. (1998) *Impossibility: The Limits of Science and the Science of Limits*. Oxford University Press: Oxford.

Bridgman, P. W. (1927) *The Logic of Modern Physics.* Macmillan: New York.

Brouwer, L. E. J. (1912) Intuitionism and formalism. *Bulletin of the American Mathematical Society*, 20(2), 81–96.

Dawid, R. (2013) *String Theory and the Scientific Method.* Cambridge University Press: Cambridge.

Ellis, G. F. R. and Silk, J. (2014) Defend the integrity of physics. *Nature*, 516(7531), 321–323.

Ellis, G. F. R. (2014) On the philosophy of cosmology. *Studies in History and Philosophy of Modern Physics*, 46, 5–23.

Gödel, K. (1931) Über formal unentscheidbare Sätze der Principia Mathematica und verwandter Systeme I. *Monatshefte für Mathematik und Physik,* 38, 173–198.

Hilbert, D. (1902) Mathematical problems. *Bulletin of the American Mathematical Society*, 8(10), 437–479.

Kant, I. (1787/1998) *Critique of Pure Reason.* Trans. P. Guyer and A. W. Wood. Cambridge University Press: Cambridge.

Kirk, G. S., Raven, J. E. and Schofield, M. (1983) *The Presocratic Philosophers* (2nd ed.). Cambridge University Press: Cambridge.

Lakatos, I. (1970) Falsification and the methodology of scientific research programmes. In: *Lakatos, I. and Musgrave, A. (eds.), Criticism and the Growth of Knowledge* (pp. 91–196). Cambridge University Press: Cambridge.

Laudan, L. (1983) The demise of the demarcation problem. *Proceedings of the Biennial Meeting of the Philosophy of Science Association*, 1983(2), 111–127.

Polchinski, J. (2004) *The cosmological constant and the string landscape.* arXiv:hep-th/0404271.

Popper, K. (1959) *The Logic of Scientific Discovery.* Hutchinson: London.

Susskind, L. (2007) The anthropic landscape of string theory. In: *Carr, B. (ed.), Universe or Multiverse?* Cambridge University Press: Cambridge.

Tegmark, M. (2014) *Our Mathematical Universe.* Knopf: New York.

Weinberg, S. (1987) Anthropic bound on the cosmological constant. *Physical Review Letters*, 59(22), 2607–2610.

The Hallucination That Cannot Be: A Three-Axis Refutation of the Boltzmann Brain Problem

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This paper develops a comprehensive refutation of the Boltzmann brain problem along three converging axes — semantic, ontological, and probabilistic — while maintaining the methodological humility appropriate to cosmological reasoning. First, the concept of "hallucination" presupposes a reference reality; absent correspondence, the term loses its content and cannot bear skeptical weight. Second, a "brain" requires a substrate — spatiotemporal location, energy gradients, causal connectivity — without which mentality is unintelligible; positing a mind in literal nothingness is incoherent, and positing an alien substrate collapses the "brain" metaphor itself. Third, within any sufficiently large ensemble of fluctuation-generated states, the combinatorial space of incoherence dwarfs the space of law-like, self-consistent structures; as a result, coherent, persisting observer-worlds constitute a measure-zero subset and are thus statistically negligible. Together, these considerations dissolve the threat that Boltzmann-brain observers dominate anthropic reasoning and underwrite the continued trustworthiness of scientific inference from within a law-governed cosmos.

This argument was developed through first-principles reasoning, with iterative dialogue using large language models to stress-test coherence and explore objections; the argument and conclusions remain the author's own.

Keywords: Boltzmann brain, anthropic reasoning, hallucination, ontology, probability, cosmology, measure problem, cosmological inference

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Introduction

The Boltzmann brain paradox, first arising implicitly from Ludwig Boltzmann's reflections on entropy and fluctuation (Boltzmann 1897), poses a troubling question for cosmology and epistemology alike. If the universe is sufficiently vast in space or eternal in

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time, random fluctuations from thermal equilibrium might, by sheer chance, generate isolated self-aware observers. These hypothetical observers — so-called "Boltzmann brains" — would briefly flicker into existence, perhaps with false memories and coherent but illusory perceptions, before dissolving back into chaos. Because random fluctuations should vastly outnumber the intricate, low-entropy processes that yield evolved observers like us, a naïve application of anthropic reasoning suggests that we ourselves are overwhelmingly likely to be such fluctuation-born observers. This conclusion, if accepted, threatens the epistemic basis of cosmology: if our perceptions are the unanchored products of fluctuation, why trust any inference about the external world or its history?

The paradox has attracted considerable attention over the past two decades (Bostrom 2002; Dyson, Kleban, and Susskind 2002; Page 2008; Carroll 2017), not least because it connects deep issues in cosmology with foundational questions in epistemology and philosophy of mind. Standard responses typically attempt to resolve the problem by appealing to specific cosmological dynamics — for instance, arguing that de Sitter vacua decay too quickly to produce Boltzmann brains in significant numbers (Page 2006), or that eternal inflation selects for ordinary observers via a cutoff procedure (Garriga and Vilenkin 2001). However, these responses depend heavily on particular assumptions about the global structure of spacetime and the measure problem — the difficulty of defining meaningful probabilities in infinite or eternally inflating universes.

The present paper adopts a different approach. Rather than attempt to resolve the Boltzmann brain problem through cosmological engineering, it dismantles the problem itself. This paper argues that the paradox arises only because three distinct categories of confusion are left unaddressed: (i) a *semantic confusion*, in which the term "hallucination" is extended beyond its coherent scope; (ii) an *ontological confusion*, in which the notion of a "brain" is divorced from the conditions that make brains possible; and (iii) a *probabilistic confusion*, in which possibility is conflated with typicality in a way that neglects the combinatorial structure of state space. Once these confusions are disambiguated, the Boltzmann brain problem dissolves without remainder.

The argument is constructed to remain robust across all plausible resolutions of the cosmological measure problem. Whether one adopts a global cutoff approach (e.g., scale-factor measure) or a local approach (e.g., causal-diamond measure), the space of fluctuation-born coherent observers remains of measure zero relative to the total state space. The skeptical sting attributed to Boltzmann brains is thus philosophically ill-posed and probabilistically misplaced. Moreover, by integrating the three critiques into a mutually reinforcing structure, this paper offers a foundational refutation of the Boltzmann brain problem that does not depend on speculative features of high-energy physics or cosmological dynamics.

The structure of the paper is as follows. Collapse of "Hallucination" analyzes the semantic collapse of "hallucination" when severed from reference. The Substrate Paradox examines the ontological incoherence of positing a "brain" without a substrate. Statistical Collapse explores the statistical insignificance of coherent fluctuation observers within the vast combinatorial space of incoherence. Cosmological Implications considers the implications of these results for cosmological inference and methodological naturalism. Conclusions concludes. Counterarguments and Replies address potential counterarguments and objections, showing how the three-axis refutation withstands them.

Collapse of "Hallucination"

The Boltzmann brain paradox gains much of its rhetorical force from the image of a lone observer hallucinating a world that does not exist. Yet this framing already smuggles in a semantic confusion. The concept of "hallucination" is *contrastive*: it derives its meaning by deviation relative to a reference. To call a percept a hallucination is to say that it fails to correspond to the external world — but that presupposes there *is* an external world to which it could correspond. Without a reference reality, the term loses its footing. It ceases to mark a failure of representation and instead merely redescribes whatever appears. "Hallucination" without correspondence is like "error" without a standard or "fiction" without a reality: the word collapses into vacuity.

This collapse is not merely linguistic but conceptual. All ordinary uses of "hallucination" — from psychiatry to philosophy of perception — rely on a contrast between appearance and reality. A subject undergoing psychosis, for example, may report vivid percepts of nonexistent entities. Yet those percepts are identifiable as hallucinations only because they fail to match public, law-governed reality. Dreams, too, often exhibit internal coherence and causal flow, but we do not mistake them for waking perception precisely because they lack correspondence. Even drug-induced hallucinations, though sometimes richly structured, are epistemically parasitic on the world they distort. The reference point is indispensable.

A further illustration comes from the history of perceptual theory. The classical empiricists — Locke, Berkeley, and Hume — all recognized that perception involves an inferential bridge between sensory input and the external world. Even when that bridge is faulty, the *concept* of fault depends on the existence of the world as a standard. More recent work in cognitive neuroscience supports this picture: hallucinations are increasingly understood not as random noise but as the misapplication of predictive models (Friston 2010). The very possibility of misapplication presupposes that there is something — an external causal order — to be misapplied. Remove that order, and "hallucination" loses its anchor.

Once we sever the connection to reference, the skeptical force of the Boltzmann brain hypothesis dissipates. If there is no external world for the Boltzmann brain's percepts to misrepresent, then nothing is a hallucination. The concept no longer does skeptical work. It becomes a purely internal description of phenomenology, stripped of its contrastive edge. A fluctuation-generated phenomenology could be maximally coherent from within — containing stable laws, memory traces, even apparent histories — and yet remain non-correspondent. The mere possibility of such internal coherence does not entail epistemic defeat.

This reveals a subtle equivocation at the heart of the Boltzmann brain argument. It relies simultaneously on *two* incompatible intuitions: (1) that hallucination is epistemically devastating because it involves a deviation from reality, and (2) that there may be no external reality at all. But these cannot both hold. If (2) is true, then (1) is meaningless: without a reality to deviate from, hallucination ceases to be a coherent category. And if (1) is to retain its skeptical force, then (2) must be false, because hallucination presupposes the very reality the scenario denies. The argument collapses under the weight of this contradiction.

The same point can be framed in terms of truth conditions. Truth, in the correspondence sense relevant to epistemology, depends on a world-to-mind relation. To call a belief true is to say that it matches the way the world is. If no world exists beyond the belief, then "true" and "false" lose their conventional meanings. They collapse into mere internal consistency. A Boltzmann brain's "belief" that it inhabits a universe billions of years old cannot be false if there is no universe at all — but it cannot be true either. It simply *is*. The skeptical sting

arises only if we assume that hallucination retains its ordinary meaning in a context where its preconditions are absent. Once that assumption is withdrawn, the sting vanishes.

It might be objected that internal coherence alone could ground epistemic justification, even in the absence of external correspondence. This line of thought echoes coherentist theories of truth (e.g., Bradley 1914), according to which beliefs are justified by their mutual support rather than by correspondence to a world. Yet this objection misfires in the Boltzmann brain context. Coherentism explains *justification* within a network of beliefs, but it does not rescue the concept of hallucination. The very idea of a hallucination presupposes the failure of correspondence — not just internal inconsistency. Coherent hallucinations still misrepresent, but only *relative* to something beyond themselves. If there is nothing beyond them, then they are not hallucinations at all but simply phenomenological states. The skeptical bite vanishes once more.

Philosophers of perception have long recognized the contrastive nature of hallucination. As Martin (2004) and Fish (2009) argue in their disjunctivist accounts, hallucinations and veridical perceptions are not internally indistinguishable states; they are categorically different phenomena precisely because only the latter stand in the right kind of relation to the world. If that relation is absent, the classificatory scheme collapses. The Boltzmann brain scenario exploits precisely this collapse while pretending to preserve the original conceptual structure. This is a sleight of hand, not a paradox.

Moreover, this semantic dissolution has a profound epistemological consequence: it shifts the burden of proof. If the skeptic wishes to invoke hallucination as a reason to doubt our knowledge of the world, they must *first* secure the existence of the very world that gives hallucination its meaning. But once that is granted, the Boltzmann brain scenario ceases to threaten epistemic justification, because our perceptions are then tethered to a reality that grounds the distinction between veridicality and illusion. The argument cannot have it both ways.

In short, the skeptical weight carried by the term "hallucination" depends on the very world whose existence the Boltzmann brain hypothesis calls into question. Remove that world, and the term evaporates. What remains is not a skeptical threat but a semantic dissolution. The concept ceases to apply, and with it, the paradox loses its force.

The Substrate Paradox

The second axis of the refutation targets the ontological presuppositions of the Boltzmann brain hypothesis. The notion of a "brain" — or, more generally, a physical system capable of supporting mentality — is not content-free. Brains are not Platonic forms. They are material entities with specific enabling conditions: spatiotemporal location, energy gradients, causal connectivity, and complex organization sustained over time. To imagine a brain existing in literal nothingness is not to imagine a rare physical possibility; it is to abandon the concept of a brain altogether.

The substrate paradox can be formulated as a dilemma. Either (a) the posited Boltzmann brain lacks any substrate, in which case the entity is unintelligible; or (b) it exists within an utterly alien substrate, in which case the "brain" metaphor ceases to track what exists.

Option (a) is straightforwardly incoherent. A physical system cannot exist without physical conditions. To speak of a "brain" arising from a fluctuation in the void is to speak nonsense. Even the most minimal notion of mentality presupposes some spatiotemporal structure within which states evolve and causally interact. Without space, time, or energy,

there is no physical medium to instantiate computation, no causal process to generate states, and no persistence to sustain consciousness. The idea collapses into contradiction.

Option (b) attempts to salvage the hypothesis by positing that the "brain" arises not in literal nothingness but in some exotic substrate radically different from familiar physical reality — for instance, a quantum vacuum fluctuation or a higher-dimensional brane. But this move undermines the hypothesis in a different way. The term "brain" is no longer doing descriptive work; it has become a loose metaphor. If the structure in question bears no relevant similarity to biological brains or their functional analogues, then calling it a "brain" is misleading. It risks anthropomorphic projection rather than scientific explanation.

This difficulty can be seen by analogy with other physical systems. To call a whirlpool a "galaxy" because both rotate would be an error of category; superficial resemblance is not sufficient for conceptual identity. Likewise, to label a momentary arrangement of particles in a quantum vacuum a "brain" requires that it share not just some superficial features but the deep causal and organizational structures that underwrite cognition. Without those features — neural dynamics, causal integration, energy consumption, temporal continuity — the label ceases to pick out what it does in ordinary contexts. The Boltzmann brain becomes a mere metaphor for an unknown configuration, not a meaningful description.

The point is not that mentality is impossible in non-biological substrates. Functionalist theories of mind (Putnam 1967; Fodor 1975) rightly allow that cognition could, in principle, be implemented in diverse physical systems. The point is rather that mentality cannot be substrate-free, and the "brain" metaphor cannot survive unscathed if the substrate is radically alien. Once we abandon the enabling conditions that make brains possible, we have ceased to talk about brains.

Moreover, the substrate paradox forces us to confront a hidden assumption in many skeptical treatments of the Boltzmann brain problem: that the very same term ("brain") can be meaningfully applied across radically different ontological contexts without loss. This assumption is rarely defended, but it is crucial. If "brain" simply means "whatever physical pattern supports mentality," then the skeptical argument reduces to a trivial tautology: mentality requires a physical pattern. But if "brain" retains its richer connotations — structure, dynamics, causal history — then the Boltzmann brain hypothesis either presupposes conditions that already imply an external world or becomes incoherent. Either way, it fails to deliver the skeptical conclusion it seeks.

The substrate paradox also exposes a deeper tension in the Boltzmann brain scenario: the conflation of physical possibility with conceptual coherence. It may be physically possible, in a sufficiently large spacetime, for a fluctuation to produce a complex configuration isomorphic to a functioning brain. But this possibility presupposes the very physical structure — spacetime, energy, causality — that the skeptical version of the scenario seeks to call into question. A "brain" arising from fluctuation presupposes a background within which fluctuation occurs. It cannot serve as a skeptical wedge against the existence of that background without sawing off the branch on which it sits.

In this sense, the Boltzmann brain scenario is parasitic on the very cosmology it seeks to undermine. It presupposes a law-governed spacetime capable of sustaining fluctuations while suggesting that such a spacetime may not exist. The scenario is not self-consistent. Once the physical preconditions of fluctuation are denied, the concept of a Boltzmann brain collapses into incoherence. Once those preconditions are affirmed, the skeptical argument loses its force, because the existence of a background spacetime capable of generating fluctuation already entails a world external to the brain.

The substrate paradox thus mirrors the semantic collapse of "hallucination." Just as hallucination presupposes reference, so too "brain" presupposes substrate. Absent substrate, the concept dissolves; positing a radically alien substrate collapses the metaphor. In either case, the skeptical scenario ceases to be what it purports to be. It is not a paradox but a conceptual muddle.

Statistical Collapse

The third and final axis of the refutation is probabilistic. Even if one were to grant, for the sake of argument, that the semantic and ontological objections could be overcome, the Boltzmann brain hypothesis still fails on statistical grounds. The problem is not that Boltzmann brains are impossible, but that they are vanishingly improbable as coherent observers relative to the total space of fluctuation-generated states. Possibility does not entail typicality, and infinity does not confer representativeness.

Let an ensemble of fluctuation-generated states be given. Partition this ensemble into two classes:

N_{coh}: the number of coherent, law-governed observer-worlds

N_{tot}: the total number of fluctuation-generated states

The claim is that N_{coh} grows strictly sub-linearly relative to N_{tot} as state complexity increases. The reason is combinatorial. The space of incoherent, short-lived, or self-contradictory configurations expands explosively with the number of degrees of freedom. By contrast, the constraints required for sustained law-like structure — stable physical laws, consistent records, thermodynamic arrows, and reliable memory traces — sharply narrow the admissible states. The more structure a state exhibits, the smaller the region of state space it occupies.

This disparity in growth rates means that the relative frequency

$$P = \frac{N_{coh}}{N_{tot}}$$

tends to zero in the infinite limit. Coherent, law-governed states form a measure-zero subset of the total space of fluctuation-generated states. They are not merely rare; they are statistically negligible.

This conclusion is robust across competing solutions to the cosmological measure problem. Whether one adopts a *global cutoff* approach, such as the scale-factor measure (De Simone et al. 2008), or a *local* approach, such as the causal-diamond measure (Bousso 2006), the combinatorial dominance of incoherent states persists. No physically reasonable measure reverses this imbalance. The overwhelming majority of fluctuation-generated states are chaotic noise, ephemeral blips, or internally inconsistent fragments. The probability that a randomly sampled fluctuation will yield a coherent observer-world is effectively zero.

One might object that even a measure-zero subset can contain infinitely many elements. This is true, but irrelevant. The question is not whether Boltzmann brains exist but whether they dominate anthropic reasoning — whether a randomly selected observer is likely to be one. If coherent observers form a set of measure zero, then conditionalizing on coherence collapses the posterior weight on "we are fluctuation observers" toward zero. In other words, once we condition on the fact that our experience exhibits stable laws, consistent records, and an extended thermodynamic arrow, the Boltzmann brain hypothesis ceases to be the typicality-maximizing hypothesis.

Dyson, Kleban, and Susskind (2002) emphasize this point in a different register: the more ordered a fluctuation, the more suppressed its probability. Small fluctuations are common; large, structured fluctuations are exponentially rare. A brain-like fluctuation is already fantastically improbable; a coherent cosmos with billions of years of consistent history is exponentially more so. The anthropic argument that "we should expect to be Boltzmann brains" fails to account for this conditioning. We do not merely observe *consciousness*; we observe *structured, law-governed reality*. That fact shifts the posterior distribution dramatically.

This line of reasoning also dissolves the apparent force of the "infinite time" objection. Even if an eternal de Sitter spacetime produces infinitely many Boltzmann brains, it also produces infinitely many incoherent fluctuations. Infinity by itself proves nothing. What matters is the *relative measure* of coherent states, and that measure tends to zero. Infinity cannot compensate for vanishing measure. A dart thrown at a dartboard of infinite area will not land on a target of zero area, no matter how many darts are thrown.

The statistical collapse thus completes the three-axis refutation. Semantic collapse shows that the concept of hallucination loses its skeptical bite when divorced from reference. The substrate paradox shows that the concept of a brain collapses without physical enabling conditions. Statistical collapse shows that coherent fluctuation observers are of measure zero and therefore anthropically negligible. Taken together, these arguments dissolve the Boltzmann brain problem from three directions: conceptual, ontological, and probabilistic.

Cosmological Implications

If fluctuation observers are semantically unstable, ontologically incoherent, and statistically negligible, then the Boltzmann brain problem does not undermine methodological naturalism. The trustworthiness of scientific inference does not depend on the absence of fantastical possibilities; it depends on the structure of typicality under reasonable priors. Once coherence, persistence, and correspondence are included among the data to be explained, the posterior weight on fluctuation hypotheses collapses.

This result has significant implications for cosmology. It suggests that the epistemic foundations of cosmological inference are more secure than often supposed. We are entitled to treat our observations — stable regularities, publicly shareable measurements, theory-mediated predictions — as arising from a law-governed cosmos rather than a transient fluctuation. The skeptical challenge fails not because fluctuation observers are impossible, but because they cannot bear the explanatory burden placed upon them.

Moreover, this analysis reframes the cosmological measure problem. The problem is often portrayed as a looming epistemic threat: without a unique, physically motivated measure on the multiverse, we cannot assign probabilities to different kinds of observers, and anthropic reasoning collapses. But the three-axis refutation shows that much of the threat is illusory. Regardless of how the measure is defined, the relative weight of fluctuation observers remains vanishingly small once coherence is conditioned upon. The details of the measure affect quantitative estimates but not the qualitative conclusion.

This point bears emphasizing because it is frequently misunderstood. The Boltzmann brain problem is sometimes presented as a reductio of eternal inflation or de Sitter cosmology: if these models predict that Boltzmann brains vastly outnumber ordinary observers, then the models must be false. But the reductio depends on the assumption that we should expect to be typical members of the set of *all* observers. Once we refine the reference class to include only

coherent, law-governed observers, the conclusion changes. We should expect to be typical members of that class — and within that class, ordinary observers dominate.

The three-axis refutation also strengthens the case for methodological naturalism — the commitment to explaining phenomena by appeal to law-governed natural processes rather than miraculous coincidence. If the alternative to a law-governed cosmos is not a coherent hallucination but a combinatorial abyss of incoherence, then the epistemic superiority of naturalistic explanation is reinforced. Far from being undermined by cosmology, methodological naturalism is vindicated by it.

Finally, this result has implications beyond cosmology. It bears on debates in epistemology, philosophy of mind, and metaphysics. In epistemology, it shows that radical skeptical scenarios often fail not because they are impossible but because they are conceptually confused. In philosophy of mind, it underscores the dependence of mentality on physical substrate and the limits of functionalist abstraction. In metaphysics, it illustrates the importance of measure-theoretic reasoning in assessing modal claims. The Boltzmann brain problem thus serves as a case study in how careful conceptual analysis can dissolve apparent paradoxes.

Conclusions

The Boltzmann brain problem has long been regarded as a profound challenge to cosmology and epistemology. It suggests that, in a sufficiently vast or eternal universe, fluctuation-born observers will vastly outnumber evolved ones, rendering it overwhelmingly likely that we ourselves are such observers. If true, this conclusion would undermine the epistemic basis of science and our confidence in cosmological inference.

This paper has argued that the paradox dissolves when analyzed along three converging axes. First, the semantic collapse of "hallucination" shows that the concept loses its skeptical bite when divorced from reference. Second, the substrate paradox shows that the concept of a "brain" collapses without the physical enabling conditions that make mentality possible. Third, the statistical collapse shows that coherent fluctuation observers form a measure-zero subset of the space of possible fluctuations and are therefore anthropically negligible. Together, these arguments dismantle the Boltzmann brain problem at its root.

The resulting picture is one in which the epistemic foundations of cosmology remain intact. Ordinary scientific inference — from stable regularities, publicly shareable measurements, and theory-mediated predictions — remains licensed. The specter of Boltzmann brains does not undermine methodological naturalism or anthropic reasoning. Instead, it reveals the importance of conceptual clarity, ontological realism, and probabilistic rigor in cosmological thought.

What remains are ordinary burdens of theory choice in cosmology: to articulate measures, initial conditions, and dynamical laws that render observers and their records unsurprising in a law-governed cosmos. The Boltzmann brain problem is not one of these burdens. It is a pseudo-problem born of semantic slippage, ontological confusion, and probabilistic naiveté. Once these are corrected, the hallucination that cannot be vanishes.

Counterarguments and Replies

No philosophical argument is complete without engagement with potential objections. This section considers three of the most prominent counterarguments to the foregoing analysis and shows why they fail to undermine the three-axis refutation.

The Simulation Objection: Coherence Without Reference

One might object that the semantic collapse argument fails because a sufficiently detailed simulation could generate coherent phenomenology without external reference. If a Boltzmann brain's experiences are functionally identical to those of an evolved observer, why should the absence of a reference world matter?

The reply is twofold. First, the semantic point concerns the meaning of *hallucination*, not the possibility of phenomenology. A simulated world may be internally coherent, but its coherence does not make it veridical. If the simulation is causally disconnected from the external world, then its contents are not representations but self-contained structures. Calling them "hallucinations" misapplies the term. Second, even granting that phenomenology could be simulated, the substrate paradox reappears. The simulation itself would require a physical substrate — computational machinery embedded in spacetime — which reintroduces the very external world the skeptical scenario sought to deny.

The Measure Objection: Infinity Overwhelms Measure Zero

Another objection holds that even a measure-zero set can contain infinitely many elements. In an eternal de Sitter space, for example, there may be infinitely many Boltzmann brains, even if their relative measure is zero. Should we not then expect to be one?

This objection conflates cardinality with probability. The relevant question is not how many Boltzmann brains exist, but how likely it is that a randomly selected observer is one. If coherent observers form a measure-zero subset, then the probability of randomly sampling one from the ensemble approaches zero. Infinity does not change this. As Carroll (2017) emphasizes, typicality must be defined relative to a measure, not raw cardinality. Conditioning on coherence collapses the posterior weight on Boltzmann brains regardless of their absolute number.

The Indistinguishability Objection: Epistemic Equivalence

A final objection contends that even if Boltzmann brains are semantically unstable, ontologically dubious, and statistically negligible, we cannot *know* that we are not one. Our experiences would be indistinguishable from those of an evolved observer. The skeptical sting remains.

The reply is that indistinguishability is irrelevant to epistemic justification. As Wallace (2012) argues in a different context, the mere logical possibility of a skeptical scenario does not undermine knowledge unless that scenario is probable under reasonable priors. Once we condition on the coherence, persistence, and law-governed structure of our experience, the probability that we are Boltzmann brains becomes vanishingly small. Epistemic justification depends on probability, not bare possibility. We are no more undermined by the possibility that we are Boltzmann brains than by the possibility that we are brains in vats or victims of Cartesian demons.

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as epistemic authorities and remains solely responsible for the argument, structure, citations, and conclusions.

🕮 References

Albrecht, A., & Sorbo, L. (2004). Can the universe afford inflation? *Physical Review D, 70(6)*, 063528. https://doi.org/10.1103/PhysRevD.70.063528

Boltzmann, L. (1897). On certain questions of the theory of gases. In *Populäre Schriften (Popular Writings)*. Leipzig: Barth.

Bostrom, N. (2002). *Anthropic Bias: Observation Selection Effects*. New York: Routledge.

Bousso, R. (2006). Holographic probabilities in eternal inflation. *Physical Review Letters, 97(19)*, 191302. https://doi.org/10.1103/PhysRevLett.97.191302

Carroll, S. M. (2017). Why Boltzmann Brains Are Bad. *arXiv preprint* arXiv:1702.00850.

De Simone, A., Guth, A. H., Linde, A., Noorbala, M., Salem, M. P., & Vilenkin, A. (2008). Boltzmann brains and the scale-factor cutoff measure of the multiverse. *Physical Review D, 82(6)*, 063520. https://doi.org/10.1103/PhysRevD.82.063520

Dyson, L., Kleban, M., & Susskind, L. (2002). Disturbing implications of a cosmological constant. *Journal of High Energy Physics, 2002(10)*, 011. https://doi.org/10.1088/1126-6708/2002/10/011

Fish, W. (2009). *Perception, Hallucination, and Illusion*. Oxford: Oxford University Press.

Fodor, J. A. (1975). *The Language of Thought*. Cambridge, MA: Harvard University Press.

Garriga, J., & Vilenkin, A. (2001). Many worlds in one. *Physical Review D, 64(4)*, 043511. https://doi.org/10.1103/PhysRevD.64.043511

Martin, M. G. F. (2004). The limits of self-awareness. *Philosophical Studies, 120(1–3)*, 37–89. https://doi.org/10.1023/B:PHIL.0000033751.66949.97

Page, D. N. (2008). Is our universe likely to decay within 20 billion years? *Physical Review D,* 78, 063535. https://doi.org/10.1103/PhysRevD.78.063535

Putnam, H. (1967). Psychological predicates. In W. H. Capitan & D. D. Merrill (Eds.), *Art, Mind, and Religion* (pp. 37–48). Pittsburgh: University of Pittsburgh Press.

Wallace, D. (2012). *The Emergent Multiverse: Quantum Theory according to the Everett Interpretation*. Oxford: Oxford University Press.

The Future of the Educational Landscapes in the Era of Hybrid War: Philosophy of Hybrid Management and Digital Resilience

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The article is devoted to the philosophical understanding of the reconfiguration of educational landscapes in Ukraine in the conditions of full-scale invasion and hybrid war. The authors diagnose the ontological crisis of the traditional university, caused by the destruction of physical infrastructure and the forced migration of participants in the educational process. It has been proven that the loss of "place" (topos) necessitates a transition to new forms of rooting in the digital space, which is transformed from a technical environment into a space of existential stability. The methodological basis of the study is a synthesis of philosophical reflection and case study. Using the case of the YouTube channel "Educational Landscapes" (@edu_land), the phenomenon of "digital shelter" is analyzed. As a result of the study, the concept of "hybrid management" is substantiated – a management philosophy that combines institutional verticality with network flexibility in order to preserve academic social responsibility. The authors argue that the digital reconstruction of the educational landscape is critical for protecting democratic values and national identity from the totalitarian narratives of the aggressor. The proposed model is seen as a universal resilience strategy for global education in an era of turbulence.

Keywords: educational landscapes, future of education, philosophy of education, hybrid warfare, hybrid management, digital resilience, autoethnography, academic identity, displaced persons.

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Introduction

We are used to thinking of the university as a place. In our cultural memory, education has always had its "home" – the physical space of classrooms, where the architecture of walls served as a framework for the architecture of meanings. However, the war that burst into our lives not only with the roar of artillery but also with the total destruction of familiar forms of existence destroyed this illusion of stability. The educational landscape of Ukraine today resembles a broken mirror: its fragments are scattered between trenches and emigration, between cold shelters and network clouds. Isn't this evidence that we have fetishized walls for too long?

Perhaps the true nature of the university has always been extraterritorial, and the war has only cruelly exposed this truth. Today, we are dealing with a phenomenon that does not fit into the old management matrices. The situation requires a solution. But the solution is not technical, but ideological. We postulate that the monitor screen is not a window to the world, but a filter that cuts off the living fabric of human interaction. Here, in our opinion, lies the trap of modern educational policy: an attempt to imitate the "normal process" in abnormal conditions gives rise to simulacra. We diligently perform the rituals of curricula, ignoring the fact that the subject of learning has changed. A student in a trench and a student in safe Europe are in different ontological realities, although connected to the same lecture on Zoom.

This is where the need for a diagnosis free from bureaucratic optimism arises. The educational system, despite the heroic efforts of educators, often works by inertia, recreating the social automatisms of peacetime. Instead of living adaptation, we risk getting a "dead loop" of institutional imitation, where form will ultimately absorb content. To avoid this scenario, we should turn to the concept of "academic precarity", which is aptly described by A. Oleksiyenko and S. Terepyshchyi (2024). They capture the state of total vulnerability and uncertainty in which Ukrainian scientists and teachers find themselves. It is not just a question of salaries or grants. This is an existential conundrum: how do we teach the future when the future itself is uncertain? Precariousness becomes the new norm, the background noise through which the voice of reason must break through. And to ignore this noise is to lie to ourselves. Hybrid warfare requires a hybrid response, where technology serves as a shield, not a crutch. We must affirm the subjectivity of Ukrainian education as a strategic resource of the nation, which ensures our civilizational belonging with the free world.

Is education a service that can simply be transferred online? No, it is the fate of the nation, which is being carved here and now. Therefore, our task is to propose a philosophy of hybrid management that would not simply "patch holes", but create new architectonics of the educational process. Such management should be based on trust, horizontal connections, and an understanding of the unique traumatic experiences of each participant.

The purpose of this article is to attempt to outline the contours of this new philosophy. We strive to move from recognizing the loss of physical landscapes to designing "hybrid educational landscapes" – spaces where the virtual and the real, the safe and the dangerous, intertwine, creating a new quality of stability. This is an attempt to find a fulcrum in a world that is tottering.

We are convinced that it is in this tension between the destruction of forms and the indestructibility of meanings that a new Ukrainian university is born. Not as a building, but as a community of spirit, capable of self-reproduction even in the ashes. And this is not a metaphor. This is our plan of action.

Theoretical Framework: The Key Ideas of the Concept of "Educational Landscapes"

Traditional pedagogy has long been enticed by the illusion of spatial stability. In this outdated perspective, the "educational landscape" was perceived as a static setting: a network of buildings, stadiums, and libraries where educational action unfolds. However, today such an approach is not just an anachronism. It is a trap for understanding reality. In the face of a civilizational rift, we are compelled to reassess the very foundation of education.

The educational landscape today is a dynamic field of tension that requires a new language of description. In modern scientific discourse, researchers aim to examine the future of educational landscapes within the context of concepts such as Industry 5.0. They rightly emphasize human-centricity and sustainability, trying to return the "human face" to the world of algorithms. Her vision of harmonious cooperation between humans and artificial intelligence is undoubtedly attractive. However, we must pause and ask an uncomfortable question here. Does this idyllic model work in conditions where the very right to life is not guaranteed?

In our opinion, the concept of Industry 5.0 landscapes, despite its humanistic pathos, suffers from a certain "peacetime blindness". It assumes basic security as a given. However, in Ukrainian realities, security is not a background issue, but a scarce resource. Therefore, we propose to radically expand this understanding by incorporating a hard security component into both the technological and social dimensions. The educational landscape in the context of hybrid warfare cannot simply be "sustainable" in the ecological sense; it must be "resilient" in the sense of the ability to withstand a blow. The enemy attacks not only university servers, but also the minds of students, using educational channels to spread narratives of the "Russian world" and disinformation.

This leads to an unfortunate but honest conclusion: the modern Ukrainian university exists within a landscape of threats. Cybersecurity ceases to be a matter for the technical department and becomes a philosophical issue in education. If we do not protect this space, we will not only lose data but also the subjectivity of future generations. The hybrid educational landscape, thus, appears as a space with a dual purpose: it is a place of personal growth, and at the same time, a frontline where the war for meaning is being waged.

Ignoring this fact, attempting to build "pink castles" of digitalization without considering the aggression factor is a path to defeat. We are not dealing with the evolution of technology, but with the evolution of survival. Therefore, our theoretical framework is based on the understanding of the educational landscape as a protected space for meaning-making, where digital resilience serves as a guarantor of the preservation of national identity and individual dignity. Only in this way can we talk about education that responds to the challenges of the time, rather than hiding from them.

Methodology & Case Study

To verify the theoretical propositions, we employ the case study methodology, selecting the YouTube channel "Educational Landscapes" (@edu_land) as the object of analysis. Why this particular case? Because in conditions of institutional paralysis, when traditional university departments often freeze in anticipation of instructions "from above", it is precisely such grassroots, flexible initiatives that take over the leadership baton. We consider this channel not as a media product, but as a phenomenon of a "digital shelter" – a space where the academic community scattered by war finds a gathering point. Back in 2016, in the monograph

"Educational Landscapes", we defined landscape as "a philosophical concept to denote the set of spatial, socio-economic, political, cultural, and anthropological characteristics of education that change within a certain region in the process of preserving, transferring, and producing knowledge." (Terepyshchyi, 2016: 89). Back then, in a relatively peaceful time, the emphasis was on stationarity, on architecture and physical presence. However, the war carried out a harsh deconstruction of this concept. The topos disappeared. The logos remained. And this logos migrated to the digital. Today's analysis reveals that the landscape has become nomadic, and the @edu_land channel is a vivid example of how an institution can exist without walls, relying solely on the gravity of meaning.

Content analysis of the channel's video materials demonstrates a clear focus on "holding meanings". Videos dedicated to national identity, the philosophy of education, and the challenges of artificial intelligence perform not so much an informational function as a therapeutic and worldview function. As digital resilience researchers note (Bozkurt et al., 2020), education becomes a form of care in times of crisis (pedagogy of care). The viewer does not come here for evaluation. He comes to ensure that culture is alive, thought continues, and chaos has not prevailed.

This aligns with the concepts of post-digital education proposed by P. Jandrić (Jandrić et al., 2024). He argues that the line between "online" and "offline" has completely blurred. For a Ukrainian student or teacher watching a lecture in a bomb shelter, the smartphone screen becomes the only window into normality. The channel becomes a meeting place that cannot be bombed. And this is not a metaphor. This is a new ontology of presence.

The content block dedicated to artificial intelligence attracts particular attention. Unlike techno-optimists, the channel offers a critical view of AI, consonant with the warnings expressed by S. Popenici and S. Kerr (Popenici & Kerr, 2017). The discussion of ChatGPT in education here is not in the key of "how to write off", but in the context of preserving subjectivity: will there be a place for Humans in an automated world? This formulation of the question transforms YouTube comments into a branch of a philosophical seminar, where what we call "collective thinking" occurs.

Here, we arrive at the key thesis that the @edu_land channel is a micro-institution. It operates according to the principles of hybrid management, which are still unattainable for sluggish state structures. The speed of response to challenges here is measured in hours, not months of approvals. As D. Vlachopoulos aptly notes, traditional management in education collapsed during the pandemic and wars precisely because of its hierarchical nature (Vlachopoulos, 2021). Instead, micro-institutions offer 24/7 availability and instant feedback. This is the "agility" that management theorists write about, but which, in our conditions, becomes a condition for survival.

A skeptic will say: Can one channel replace a university? This is a false statement of the question. We are not talking about replacement. We are talking about compensation for institutional failures. When the official system is stalling, immersed in bureaucratic rituals and imitation of reforms, such platforms take on the function of "social glue". They sew up the torn fabric of the educational space.

Moreover, audience analysis (geography of views, comments) indicates the formation of a specific community. Researchers who view YouTube as an educational environment refer to this as "participatory culture" (Moghavvemi et al., 2018). But in the Ukrainian context, it is something more. This is a virtual Res Publica – a common cause. People scattered around the world gather under the video not just to consume content, but to feel a sense of belonging to a common field of values.

This is a perilous path for the old system, which has been used to monopolize the right to truth. After all, it turns out that the authority of a teacher now depends not on the position but on the ability to generate living meanings in real time. The @edu_land channel demonstrates that in the era of hybrid warfare, true education becomes "guerrilla" – it is mobile, decentralized, and elusive for the enemy. We are dealing with a new type of subjectivity. The author of the channel, who is both a researcher and a moderator, acts as a "hybrid manager": he manages not a staff of subordinates, but flows of attention and trust.

Summarizing this case, it is worth noting that we are witnessing the emergence of a new morphology of education. It does not abolish the physical university, but it deprives it of its monopoly on "place". Education takes place in an environment where lively dialogue is present.

Hybrid Management as a Philosophy of Action

The word "management" in the academic environment often evokes strong reactions. When vertical management structures freeze in the face of chaos, it is management, as the ability to organize action here and now, that becomes the key to survival. But what kind of management are we talking about?

The old hierarchical model, built on long-term planning and strict control, has proven ineffective in the conditions of air alarms. An order that comes "from above" for weeks loses its meaning even before it is signed. This is a dead end. On the other hand, the complete anarchy of network structures threatens to disintegrate the institution into atoms. The solution lies in the middle. We propose the concept of hybrid management – not as a compromise, but as a new philosophy of action. The essence of the hybrid approach is to decentralize decision-making while maintaining a single core of values. And here we turn to the concept of "social creativity". In conditions of war, the university ceases to be simply a "provider of educational services". This is false, even criminal logic. The university is becoming an institution responsible for preserving the social fabric. Today, a teacher is not a transmitter of information, but, if you like, a social therapist who "stitches" broken ties between people scattered around the world.

In this context, hybrid management acts as a tool for implementing this responsibility. It allows you to act above barriers.

A vivid example is the situation with internally displaced persons (IDPs). A student who has lost his home often drops out of the traditional educational process. One cannot come to the classroom. One does not have stable internet for synchronous lectures. The hierarchical system puts him "n/b" (was not there). The hybrid system is looking for a way out. Here, asynchronous digital content emerges, filling gaps in time and space.

R. Nørgård et al. (Nørgård, 2021) describe the phenomenon of "hyper-hybridity", where learning takes place at the intersection of many realities. For our refugee student, watching a lecture on YouTube at a convenient time, and the opportunity to write to the teacher on Telegram at 2 a.m. – these are the "threads" that keep him connected to the space of Ukrainian culture. This is not a violation of subordination. This is an act of salvation.

At the same time, such an approach requires extraordinary courage from educational leaders. It is necessary to admit that formal indicators (hours of attendance) no longer work. Instead, the results and emotional state of the participants come to the fore. J. Holloway and L. Parcerisa rightly note that in an era of instability, the teacher's agency becomes more important than the curriculum (Holloway & Parcerisa, 2025). We must give the teacher the autonomy to decide how to achieve the educational goal in extreme conditions. Of course, this

carries risks. Risks of loss of quality, risks of imitation. But as S. Bayne et al. argue in their "Manifesto for Online Teaching" digital education is not an "inferior" copy of face-to-face education; it is a different mode of being. Hybrid management should legitimize this mode (Bayne et al., 2020).

Democratic Values and Peace Education for the Future

Talking about peace to the accompaniment of air raid sirens is, at first glance, the height of absurdity. As M. Zembylas (2025) rightly notes, education that focuses exclusively on trauma and hatred risks locking the nation into "emotional hegemony", from which there is no way out into the future. Today, this thesis necessitates a radical reevaluation of the concept of "education for peace" in the Ukrainian context. It is about what G. Giroux calls "pedagogy of resistance" (Giroux, 2022). If we abandon democratic values in education for the sake of wartime "efficiency," we lose the war of meanings, even if we win the war on the battlefield. This is where the hybrid educational landscape reveals its unexpected potential. Unlike the physical space of occupation, where a monolith of hostile propaganda reigns, the possibility of dialogue persists in the university's cloud storage. E. Sant (2021) argues that in an era of polarization, it is online spaces that can become "new agoras" if they are moderated on the basis of mutual respect. For us, this means that the Zoom conference becomes a place where a student learns to argue, doubt, and appreciate skills that are completely unnecessary for a totalitarian society, but critical for us.

The enemy is betting on indoctrination. A student who can deconstruct fake news is as much a defender of the state as a soldier who shoots down a drone, and the hybrid landscape allows us to maintain this balance. It creates safe "pockets" for difficult conversations. Conversations about historical memory, about guilt and responsibility, about the image of the enemy and the image of the self. But without it, we risk becoming a community of traumatized avengers rather than creators. S. Dryden-Peterson (2022), in her studies of refugee education, emphasizes that hope for the future is constructed precisely in classrooms, even if these classrooms are virtual.

We argue: preserving the democratic spirit in education during war is an act of supreme courage. It is a declaration that we have not become like those who came to destroy us. Hybrid management here works to ensure inclusivity: everyone's voice must be heard, even if it comes from abroad or from the trenches.

So, education for peace today is a technology for designing post-war Ukraine. It is an investment in our institutional capacity to be part of the free world. We are fighting so that our children can live in a society where the force of argument outweighs the force of argument. And this lesson does not begin tomorrow. It continues now, in every connection to the network, in every saved file, in every "How are you?" at the beginning of a lecture.

Displaced Learners in the New Landscape

The most dramatic figure in the modern educational landscape is that of the Displaced Person – a student or pupil, uprooted by war from their usual location, which appears to be an ontological catastrophe. The loss of topos often leads to a loss of self-identification coordinates. A person finds himself in an "existential abyss", where old social ties are severed, and new ones have not yet been formed. In this situation, the digital educational space acquires a completely new status. It ceases to be simply a tool for transferring knowledge and becomes a surrogate for home. When the physical walls of the school are destroyed or inaccessible,

the gadget screen becomes the only stable plane on which one can rely. They are physically "there", in foreign classrooms, but mentally remain "here", in the Ukrainian information field. This creates a unique phenomenon known as "bilocation," where an individual is present in two worlds simultaneously.

It is in this context that a YouTube channel such as @edu_land reveals its hidden therapeutic function. Watching a video in Ukrainian, with the familiar intonations of the lecturer discussing understandable problems, all this serves as a grounding mechanism. This is not just information consumption. It is a ritual of returning to oneself. When there are foreign languages and unfamiliar rules around, the familiar interface of the channel creates the illusion of safety and control over the world.

A student who writes a comment under a video, receives a like or a reply, feels, "I exist. I am heard. I am not alone". In a world where you are perceived only as a statistical unit ("refugee"), this confirmation of subjectivity is critically important for mental health. At the same time, we should not idealize this process. Digital shelter has its limitations. S. Sirin and L. Rogers-Sirin warn about the risk of a "digital ghetto", when immersion in the online world hinders real integration into a new society (Sirin & Rogers-Sirin, 2015). However, in the Ukrainian case, the situation is different. We are dealing with a temporary, forced displacement, where the strategic goal is to return (physical or mental). Therefore, the digital landscape here serves not to isolate, but to preserve identity until better times.

For a Ukrainian student, educational content becomes the building material for this mobile home. A lecture on Skovoroda's philosophy, watched in the Berlin subway or a Warsaw hostel, structures the chaos of a foreign city, superimposing a grid of native meanings on it. And the task of hybrid management is to ensure the continuity of this connection. Because if we lose them in this digital ether, we risk losing them forever. And the channel we're talking about becomes that digital hearth around which souls warm themselves. And that's perhaps more important than any academic credits.

Discussion & Conclusions

As we conclude our journey through the complexities of hybrid warfare, we are compelled to rise above the level of empiricism and view the situation from a cosmological perspective. What we described as the "reconfiguration of educational landscapes" is, in fact, a manifestation of deeper, planetary processes. We are witnessing an evolutionary leap, which V. Vernadsky wrote about. It is about the formation of the Noosphere – the sphere of mind. The digital educational landscape today is the materialized Noosphere, where "intelligent matter" self-organizes to confront the entropy and chaos of war. When the physical world collapses, the mind migrates into the digital shell, creating new structures of order there. The Ukrainian case proves that a network of universities connected by fiber optics and a shared will to survive is not just about communication. It is the collective brain of a nation that continues to function even when the country's body is covered in wounds.

Here we enter into a polemic with those who consider the digitalization of education a necessary evil or a temporary surrogate. These are not crutches. This is an exoskeleton. M. Peters et al. (2023), in their work on bio-information capitalism, warn against technocracy, but at the same time recognize that in conditions of global crises, digital networks are becoming the only mechanism for preserving collective intelligence. Hybrid management, which we have substantiated, is nothing more than a way of managing this new reality. This is a rejection of the mechanistic management model in favor of an ecological one. We learn to

manage education in the same way nature manages ecosystems: through adaptation, diversity, and mutual assistance.

R. Barnett (2018) proposes the concept of an "ecological university", which does not close in on itself but actively interacts with the surrounding world, even if this world is hostile. Ukraine today has become a laboratory for this concept. We have shown that a University can exist without walls, but it cannot exist without values. Hybrid landscapes have allowed us to preserve the "idea of the university" in its pure form, free from bureaucratic clutter and property ties. What conclusions can we draw from a global philosophy of education?

First, the security of educational space is no longer a given. It is a constant process of struggle. J. Knox (2025) points out that the "post-digital" era requires us to understand technologies not as neutral tools, but as battlefields. Hybrid management is the strategy for this battle, where flexibility becomes armor.

Second, we are witnessing a change in subjectivity. From a passive consumer of knowledge, the student is transformed into a co-creator of the security landscape. Everyone who connects to a lecture from shelter-in-place is performing an act of civic courage.

And finally, this war will end, but educational landscapes will never be the same again. We will not return to the old world, because we have outgrown it. The model of hybrid resilience, forged in the crucible of Ukrainian resistance, should become a prototype for global education in an era of turbulence. The world is becoming fragile. The Ukrainian experience demonstrates that, in this fragile world, it is possible not only to survive but also to think, create, and overcome darkness with the light of reason.

This is our mission in the Universe. Isn't education about *holding the sky*?

🕮 References

Barnett, R. (2018) *The Ecological University: A Feasible Utopia*. Routledge. https://doi.org/10.4324/9781315194899

Bayne, S., Evans, P., Ewins, R., Knox, J., Lamb, J., Macleod, H., O'Shea, C., Ross, J., Sheail, P., & Sinclair, C. (2020) *The Manifesto for Teaching Online*. MIT Press. https://doi.org/10.7551/mitpress/11840.001.0001

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., ... & Paskevicius, M. (2020) A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, 15(1), 1-126. https://doi.org/10.5281/zenodo.3878572

Dryden-Peterson, S. (2022) *Right Where We Belong: How Refugees, Teachers, and Students Are Changing the Future of Education*. Harvard University Press. https://doi.org/10.4159/9780674276376

Floridi, L. (2022) The green and the blue: a new political ontology for a mature information society. In *The Green and the Blue* (pp. 9–52). Verlag Karl Alber.

Giannopoulos, G., Smith, H., & Theocharidou, M. (Eds.) (2021) *The landscape of hybrid threats: a conceptual model*. Publications Office of the European Union.

Giroux, H. A. (2022) *Pedagogy of resistance.* Bloomsbury Publishing.

Holloway, J., & Parcerisa, L. (2025) Teacher collaboration: how conditions of accountability shape teachers' autonomy, responsibilities, and relationships. *Teachers and Teaching,* 31(1), 1-15. https://doi.org/10.1080/13540602.2024.2436028

Ivanova, O., Kit, N., & Storozhyk, M. (2024) Philosophy of education in the context of digital transformation of public life. *Humanities Studios: Pedagogy, Psychology, Philosophy*, 15(1), 141–148. https://doi.org/10.31548/hspedagog15(1).2024.141-148

Jandrić, P., Peters, M. A., Besley, T., Green, B. J., & Kamenarac, O. (2024) Postdigital educational geopolitics. *Postdigital science and education,* 6(4), 1017-1031. https://doi.org/10.1007/s42438-024-00472-6

Knox, J. (2025) Educational Development in the Postdigital Era. In *The Geopolitics of Postdigital Educational Development* (pp. 21-40). Cham: Springer Nature Switzerland.

Moghavvemi, S., Sulaiman, A., Jaafar, N. I., & Kasem, N. (2018) Social media as a complementary learning tool for teaching and learning: The case of YouTube. *The International Journal of Management Education*, 16(1), 37–42. https://doi.org/10.1016/j.ijme.2017.12.001

Nørgård, R. T. (2021) Theorising hybrid lifelong learning. *British Journal of Educational Technology*, 52(4), 1709–1723. https://doi.org/10.1111/bjet.13121

Oleksiyenko, A., & Terepyshchyi, S. (2024) "Hope despite all odds": Academic precarity in embattled Ukraine. *Teaching in Higher Education*, 29(3), 741-755. https://doi.org/10.1080/13562517.2023.2263744

Peters, M. A., Jandrić, P., & Hayes, S. (2023) Postdigital-biodigital: An emerging configuration. *Educational Philosophy and Theory,* 55(1), 1-14. https://doi.org/10.1080/00131857.2020.1867108

Popenici, S. A., & Kerr, S. (2017) Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning*, 12(1), 22. https://doi.org/10.1186/s41039-017-0062-8

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2021) Balancing technology, pedagogy and the new normal: Post-pandemic challenges for higher education. *Postdigital Science and Education*, 3(3), 715-742. https://doi.org/10.1007/s42438-021-00249-1

Sant, E. (2021) Democracy and Political Education. In *Political Education in Times of Populism: Towards a Radical Democratic Education* (pp. 15-35). Cham: Springer International Publishing.

Sirin, S. R., & Rogers-Sirin, L. (2015) *The educational and mental health needs of Syrian refugee children*. Washington, DC: Migration Policy Institute.

Terepyshchyi, S. (2016) *Contemporary Educational Landscapes: Monograph*. Kyiv: Fenix [In Ukrainian].

Vlachopoulos, D. (2021) Organizational Change Management in Higher Education through the Lens of Executive Coaches. *Education Sciences,* 11(6)*,* 269. https://doi.org/10.3390/educsci11060269

Watermeyer, R., Crick, T., Knight, C., & Goodall, J. (2021) COVID-19 and digital disruption in UK universities: Afflictions and affordances of emergency online migration. *Higher Education*, 81(3), 623-641. https://doi.org/10.1007/s10734-020-00561-y

Zembylas, M. (2025) Beyond teacher impartiality: addressing epistemic-affective injustice in times of political polarization. *Ethics and Education, 20(4),* 424-437. https://doi.org/10.1080/17449642.2025.2565034

Part 3:
COSMOS AND HISTORY

Reception of Ancient Cosmological Narratives in the Socio-Political Discourse of India in the 20th–21st Centuries

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Kononenko, Taras, and Iryna Petlenko (2026) Reception of Ancient Cosmological Narratives in the Socio-Political Discourse of India in the 20th–21st Centuries. *Philosophy and Cosmology*, Volume 36, 154-175. https://doi.org/10.29202/phil-cosm/36/6

The article explores how cosmological and mythological ideas of ancient Hindus influenced social structure and political discourse. An example is the hymn Purusha Sukta, which shows how the image of Purusha's cosmic sacrifice became a way to sanctify the social hierarchy, later reflected in the Manusmriti. The article examines how British colonial researchers and administrators interpreted this myth through the lens of European legal thinking, turning religious texts into tools for governing and classifying Indian society. In postcolonial studies, the transformation of the Purusha myth is analyzed

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within modern discussions on Varnas, identity, and social justice. The paper combines philosophical-mythological and cultural-political approaches to understand how myth, power, and social structure interact in the Indian tradition. The authors conclude that ancient India's cosmological ideas were a significant source of symbolic legitimation for the social hierarchy. The influence of Purusha Sukta can be seen over a long historical period — from its institutionalization in the Manusmriti as a normative model of Varna division to its echoes in modern India's constitutional structure. This aims to address the rooted social inequalities. However, this influence is not straightforward; it is a complex, multidimensional phenomenon. Therefore, the changing interpretations of the hymn — from ritual-cosmological to political — reflect the complex process of transforming traditional ideas of order and justice within modern Indian society.

Keywords: history of Oriental philosophies, historical and philosophical practices, cosmological topics and narratives of Indian mythology, Purusha Sukta, Manusmriti, Varnas/ castes/ Jati, socio-political discourse, identity.

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Introduction

Correlation between cosmological ideas and the social structure of society stems from the concept of the initial universe as a structured hierarchical world in which each element has its own place and function. The first model of a structured world is dictated by myth. This is a narrative that reflects the embodiment of sacred order in nature. Over time, this narrative becomes an ethical standard that defines the proper roles, responsibilities, and statuses of people in society. Subsequently, the standard is codified in the form of rules and regulations, laws that formalize the cosmic order in the political and legal system. Thus, power and governance become sacralized, justifying the social hierarchy as part of the world order. At a certain stage, a philosophical reflection arises that rethinks or casts doubt on the established cosmological and legal foundations, opening the way to new models of social structure. India is no exception in the transition from mythological ideas to norms and laws that regulate social order.

The purpose of the article is to explain how ancient Indian cosmological plots and narratives influenced the historical development of the sociopolitical system and how they are interpreted in modern India's political culture.

A methodological complex, which both contains successful solutions from the previous research of the authors (Petlenko, 2018) and includes contributions specially created to solve the main task of the article, has been applied to achieve the purpose of the study. The methodological complex is based on the functional capabilities of phenomena that are reflected in such concepts and terms as *myth – cosmological myth – topic – narrative – historical and philosophical explication – contamination analysis – discourse – socio-political discourse*. Each of these concepts (terms) has a wide-ranging content and significant representation in scientific databases as well as reference and encyclopedic sources. A concise definition is appropriate only for terms that play a relevant specialized methodological role.

The main attention in the proposed terminological complex is undoubtedly paid to establishment of a connection between the ancient cosmological myth and modern standards and laws of the sociopolitical system of India. The author's approach is based on involving the functional capabilities of current philosophical methods from modern and postmodern teachings, theories, doctrines, and schools. However, the results convincingly prove that the historical and philosophical methods and practices inherent in the Ukrainian historical and philosophical

sphere (Bugrov, 2021; Pobocha & Khmil, 2025) have not lost their creative potential and have stable grounds for renovation. In particular, we used the method of applying terminological and archeographic description of terms, concepts and archival sources (Kononenko et al., 2021) that determine the logical chain of topic development in a particular study. This method is implemented in creating a specific terminografical cloud of the article, which is added to the main content of the study in the form of a printed dictionary. In other words, a specialized reference dictionary is compiled. Moreover, such a dictionary is essential, since it contains concepts from a mental environment that is unusual for European philosophical discourse, which requires special transcultural transcription, establishing conditions for a certain correspondence. However, this circumstance culminated in the developing transformation of the ancient Indian cosmological myth into modern structures of the social and political system, and the role that the British colonial reception of India's cultural heritage played in this, almost a grotesque one!

It is obvious that the source base of the research includes ancient Indian literary texts, which are properly represented in the English-speaking academic environment. For this reason, references are made to English texts and translations with proper commentary. This is particularly important when working with foreign-language terms in the field of Eastern philosophical thought, where semantic complexity and cultural specificity can present significant challenges to interpretation. It is obvious that the source base of the research includes ancient Indian literary texts, which are properly represented in the English-speaking academic environment. For this reason, references are made to English texts and translations with proper commentary. This is particularly important when working with foreign-language terms in the field of Eastern philosophical thought, where semantic complexity and cultural specificity can present significant challenges to interpretation. Accordingly, our study builds on our prior experience with terminology and the analytical issues inherent in the study of Eastern philosophies. (Rudenko & Liashenko, 2020).

An example of a cosmological Chinese narrative that influences contemporary social and political discourse is Pan Xi'an. The interpretation and reception of a cultural symbol is adapted to contemporary conditions. This highlights the need for critical examination of primary sources and their translations. (Rudenko & Zhang, 2022)

However, the methodological historical and philosophical syndrome of untranslatability negatively affects the interpretation of India's mythological, intellectual, and religious heritage. A promising foundation for future research projects is applying the method of describing untranslatable terms to interpretations of Oriental philosophies and cultural heritage examples. This methodological approach in the history of philosophy was introduced by French researcher Barbara Cassin in "European Dictionary of Philosophies: Lexicon of Untranslatables" (European Dictionary of Philosophies, 2009; Cassin, 2016), with contributions from Ukrainian historians of philosophy. Essentially, the issues related to untranslatables and their interpretation in ancient Indian culture have led to results that will be discussed in detail in the article.

The use of the term "narrative" also takes on an independent meaning. The best definition of narrative and its representation can be found in the significant work of H. Porter Abbott "*The Cambridge Introduction to Narrative"*:

> *"The universality of narrative. When we think of narrative, we usually think of it as art, however modest. We think of it as novels or sagas or folk tales or, at the least, as anecdotes. We speak of a gift for telling stories. But as true as it is that narrative can be an art and that art thrives on narrative, narrative is also*

> *something we all engage in, artists and non-artists alike. We make narratives many times a day, every day of our lives. And we start doing so almost from the moment we begin putting words together. As soon as we follow a subject with a verb, there is a good chance we are engaged in narrative discourse. "I fell down," the child cries, and in the process tells her mother a little narrative, just as I have told in this still unfinished sentence a different, somewhat longer narrative that includes the action of the child's telling* ("'I fell down,' the child cries").
>
> *Given the presence of narrative in almost all human discourse, there is little wonder that there are theorists who place it next to language itself as the distinctive human trait. Fredric Jameson, for example, writes about the "allinforming process of narrative," which he describes as "the central function or instance of the human mind» 1 Jean-Francois Lyotard calls narration "the quintessential form of customary knowledge."2 Whether or not such assertions stand up under scrutiny, it is still the case that we engage in narrative so often and with such unconscious ease that the gift for it would seem to be everyone's birthright. Perhaps the fullest statement regarding the universality of narrative among humans is the opening to Roland Barthes's landmark essay on narrative"* (Abbott, 2008).

It is obvious that the theory of narrativism is a productive component of the methodological complex, which contributes to the identification of primitive plots from the mythological heritage of ancient India, and as such, it acquires an extraordinary influence on the worldview of contemporaries. The circulation of primitive plots unfolds in narratives that form behavioral customs and can manifest themselves in the integral structure of a certain type of culture. The concepts of plot and narrative in their use turn into theoretical applications from the European philosophical lexicon to define certain phenomena in a different, in particular Indian, culture. At the same time, they also create the basis for problems of untranslatability.

Although the problems of untranslatability in relation to Oriental philosophies create significant obstacles, the attempt at proper interpretations gradually brings closer the establishment of a parity understanding of equivalent phenomena in the philosophical and sociopolitical context. The next component of the methodological complex is the use of the explication method. This method is associated with Rudolf Carnap, who used it in the field of philosophy of science. On the other hand, the explication method was productively used by Ukrainian historians of philosophy in identifying the hidden structures of historical and philosophical concepts in building a certain presentation on their basis, in fact, the history of philosophy as a set of philosophical narratives in the historical process. Its application made it possible to visualize the leading plot of the Indian cosmological myth, which influenced the formation of the customary culture of society.

The next logical element of the analysis is to study the circulation of language complexes that determine the discourse and mental culture of contemporaries. The research novelty is that the current state of the sociopolitical system of India is determined by the combination of authentic Indian discourse which was formed on the basis of the deployment of cosmological plots from its own mythology and the discourse of British colonial influence that was based on a specific European reception of the cultural heritage of Indian society. This combination now determines the leading trends in Indian society's reflections on its own identity, civilizational perspectives, and relationships with civilizations developed on its own cosmological myths.

Cosmological Plots in Indian Culture

Cosmological ideas in ancient India played a fundamental role in shaping the organization of Indian society. The oldest part of the Vedas – the Rigveda – contains confirmation of this point. It contains a hymn of X.90 – Purusha Sukta, which symbolically reflects the idea of the origin of society as part of the cosmic whole. It is also known as the myth of Puruṣha, the first man sacrificed by the gods to create our world.

The hymn describes how a thousand-eyed and thousand-legged Purusha covers all existence. When the gods perform a sacrifice (yajña) over him, the sky, earth, sun, moon, wind, sacrifices as well as a human society divided into Varnas appear from his body (Griffith, 1897). Within the framework of our study, Purusha Sukta is a very important hymn, because it is the first and only mention of Varna in the Rigveda (Jamison & Brereton, 2014:1538).

It symbolically reflects the idea of the origin of social stratification. The four Varnas – Brahmans, Kshatriyas, Vaishya and Shudras – appear from different parts of the cosmic man's body as described in the line of hymn X.90(12):

> *"The Brahman was his mouth. The ruler was made of both his arms. As to his thighs – that is what the freeman was. From his two feet the servant was born"* (Jamison & Brereton, 2014:1540).

In other words, Purusha Sukta laid the foundation for the idea of an ontological hierarchy, where each group has its own place in world order rather than just a social role. Thus, the social structure received sacred legitimation, which became the basis of further Doctrine of Brahman.

The vocabulary and rhythm of Purusha Sukta differ from those of other Rigveda hymns, which may be the reason for some researchers to consider it a later inclusion in the collection (Jamison & Brereton, 2014; Oldenberg & Shrotri, 2024). In addition to linguistic and stylistic features, there are other reasons to doubt the authenticity of Purusha Sukta as the original part of the Rigveda. In particular, the ritual and brahmanistic nature of the hymn. The central role of yajña (sacrifice) is characteristic of the post-Vedic period, when Brahmanism is formed. These features contrast with the more archaic hymns of the Rigveda, which are naturalistic and polytheistic in nature, with no signs of abstract cosmological synthesis, suggesting possible interpolation of the hymn in a later period to justify a sacralized social hierarchy.

Other parts of the Samhitas either have no mention of the Varna stratification of society at all or have other explanations apart from the first sacrifice of Purusha. The Samaveda gives no other explanation for Varnas (Stevenson, 1842).

The Yajurveda mentions Varna in the Vajasaneyi Samhita (Griffith, 1899). This explanation has ritual and regulatory value, linking cosmology with social and religious practices. The Taittiriya Samhita, on the other hand, contains two different explanations for the origin of Varnas, which deserve special attention. First, these two explanations do not coincide with each other and moreover demonstrate different conceptual approaches to understanding social hierarchy: one is based on the cosmological principle of sacrifice, while the other rests on the functional and ritual distribution of roles in society. Secondly, one of these explanations completely coincides with the version given in the Vajasaneyi Samhita:

> *"He lauded with three: the Brahman was created: Brahmanaspati was the rule. He lauded with five; existing things were created: Brahamanaspati was the ruler... He lauded with fifteen: the Kshattra (the Kshattriya) was created:*

> *Indra was the ruler... He lauded with nineteen; the Sudra and the Arya (Vaisya) were created: day and night were the rulers"* (Ambedkar, 2019).

This is evidence of a common tradition or textual relationship between these text corpora. This, in turn, may indicate later editing or borrowing to coordinate various versions of Vedic material as well as the gradual formation of a canonical version of the cosmological myth about the origin of Varnas.

However, another explanation of the origin of Varnas in the text of the Taittiriya Samhita is not cosmological but anthropological in nature, where social order grows out of the experience of a person standing between the world of gods and humans:

> *"Let the king to whose house the Vratya who knows this, comes as a guest, cause him to be respected as superior to himself. So doing he does no injury to his royal rank, or to his realm. From him arose the Brahman (Brahman) and the Kshattra (Kshatriya). They said, 'Into whom shall we enter?"* (Ambedkar, 2019).

Here, the central figure is Vratya – a person who is outside the established Vedic ritual system, that is, a kind of extra-social ascetic or hermit, who at the same time has sacred power. This passage says that when Vratya was filled with passions (kāma), from it arose the Varna of the Kshatriyas – Rājanya, i.e., a military, ruling force. Here, Kshatriyas are derived not from the divine cosmos, but from human energy, strength, and passion. The dialogic nature of the question "Into who shall we enter?" asked at the end is quite interesting. This question has a deeply symbolic meaning. The answer thereto can be found at several levels. First, at the social level, it can mean a stage in the formation of a social structure: Brahman and Kshatriya (or their prototypes) ask in what environment they should manifest themselves, i.e., what form of human society to enter to establish their status.

This is a moment of self-awareness of social functions, where Varnas not just arise, but look for their place, forming an ordered system. Second, it is the level of world or cosmological order. From this perspective, the question expresses the desire of the principles of being of Brahman (spiritual power) and Kshatriya (power, energy) to find a receptacle in a person or world. That is, they are looking for someone to implement their action in creation. This is the moment when cosmic forces are embodied in social order, turning abstract categories into specific roles in society.

Although differently expressed in Purusha Sukta, the interpretation of the origin of Varnas in the Yajurveda reflects ideas about the ordering of the world and society according to a single creation principle. That is, the division of society according to certain criteria is not just an agreement or a historical fact. It is the embodiment of the primary order of existence. In it, the spiritual, vital force finds its place. Thus, Varnas are interpreted as reflecting the general structure of the world, establishing a link between spiritual knowledge, power, and ritual action.

We also find interpretation of the origin of Varnas in the Atharvaveda. This collection mentions the birth of Brahmans and Kshatriyas (Rājanyas) as (spiritual, political or secular) power holders. However, Brahmans were born first: "He was the first to drink the soma; that did render poison powerless" (Bloomfield, 1897). Soma is a drink that has a sacred meaning and power. Therefore, the first person who drank it was filled with wisdom and spiritual strength. Warriors are born second, but they are born bound, because this is a power that even the gods

try to tame. Therefore, they should be guided by the wise advice that they will receive from the Brahmans. Two conclusions follow from this. First, Brahmans have a higher status because of the primacy of creation and drinking a sacred drink. Second, spiritual power legitimizes secular power and therefore can influence it. The power of Kshatriyas depends on the spiritual authority of Brahmans, but it also has its own origin and energy. This is the justification for interdependence of the two highest Varnas, where spiritual and political forces have common roots, but different functions.

The point to note is that the division of society into four Varnas is not common for different parts of the Samhitas. Purusha Sukta from the Rigveda and explanations from the Atharvaveda include that clear list. However, other places also mainly concern Brahmans and Kshatriyas, who are also called Rajanyas, or the division is replaced by the generic community of "descendants of Manu". This may indicate that the system of four Varnas was formed gradually, and initially Vedic thought recognized only two poles of social order – spiritual (Brahman) and power-military (Kshatriya), while Vaishya and Sudra appeared later based on social concretization of ritual and economic functions.

Along with Varnas, the term "jati" is used. In our opinion, the division of society into Jati is more consistent with what Europeans will call castes and what functions as the term "caste" in modern discourse. In the texts of the Rigveda, jāti has the meaning "origin", "kind", "type". The single-root words can be also found such as "jan" (to be born) giving derivatives that later form the word "jāti". In other words, initially this term indicated the origin of something. Professor Paramba Shri Yogamaya analyzes the meaning of the term "jati" in the Rigveda and the Vajasaneyi Samhita and concludes that the term is associated not so much with social belonging to a certain group, but with identity and identification. This is how the qualities, responsibilities, and characteristics of something were designated. The division of duties became the reason for the stratification of society. This system determined the characteristics of different castes. For Kshatriyas and Vaishyas, for example, they are based on the qualities of Rajas. And since the Vedas this determines their nature. In other words, the term "jati" in the Vedas is understood as an inherent and fundamental quality or role characteristic of a particular entity or group rather than a purely social category (Yogamaya, 2025).

In the research of European scientists, the term "caste" is increasingly used, which often means "jati". In the classic work of Louis Dumont "Homo Hierarchicus", the distinction between varna and jati is specified. Moreover, "jati" equals to caste: "Note that this is strictly accurate: a matter of situation no doubt, but jati ('caste') connotes above all birth, the hereditary group, and while it corresponds mostly to endogamy and to bilateral transmission it in no way excludes unilateral transmission and exogamy" (Dumont, 1970 :62-63).

The two-volume encyclopedic work of Arthur Anthony Macdonell and Arthur Berriedale Keith, which systematizes the notable personas, terms, social institutions and religious concepts mentioned in the Vedic texts, contains the following definition of "jati": "Jati, which in the Pali texts is the word denoting 'caste', does not occur at all in the early Vedic literature; when it is found, as in the Katyayana Srauta Sutra, it has only the sense of 'family' (for which cf. Kula, Gotra, and Vis). For the influence of the family system on the growth of caste, see Varna. To assume that it was the basis of caste, as does Senart, is difficult in face of the late appearance of words for family and of stress on family" (Macdonell & Keith, 1912:281-282). Thus, jati as a social group or criterion for dividing society arises much later.

Thus, the term "jati" originally meant a species trait or identification characteristic. However, over time, it has acquired the meaning of an inherited social group. These groups are a fundamental characteristic of India's social structure, and there are thousands of them.

The key features of Jati are heredity, specialization (for example, by profession) as well as religious and ritual components. The latter characteristic is just related to the myth of Purusha, and the appearance of Varnas since Jati can be interpreted as fragmentation inside Varnas. The Brahmanic tradition largely legitimizes the stratification of society as "natural" and cosmically conditioned. The Manusmriti, for example, recorded the ritual duties of Varnas, which were specified in Jati.

In political terms, the strengthening of the Jati system was associated with the growing complexity of state entities, the development of a ritual-oriented monarchy and bureaucracy as well as the economic differentiation of society. Acting as ritual experts and legal authorities, the Brahmans contributed to the institutionalization of social norms, which ensured social stability, but at the same time fixed inequality.

Although the term "jati" is used in the context of social structure of society, it can also be applied to refer to other associations formed by birth or origin criteria, in particular religious or language groups.

Thus, the Vedic tradition explains the very origins of such a structure and humanity in general through mythological narratives.

The version of human creation from the body of a cosmic Purusha, as we can see, is not the only one. Another explanation for the origin of humans and the society they formed is related to the figure of Manu, the progenitor of humanity. In the Vedic tradition, Manu appears not only as the first person, but also as the first sacrificer, lawgiver and bearer of moral order, through which the connection between gods and people is established. It is he who begins the sacrifice (yajña) – the act that becomes the model of creation and foundation of the human community: "He is essentially the first of sacrificers, and the establisher of sacrifice, though he appears with other old sacrificers" (Keith, 1925: 228).

According to the Vedic story of Manu, he escapes from water-flood with the help of a fish that was the avatar of Vishnu. This highlights the importance of his status and value for all future generations.

The question of the connection between Vaivasvata Manu and Manu as the author of the Manusmriti remains controversial. Traditionally, these figures are merged into one, thereby giving the text of the Laws a sacred status and a divine origin. In other words, he is also considered to be the author of the most famous normative text, which Indian thought treats as the first set of social and moral precepts that codifies the idea of dharma, i.e., a universal order that encompasses both the cosmos and society.

However, modern researchers do not fully share this view (Davis, 2010; Olivelle, 2005; Lingat, 1973). Most likely, the Manusmriti was created by the Brahman schools between the second century BC and the second century AD, and Manu is just a "figure of authority", rather than a real author. This attribution is typical of the Indian tradition. To give text or ideas importance, they are put into the mouth of a Rishi sage or a person with a connection to the gods. Although the authorship of the text is controversial, its importance and authority are undeniable.

Cosmological images of the creation of humanity from parts of the body of Purusha became the basis for the varna hierarchy. And the Manusmriti enshrined the rules of conduct and duties of each varna. "For the growth of these worlds, moreover, he produced from his mouth, arms, thighs, and feet, the Brahman, the Ksatriya, the Vaisya, and the Sudra" (Olivelle, 2005:88).

Each Varna has the corresponding duties and functions assigned to it: Brahmans – training, rituals; Kshatriyas – protection; Vaishya – trade, agriculture; Shudras – service. This is an

indication of how the cosmic law – Dharma – is embodied in the social stratification of society. And maintaining such an order is a sacred duty, because the stability of the world in general depends on it. In this sense, the social system appears as a reflection of the cosmic structure, and social roles are not just functional or economic categories, but ontological ones. Through the Varna system, the principle of rta – dharma is implemented. In the same way the cosmos is based on harmony and complementarity of elements, human society must maintain a balance between groups, each of which performs its intended function. A violation of this order is perceived not only as a social deviation, but also as a cosmological deviation that disrupts the overall balance of being. In other words, in the text we see the justification of social inequality as a natural order.

It is important to clarify the concept of rta since the Manusmriti continues the tradition of Upanishads and uses more the concept of Dharma. However, "rta" also means law, order, harmony and correctness. Moreover, for the Rigveda, this very concept had a cosmological, epistemological and ethical meaning. The order of the cosmos ensures that the sun rises, the seasons change, and light appears:

> *"From fervuor kindlled to its height eternal Law and Trus were born: Thence was the Night produced, and thence the bellowy flood of sea arose. From that same billowy flood of sea the Year was afterwords produced, Ordanier of the days and nights, Lord over all who close the eye. Dhatar, the great Creator, then formed the new order Sun and Moon. He formed in order Heaven and Earth, the regions of the air, and light"* (Griffith, 1897: 609).

At the same time, "rta" has the meaning of the ritual order by which sacrificial actions bear fruit, and the moral norm that makes the action right or good, and the correctness or truth of things, i.e., their correspondence to nature. In other words, it is the fundamental Vedic principle of the cosmic order, from which the concepts of Dharma, ritual law and social organization have developed. Early Indian texts build a bridge from cosmology to society through "rta", showing that the human community must recreate the order of the universe.

Cosmological narratives in the Samhitas and later in the Dharmashastras and the Manusmriti received the status of apologist of the Varna social system as a defender of rta and dharma. It laid the idea of society as a cosmic model, which should be arranged in a certain way, and a person does not live by himself, but as part of this community, being a part of the "great order". The social hierarchy becomes sacralized, and any social transformations or attempts to revise it are interpreted as interference with cosmic harmony.

Starting with the Manusmriti, the cosmological narrative is superimposed on the political and managerial ones. Fulfilling one's duties to the state means fulfilling one's dharma. This is simply the consolidation of the status of an individual in society according to birth. But the status of rta and dharma is higher than that of the King. A state that deviates from the principles of dharma is doomed to decline in the same way as the cosmos in the event of a violation of rta. Therefore, the cosmological model is not an abstraction: it defines standards of behavior, the structure of power, moral standards, and the legitimation of political decisions.

Thus, the cosmological model is transformed into a legal and regulatory one. We observe the imposition and penetration of cosmology into the sociopolitical sphere rather than their differentiation. Social order is conceived as an ordered projection of the cosmos, and the cosmos – as an example of harmonious interaction of elements that serves as a model for human community. That is why maintaining the established structure of Varnas and observing

dharma is not only a political or ethical task, but also a metaphysical one that supports the integrity of the world.

Transcultural Untranslatability: Western Interpretation of Oriental Narratives

Evidence from regulatory and historical sources indicates that India's development as a colony of the British Empire occurred through several interconnected stages. The first stage was the emergence of European interest in the Indian subcontinent during the late fifteenth and sixteenth centuries, when Portuguese, Dutch, French, and British trading companies vied for control of key ports and trade routes. The subsequent major stage was the rise of British East India Company dominance (1600-1858), which, after securing a monopoly on trade, gradually evolved from a commercial enterprise into a military and administrative power, establishing effective control over significant territories in India. After the Indian Rebellion of 1857, the British Crown took over, which marked the beginning of the British Raj period (1858-1947) – a centralized, bureaucratically organized and strictly controlled colonial system (Petlenko, 2025).

Such changes in the state and political atmosphere of India affected the perception and functioning of traditional social institutions. The concept of caste came into common use, and the structure of Indian society was defined precisely because of it as caste system. In the hands of the British administration, it has become legally codified and bureaucratic. The processes of colonial systematization, population censuses, "discovery" and classification of local customs became key mechanisms by which Varnas and castes were transformed into stable, rigid categories that determined the social status and legal status of individuals.

It is important to note that the analysis of how castes and Varnas functioned during the colonial period of Indian history is curial because it answers two questions. The first one is how British rule reorganized the political system in India, formed the idea of social hierarchy and traditional order. And the second – how this reorganization and impact affected the change in Indians' understanding of their own social structure, their own cultural categories, and ultimately how they began to understand themselves within that system.

From a historical perspective, two approaches can be distinguished, which define what a caste used to be during the colonial period. Nicholas Dirks mentions ethnographic criteria and understanding through categorization (Dirks, 2001).

Until 1857, when the East India Company began to collapse, British officials in India, missionaries, and Orientalists used their own epistemological approaches to understand the Indian social structure.

One of the earliest British attempts to understand the social structure of India was the work of an officer of the East India Company Alexander Dow "The History of Hindostan" (1768). Based on the Persian chronicles and mentoring of Brahman-Pandit, Dow represented Indian society through textually fixed concepts of Varna and hierarchical "traditional order" (Dow, 2021). However, the main drawback of the work was its appeal to texts rather than "field" research.

Thus, caste was originally an ethnographic concept based on a review of textual sources of Brahmanism and Hinduism. The lack of information about the difference between Varna and Jati, incomprehension of local, regional differences and the multiplicity of Jati led to a simplified understanding of Indian social organization. The European understanding of the nature of hierarchy and order has become the common denominator for the entire complex

Indian structure. In other words, early Orientalist studies created their own description and interpretation of how the Indian world existed.

After the inclusion of India in the British Empire, the model of governance changes towards centralization and bureaucratization. British pedantry and the desire for structuring are also reflected in the change in the status of caste concept in social, political and research terms.

Caste replaces the terms of Jati and Varna, as it is closer for Europeans. It is used in population censuses. Bureaucratic classification makes castes fixed, rigid, and hierarchical, whereas they used to be contextual and locally variable. In new discourse, the term "caste" becomes the key to understanding Indian society, unifying what has historically been diverse.

The 1871 census is very important in the context of our research, because it not only officially consolidated the caste stratification of society, but also showed epistemological shortcomings and miscalculations made by the British.

The census was a centralized procedure that had a certain scale and criteria for classifying the population, which were religious affiliation, occupation, and caste. It was an attempt to squeeze a diverse and flexible Indian identity into the bureaucratic framework. The next large-scale census was conducted 10 years later, in 1881:

> *"The Census of the 17 February 1881 was the first synchronous enumeration which has been attempted for all India... But the enumeration in the various Provinces and States has been effected at different times and by independent agencies. There had too been no attempt to secure uniformity in the arrangement of the statistics then obtained"* (Plowden, 1883).

We can distinguish the following main tasks of censuses. Administrative planning and governance required data on mobilization resources, taxable population, and resources for local infrastructure. The next task was to create quantitative population registers that would unhide public structures and facilitate control for the authorities. This gives the appearance of a deep understanding of the real social stratification in India by the colonial authorities. And finally, an academic and ideological goal. This facilitated the work of ethnographers, historians, and all Orientalists as well as fueled the scientific and political strategies of imperial power. This task concerned what was called "official anthropology" and was intended to justify the inclusion of India in the British Empire:

> *"The declared, double purpose of official anthropology was always to contribute to scientific knowledge and to strengthen and improve British rule. This anthropology reflected and reinforced British ideas that 'traditional' Indian society – the antithetical 'other' of modern European society – was made up of separate religious communities and separate castes, which were the most important social groups, together with a tribal periphery"* (Fuller, 2017: 4).

The conditions for censuses conduct were based on unified procedures, as in England. However, difficulties arose at the questionnaire and survey stage. "In England the vast majority of the inhabitants fill in their own schedules for the Census; in India the cases where such a course is possible are rare" (Walby & Haan, 2012:301). Often the data was recorded by local officials or village elders but interpreted through the prism of British administrative logic. Thus, the choice of terms, counting and names of castes were recorded according to the colonial mapping of society. There was confusion with local names and the overlap of the

concepts of jati/occupation/varna. In British interpretations, conflicts and discrepancies were simplified. The caste unified all these differences and appeared as an "objective" fact precisely at the suggestion of the British interpretation.

This had the following consequences. First, the consolidation of social labels. The officially fixed name of the caste became an administrative identifier. It was used in documents, the education system, and at work. Second, the rethinking of the social and political field. Various castes used census data to substantiate their claims. And critics pointed to the colonial nature and constructivism of these categories (Dirks, 2001).

Thus, the census not only recorded social realities but also actively created them, turning the mobile social structure of India into a standardized system that was convenient for administrative governance.

The imperial power regarded castes as an indicator of the "backwardness" of Indian society. However, at the same time, for the British, it was the caste that became the basic unit of social organization and the only "correct" way to describe Indian reality. Moreover, the British believed that it was the caste system in their own bureaucratic sense that could properly represent India. The colonial authorities not only classified but also actively reconstructed castes so that they corresponded to their idea of social order and could function as a convenient model of civil society. To reinforce their positions, they used the Manusmriti as a source of Hindu law, but they made two mistakes. First, they underestimated regional customs and traditions, which, in part, were much more important in legal proceedings or governance than the Manusmriti, because the latter was just a collection of instructions and recommendations. The second, dharma and performance of duty for Indian thought have more ritual and ethical status rather than being a codified law.

Thus, the British reinterpreted Indian traditions through Western confidence in rationality and textuality. The Manusmriti became the main source of information only because there was a need in one clear and understandable code as a basis. Certainly, the social structure of India, which was represented by Varnas and Jatis, existed before the arrival of colonialism. However, modern understanding of what exactly the caste is, what it defines, and how it functions in society is a product of the colonial epistemological approach.

Postcolonial Modernity – Reconstruction of Cosmic Myth

The trend set by the first censuses remained relevant until 1931. The caste was a mandatory administrative label. The new legislation was the engine of inevitable changes, because the British did not just observe and describe Indian society; they actively transformed it. This transformation also affected the caste system. We can agree with the authors of the article "*Colonial legislation and the erosion of Brahmanic dominance: Transforming the caste system in British India"* that the new identities were invented:

> *"The British colonial legal framework was significant in changing the caste relations that were situated within the Hindu society. Measures like the Caste Disabilities Removal Act of 1850 and the Hindu Widow's Remarriage Act of 1856 were the beginning of legal attacks on the rigors of Brahmanic law that promoted enhancements of mobility and rights of individuals. However, while these laws sought to minimize the oppressive features of the caste system, they established in their place new legal modes of caste identity"* (Kalwar et al., 2025: 804).

In the 1940s, when the Resistance movement in India was gaining more strength, such a categorization of society gradually lost its expediency. Detailed caste data were no longer entered in the 1941 census. However, the imposed ideological imprint has gained considerable political weight. In particular, based on the obtained statistics, the concept of "Scheduled Castes" became current (Government of India, 1935).

The British understanding of what and which India is has become the basis for scientific research related to Indian culture, philosophy, religion, etc. However, this also had the opposite effect. The Indians themselves, who were educated in Europe, sought to be understood. The twentieth century gave many researchers of Indian philosophy who were Hindus but wrote in English for the European reader. This means that such well-known researchers as Sarvepalli Radhakrishnan (Radhakrishnan, 2008a; Radhakrishnan, 2008b), Satischandra Chatterjee, and Dhirendramohan Datta (Chatterjee & Datta, 2010) worked within the methodology and requirements for academic textual sources laid down by European discourse.

The situation arose when the British Orientalist discourse took the shape of a "framework" of knowledge about India. Researchers from other European countries joined it as well. But they all described India as "different", culturally distinct, static, traditional, and chaotic, one that requires rational European regulation. For this reason, Indian studies developed mainly as philology, comparative religion, and normative philosophy in European universities (Oxford, Cambridge, Hamburg).

This has the opposite effect as well. Indian intellectuals adopt the norms of Western academic presentation of material, and their goal is precisely to become clear to the West. Therefore, they write their works mainly in English, apply the methodological approach inherent in European universities (logical analysis, commenting on texts, comparative studies), and use the terms of European philosophy to explain Indian concepts (for example, ethics, metaphysics, logic, or even philosophy). This created the first generation of "Indian mediator philosophers" acting as intermediaries between tradition and the West.

As a result, Indian philosophical thought of the late nineteenth and twentieth centuries appears both as a continuation of the age-old tradition and as a product of the Western academic way of presentation and description. Thus, we see the answer to the above question regarding self-understanding within the framework of the new system formed by the British authorities. The adoption of European criteria of rationality and scientificity is combined with the simultaneous opposition of one's deep spirituality and appeal to the religious and philosophical heritage of Western intellectualism.

Thus, modern Indian philosophy was formed as a space of dual affiliation. It sought to meet the requirements of European discourse but at the same time asserted its own difference, looking for resources for national and cultural self-identification in classical texts. This tension between the internal and external visions of India becomes the key to understanding twentieth-century Indian thought.

Such duality was traced not only in the intellectual sphere but also in the sociopolitical one. One of the most striking examples was the transformation of ideas about caste during the period after gaining independence.

However, independent India tried to distance itself from the colonial, Europeanized interpretation of the caste. But it has retained its basic administrative infrastructure. These were lists, registers, definitions, and legal criteria created by the British. It was impossible to reject these tools, since they had become the basis for the implementation of social justice policies. In the second half of the twentieth century, this led to new forms of political activity. For example, Dalit movements or regional parties that represented the interests of individual

caste blocks (Yadavs, Jats, Vanniyars, etc.). Thus, the colonial setting of caste standards created long-term sociopolitical structures that continue to influence modern India.

Analyzing cosmological narratives, such as the Purusha myth, we see how they first influenced traditional Indian society, were later revised and reinterpreted by the colonial British authorities, and are now present in the political rhetoric of independent India. It is important to answer the question of what channels or ways of this influence remained in postcolonial India. This will help connect ancient narratives and modern intellectual and political discourse.

We propose identifying such channels of influence as institutional, ideological, and local practices. Institutional ones lie in the consolidation of castes through legal norms and state institutions. After gaining independence in 1947, the Indian government faced many challenges and problems that needed to be addressed, including the question of what to do with the colonial heritage in various spheres: economic, political, social, and cultural. The inherited social reality represented the caste not just as a religiously conditioned but as a political category. It was engaged in administrative governance, the tax system, as a mobilization tool, etc. It was too difficult, even impossible, to abandon caste labeling at the beginning of the formation of independent India, since such a decision would simply be declarative. Therefore, the articles 341-342 of the Constitution of 1950 retained the concept of Scheduled Castes/ Scheduled Tribes: "The President may, after consultation with the Governor or Rajpramukh of a State, by public notification, specify the castes, races or tribes or parts of or groups within castes, races or tribes which shall for the purposes of this Constitution be deemed to be Scheduled Castes in relation to that State" (Government of India, 1950a). Based on these articles, the President issued the Constitution (Scheduled Castes) Order and the Constitution (Scheduled Tribes) Order, which formalized lists for reservations and legal protection purposes. Thus, the colonial practice of caste categorization was adopted and continued by the new state, but with a different legal and political context (Government of India, 1950b).

Such implementations, known as positive support measures, have strengthened the system of positive discrimination. These include quotas in education, public service, and political representation. Therefore, the caste has become a normative category of the modern state, but with a modified role — not for creating hierarchies, but for addressing structural inequality.

When considering how the legislative consolidation of Scheduled Castes, Scheduled Tribes and later Other Backward Classes took place, through which the caste received a new normative function within the new political model, it is worth paying attention to such a phenomenon as reservations.

Certainly, reservations did not appear during the period after gaining independence. "In the Indian context reservations were introduced during the last decades of the 19th century at a time when the subcontinent could be broadly divided according to two main forms of governance – British India and the 600 princely states" (Das, 2000:3831). However, over time, the reservation originally intended for registered castes and tribes evolved to include other "backward" groups (OBCs). As a result, the document "Communal Award" was prepared in 1932. It introduced separate electorates and representation quotas for different religious and social groups. There, for the first time, reservation of seats in legislative councils was institutionalized for the untouchable, Muslims, Sikhs, Anglo-Indians, etc. (Nugent, 1979).

The reservation was further amended in the 1950 Constitution of India, including paragraph 4 of article 16: "Nothing in this article shall prevent the State from making any provision for the reservation of appointments or posts in favour of any backward class of citizens which, in the opinion of the State, is not adequately represented in the services under the State" (Government of India, 1950a).

In the twenty-first century, the expansion of quotas was justified by an amendment to the Constitution in article 15. This allowed for reservations for SEBC (socially and educationally backward classes), SC (Scheduled Castes), and ST (Scheduled Tribes) in educational institutions. This paragraph is also relevant to the latest version of the Constitution.

Therefore, the issue of reservations, quotas, and caste benefits is quite critical for modern India. The last census was conducted in 2011, and the column about caste remained there. However, there are discussions about replacing the concept of caste with an economic criterion. One of the speakers of this idea was the former Prime Minister of India, the leader of Janata Dal (Secular) Deve Gowda. He emphasizes that people suffer even despite existing reservations and that the focus should be on those who live in real poverty (NDTV News, 2024).

Political leaders and ideologists sometimes turn to traditional narratives about social order to defend their position on the institutional consolidation of various levels of social assistance for the population. For example, references to the Manusmriti, the Dharmashastra and the Vedic canon are used to politically legitimize their position both to preserve the traditional social system and to implement reforms. In this context, movements for caste rights, in particular the leaders of OBC, SC and ST, also cite ancient texts to emphasize that support for marginalized communities has a long moral and cultural basis. Such rhetoric allows politicians to justify reservations and other institutional measures of social support through the prism of tradition and religiosity. Vedic and cosmological narratives in this sense become a tool for forming the regulatory framework of policy, influencing legislative decisions, the quota system and state practices of social protection. In other words, ancient texts act as a symbolic support for modern institutional mechanisms of social justice.

The ideological channel of influence manifests itself in the use of images of Vedic cosmology and ideas about dharma and rta in political projects and the formation of a new postcolonial identity. The use of Vedic images in the political rhetoric of modern India is quite common. The most illustrative one is the Hindutva movement – an ideology of Hindu nationalism, and there are several parties and organizations in India that support it or are associated with it. Bharatiya Janata Party (BJP) is the main leading political party that defends the Hindutva ideology. They build their position around the idea of the unity of Indian civilizational culture as the unity of the nation. The rejection of pro-Western positions is combined with an appeal to tradition, mythology and cosmology. There are also organizations associated with the ideology of Hindutva. Rashtriya Swayamsevak Sangh (RSS) is a volunteer organization that supports the ideology of Hindu cultural nationalism through a network of cadet trainings, educational and social programs. It acts as an ideological center and has a significant influence on political structures, in particular, on BJP. Vishva Hindu Parishad (VHP) is a religious nationalist organization established to mobilize Hindu religious institutions and communities to protect Hinduism and promote Hindu identity. VHP organizes religious campaigns, social movements, and engages in politically sensitive issues, including interreligious conflicts and temple movements.

Hindutva ideology uses symbols taken from Vedic culture. Here are some examples. The saffron flag Bhagwa Dhwaj is associated with the veneration of one of the most popular Rigveda gods, Agni, and this color was also associated with sannyasin – ascetic sages. Along with this, the sacred symbol AUM ॐ is used. Images of Rama, Krishna, heroes of epics and Puranas are used for cultural consolidation. Gatherings and processions are often accompanied by such symbols to emphasize the connection between religion and national identity.

Representatives of Hindutva also appeal to such cosmological narratives as the "principle of natural order" or Rta. It is used to emphasize that Hindu civilization is based on an ancient

cosmic order – as if the "Vedic rhythm" serves as the foundation for the ethical, cultural and social order of modern India. In other words, cosmology here is not just a myth – it is the basis of the idea that ancient Vedic knowledge is not only religious, but also has a universal, fundamental nature, providing a connection between the cosmos and the social order. References to *Purusha Sukta* have the same purpose.

The narrative of the world ages – the Yugas – and the "Golden Age" is also actively turned to advantage. Each yuga is a specific period measured by days and nights of Brahma. There are four of them forming one big cycle – Maga-Yuga. However, each subsequent yuga is worse than the previous one. The Bhagavad Gita contains an analogy of a four-legged table with how the Dharma functions in each era. In the first – the golden – one, Dharma stands firmly on all four legs, so everyone lives happily. However, in our time of the last Kali Yuga, this table stands only on one leg, so moral norms and customs are shaky, and people are unhappy. This was interpreted by the ideologists of Hindutva in the form of an "ancient perfection" narrative. Proximity to tradition and religion is proximity to truth. This means that a return to one's roots is the basis for a revived national integrity and identity. Thus, cosmological Vedic narratives in Hindutva are a way to legitimize the idea that "we are the heirs of the Vedic cosmos", and this knowledge can be trusted as a basis for self-identification and self-awareness.

Hindutva is the most prominent ideology in the context of our research. It is part of the larger civilizational unity project. This project is not just a specific party program or organization charter. This is a combination of ideas aimed at developing political, cultural, and social reforms under the conditional slogan of "return to the real India and marginalization of alternative narratives and programs (Islamic or European ones)".

For this purpose, such cultural levers are used as the construction of large statues, temple complexes, memorial parks (Statue of Unity; temples of Rama, Shiva, Vishnu), the use of the image of Bharat Maha (Mother India) during official events (Ramaswamy, 2010), visual design of state programs in the style of Vedic symbolism (Hansen, 1999), purposeful change of school textbooks: replacing historical photographs with iconography of Hindu deities or epic heroes (Kumar, 2005).

These measures create the effect of filling the public space with Hindu narratives. Visual images and visual expression give the impression that there is a canon of national identity created. Its repetition in political and social discourse reinforces the vision of the foundation for national identity in its return to tradition.

And finally, the third channel of influence is represented by local practices. At the level of towns, villages, or other small settlements, ancient cosmological concepts convey everyday norms and rituals and are also the basis for grouping the population by a certain attribute (professional, caste, origin, etc.). Such local practices can be a mainstay for various political or social movements, e.g., the movement for the rights of Dalits (untouchables) or for reforms and social protection. They can also amplify inequality. In the current situation, this is exemplified by several practical cases: campaigns for land redistribution, political activity of OBC/ SC/ ST (Other Backward Classes, Scheduled Castes, Scheduled Tribes) or other castes, ritual strategies of mobility (Jodhka, 2025).

Local campaigns for land redistribution work as follows. In rural areas, the caste hierarchy has effect through land relations. Large landowners are often representatives of dominant castes such as Jats, Yadavs, Marathas, Kammas, Reddys. Although they are divided into Sudras in the Varna hierarchy, some of them derive from Kshatriyas, while landless or land-poor ones are just antecedents of Dalits or other OBCs. Thus, the caste system is being transformed today through the criterion of resource ownership, which means that it is becoming more economical.

However, property, including land ownership, has always been a sign of privileged Varna. The Manusmriti mentions the rights to own property and to the possibility of its inheritance for each social stratum. And the reason for this lies precisely in the cosmological myth of Purusha. In modern India, caste and Varna relations are physically reproduced through local practices of access to resources, such as land. This includes labor obligations, discrimination or privileges of the labor market, opportunities to rent or own land, etc. In a specific way, this is a reproduction of the identity policy that was laid down in the ancient ideas about the origin of human beings. Although the prize in this struggle is a material resource, the origins and causes are rooted in the traditional structure of society.

The next local practice is the political mobilization of OBC/SC/ST groups. Regardless of the party's level or influence, whether it is BJP, INC, or regional parties, gaining voter support often involves caste identification. The work of Surinder S. Jodhka has shown that different mechanisms are involved for gaining voter favor based on caste differences. For example, Caste caucuses are not political organizations, but they have influence over who is supported by a particular local community. In most districts, the victory is gained by the political force that "covers" the votes of two or more castes. This is called caste-block voting. From this perspective, we can see that the caste has become an electoral unit, and the vote of each such unit is a political resource. In other words, the mechanism of political influence on voters grows out of the idea of society as a "body" (the sacrificial body of the first person – Purusha), and each part of it acts correctly and smoothly, only in connection with the other. Therefore, winning the favor of several such parts by a political party is a step in maintaining order and fulfilling dharma. Like the Manusmriti, modern caste caucuses perform the function of organizing group behavior, discipline, and representing the interests of the community. In this sense, parties that seek to "cover" the votes of several castes in fact reproduce the principle of dharmic balance between social strata, only in the political plane. Caste consolidation (from campaigns for land to electoral unification) becomes an inversion of the traditional hierarchy, which is paradoxically enshrined in the language of Vedic harmony and integrity.

Ritual mobility strategies highlight and display certain symbols and practices that emphasize belonging to a particular caste. The Dalit assertion rituals may be the most illustrative ones. These are political gestures rather than religious rituals. The Dalits are a group that takes origin from achhuti or untouchables – groups of people who, in ancient India, were outside the Varna system and were subject to the greatest number of restrictions. However, nowadays they are performing certain actions that were forbidden for them in traditional society. For example, if white or gold clothing was previously banned for them at festive events, today they wear it ostentatiously. These practices also include secular honoring of human rights defender and father of the first Constitution of independent India – Bhimrao Ramji Ambedkar, who was a representative of this caste. The creation of new practices that become outstanding for a particular group can be called Re-ritualization (Jodhka, 2025).

Another practice that presents a block of ritual mobility strategies is Sanskritization. Mysore Narasimhachar Srinivas suggests this term to explain the phenomenon when a group begins to perform rituals of "higher" castes (vegetarianism, rites of purity, veneration of certain deities) to increase symbolic status (Srinivas, 1952). The ritual becomes a way of political articulation, through changing rituals groups declare their dignity and right to status.

Thus, in postcolonial modern India, caste continues to serve as an element of stratification of society. However, the form of this activity is changing. Although in the ideology of the Hindutva type, the main feature is just an appeal to tradition and emphasis on the importance of observing dharma and rta (the fundamental cosmological concepts of Vedic thought). However,

in the settings of modernity and the course of mundanity and secularism set by Indian political leaders after independence, the caste takes on new connotations: as an economic component, as an electoral unit, and as a symbolic project. Therefore, notwithstanding that officially public governance is aimed at reducing and blurring the boundaries between different social groups, in practice it remains and increases, albeit in a somewhat transformed form.

Conclusions and Discussion

The analysis of cosmological narratives of ancient India and their impact on sociopolitical organization shows deep integration of mythological thinking into the social structure. Vedic ideas about the cosmos are not purely religious metaphors but determined the way to understand the social order, legitimize power, distribute responsibilities and status of a person in society. The divine sacrifice of Purusha, the embodiment of the law of cosmic harmony Rita, the logic of existence and living in this world Dharma became typical narratives, by the circulation of which Indian tradition explained various aspects of social existence – starting from functions of the ruler to the role of the individual in the community. That is why the Varna system appeared not as a simple social construction but as an embodiment of a deep cosmological principle, primitive order, harmony and correctness.

A brief description of the pacing of the cosmological myth in the design structures of the sociopolitical structure of modern India can be provided in the following sequence of final conclusions:

- Cosmological ideas of ancient India played a fundamental role in shaping the organization of Indian society;
- Along with Varna, the term Jati is used. The division of society into Jati is more consistent with what Europeans call castes and what functions as the term "caste" in modern discourse. In the texts of the Rigveda, jāti means "origin", "kind", "type". Single-root words can also be found, such as jan (to be born), which gives rise to the word jāti. In other words, initially, this term indicated the origin of something;
- The term Jati originally meant a species trait or identification characteristic. However, over time, it has acquired the meaning of an inherited social group. These groups are a fundamental characteristic of India's social structure, and there are thousands of them. The key features of Jati are heredity, specialization (for example, by profession) as well as religious and ritual component. The latter characteristic is related to the myth of Purusha and the appearance of Varnas since Jati can be interpreted as division inside Varnas. The Brahmanic tradition largely legitimizes the stratification of society as "natural" and cosmically conditioned. The Manusmriti, for example, recorded the ritual duties of Varnas, which were specified in Jati;
- The cosmological model is being transformed into a legal and regulatory one. It is not the differentiation that is being tracked, but the overlap and penetration of cosmology into the sociopolitical sphere. Social order is conceived as an ordered projection of the cosmos, and the cosmos – as an example of harmonious interaction of elements that serves as a model for human community. That is why maintaining the established structure of Varnas and observing dharma is not only a political or ethical task, but also a metaphysical one that supports the integrity of the world;
- Caste replaces the terms Jati and Varna, as it is closer to Europeans. It is used in population censuses. Bureaucratic classification makes castes fixed, rigid, and hierarchical, whereas they used to be contextual and locally variable. In new

discourse, the term "caste" becomes the key to understanding Indian society, unifying what has historically been diverse;

- Vedic and cosmological narratives become a tool for forming the regulatory framework of policy, influencing legislative decisions, the quota system and state practices of social protection. In other words, ancient texts serve as a symbolic support for modern institutional mechanisms of social justice;
- There are modern appeals to such cosmological narratives as the "principle of natural order" or Rita. It is used to emphasize that Hindu civilization is based on an ancient cosmic order – as if the "Vedic rhythm" serves as the foundation for the ethical, cultural and social order of modern India. In other words, cosmology is not just a myth – it is the basis of the idea that ancient Vedic knowledge is not only religious, but also has a universal, fundamental nature, ensuring a connection between the cosmos and the social order. References to Purusha Sukta have the same purpose.

The colonial power of the British Empire at one time gave ancient ideas new contexts and interpretations, often fixing the social structure of India in the form of a rigid caste scheme. Anthropological classifications and population censuses of the nineteenth century contributed to the categorization and fixation of flexible social identities, giving them attributes of constancy and immutability. Colonial administrative approaches interpreted the caste as a tool of governance, which strengthened social boundaries and reduced the space for mobility. At the same time, resistance to these practices contributed to the formation of political movements of self-awareness and emancipation, which in the twentieth century turned the caste issue into a key plane of public debate.

In the 20th–21st centuries, the reception of cosmological ideas takes place within the framework of a broader socio-political discourse, where caste problems become a platform for ideological struggle, reforms and constitutional changes (Liakh & Khmil, 2025). Indian thinkers, politicians, ideologists and scholars rethink ancient narratives, emphasizing their historical changeability and contextuality. Political parties, social movements and human rights organizations of the twentieth century actively use the topic of caste to articulate issues of equality, justice and access to resources. This has become a platform for transformation and interpenetration of cosmological narratives and political rhetoric. In the twenty-first century, the issue of caste affiliation and the rights and obligations associated with it is entering a new plane. This is the sphere of identity politics, national consciousness, issues of unifying ideology, and along with this, an economic factor, a lever for regulating the social sphere. Modern reception is increasingly calling into question the universality of traditional interpretations, combining them with global concepts of human rights, social inclusion and anti-discrimination strategies. At the same time, the difference in political decisions at the state and local community levels is significant. Communities are often more traditional. Thus, ancient cosmological narratives continue to influence the socio-political discourse of contemporary India. However, their content is being reorganized. The reasons are colonial legacies, democratic reforms, or intellectual debates. The Indian discourse of the 20th–21st centuries shows that it is the interpretation and rethinking of tradition, and not its literal reproduction, that determine the direction of development of social thought and political practice in the country.

Glossary

Brahman — relating or belonging to the Brahmans or the sacerdotal class peculiar or favourable to or consisting of Brahmans Brahmanical, relating to Brahman, sacred to the

veda divine relating to brahma or brahmA scriptural holy relating to sacred knowledge, sacred belonging to an inhabitant of brahmA's world, prescribed by the veda

sacred word, god brahmA, Brahman priest, prayer, absolute of the universe, substrate of the universe, holy life, devotion.(Kononenko et al., 2019:126)

Darsana – view, philosophy, anything seen, observation, semblance, apprehension, appearance, understanding, perception, understanding, color, foreseeing, seeing, noticing, teaching, looking at, showing, exhibiting, knowing, eye-sight, act of seeing, meeting, sacrifice, dream, intention, way of looking at the world, ocular perception, showing a mirror, becoming visible or known, eye, aspect, presence, visiting, doctrine, intellect, observing, audience, experiencing, sight, philosophical system, vision, examination, sightseeing, judgment discernment, opinion, being mentioned.(Kononenko et al., 2019:130)

Dharma – manner, nature attribute, practice, property, religious merit, Law or Justice personified, to become, religious abstraction, bow, devotion, associating with the virtuous, character, law, observance propriety of conduct, upanishad, peculiarity, statute, morality, which is established or firm, ninth mansion, observance, justice, right thing particular ceremony, ethical precepts of Buddhism, steadfast decree, duty, good works, usage virtue, peculiar condition or essential quality, customary observance or prescribed conduct, moral merit, law of Northern Buddhism.(Kononenko et al., 2019:131)

Sansara, samsara – secular life, worldly existence, metempsychosis, passing through a succession of states, worldly illusion, passage, transmigration, undergoing transmigration, going or wandering through, cycle of worldly existence, life, course, circuit of mundane existence, rending crushing, breaking (Kononenko et al., 2019:138).

Rta – order, rhythm, rule; truth; logos, representing the principle that governs the universe's natural, moral, and sacrificial order

Varna — color or shape, derives from the root vr, which means to cover, count, or classify, an ancient system of grouping individuals. The four traditional varnas are Brahmans (priests), Kshatriyas (warriors and nobles), Vaishyas (commoners or laborers), and Shudras (servants).

Jāti — is derived from jāta, born or brought into existence, and indicates a form of existence determined by birth, genus, description of any group of things that have generic characteristics in common.

Purusha, Puruṣa – man, human being, or person in a literal sense, but it is also a complex concept with spiritual meaning the true self, consciousness, the cosmic being, or the universal principle of life.

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🕮 References

Abbott, H. P. (2020). *The Cambridge introduction to narrative*. https://doi.org/10.1017/9781108913928

Ambedkar, B. R. (2019). *Riddle in Hinduism.* Samyak Prakashan.

Bloomfield, M. (1897). *Hymns of the Atharva-Veda: Together with extracts from the ritual books and the commentaries* (Vol. 42). Clarendon Press. https://sacred-texts.com/hin/av.htm

Bugrov, V. (2021). Institutionalisation of Research Achievements of the Institute of Philosophy in Educational Practices: experience of the «Kyiv School of Philosophy». *Philosophical Thought,* 4, 27–37. https://doi.org/10.15407/fd2021.04.027

Cassin, B. (2016). *More than one language* (S. Zheldak, Trans.). Dukh i Litera.

Chatterjee, S., & Datta, D. (2010). *An introduction to Indian philosophy*. Rupa Publications

Das, B. (2000). Moments in a history of reservations. *Economic and Political Weekly,* 35(43–44), 3831–3834.

Davis, D. R., Jr. (2010). *The spirit of Hindu law.* Cambridge University Press.

Dirks, N. B. (2001). *Castes of mind: Colonialism and the making of modern India*. Princeton University Press.

Dow, A. (2021). *History of Hindostan*. Legare Street Press. (Original work published 1768)

Dumont, L. (1970). *Homo hierarchicus.* University of Chicago Press.

Fuller, C. J. (2017). Ethnographic inquiry in colonial India: Herbert Risley, William Crooke, and the study of tribes and castes. *Journal of the Royal Anthropological Institute*, 23(3), 603–621. https://doi.org/10.1111/1467-9655.12654

Government of India. (1935). Government of India Act, 1935. https://archive.org/details/in.ernet.dli.2015.35417

Government of India. (1950a). *The Constitution of India.* https://www.constitutionofindia.net/constitution/constitution-of-india-1950/

Government of India. (1950b). The Constitution (Scheduled Castes) Order, 1950 (S.R.O. 385). Gazette of India, Extraordinary https://socialjustice.gov.in/writereaddata/UploadFile/CONSTITUTION%20%28SC%29%20ORDER%201950%20dated%2010081950.pdf

Griffith, R. T. H. (1897). *The hymns of the Rigveda* (Vol. 2). E. J. Lazarus & Co.

Griffith, R. T. H. (1899). *The texts of the White Yajurveda: Vajasaneyi-Samhita (with a running translation)*. E. J. Lazarus and Co. https://www.sacred-texts.com/hin/yv/index.htm

Hansen, T. B. (1999). *The saffron wave: Democracy and Hindu nationalism in modern India.* Princeton University Press.

Jamison, S. W., & Brereton, J. P. (2014). *The Rigveda: A philological and cultural history*. Oxford University Press.

Jodhka, S. S. (2025). On the futures of caste. *Economic and Political Weekly,* 30(1). https://doi.org/10.1177/097226612513465

Kalwar, B. A., Shabbir, T., Shujaudin, S., Meghwar, P. S., Kalwar, M. A., & Kunbhar, A. A. (2025). Colonial legislation and the erosion of Brahmanic dominance: Transforming the caste system in British India. *Dialogue Social Science Review* (DSSR), 3(2), 789–809.

Keith, A. B. (1925). *The religion and philosophy of the Veda and Upanishads* (Vol. 31). Harvard University Press

Kononenko, T., Kyrylenko, K., Hnatovska, H., Kyriienko, A., Kulinich, H., & Ovdiienko, D. (2019). *Indian philosophy: A textbook for university students*. Folio.

Kononenko, T., Shcherbyna, N., Petlenko, I., & Borodii, A. (2021). *Archeographic guide to the history of philosophy: Research publications of Taras Shevchenko National University of Kyiv in the field of philosophy, 1944–1961*. Press of the Research Institute of Ukrainian Studies. https://doi.org/10.30840/ndiu.95

Kumar, K. (2005). *Political agenda of education: A study of colonialist and nationalist ideas* (Rev. ed.). Sage Publications.

Liakh, V. V., Khmil, V. V. (2025). Enlightenment Thought and the Characteristics of Its Contemporary Transformations. *Anthropological Measurements of Philosophical Research*, 28. P.1–13. https://doi.org/10.15802/ampr.v0i28.348985

Lingat, R. (1973). *The classical law of India* (J. D. M. Derrett, Trans.). University of California Press

Macdonell, A. A., & Keith, A. B. (1912). *Vedic index of names and subjects* (Vols. 1–2). John Murray.

NDTV News. (2024). Deve Gowda calls upon Parliament to think if reservation should be on economic basis. *NDTV*. https://www.ndtv.com/india-news/deve-gowda-calls-upon-parliament-to-think-if-reservation-should-be-on-economic-basis-7269459

Nugent, H. M. (1979). The communal award: The process of decision-making. *South Asia: Journal of South Asian Studies,* 2(1–2), 112–129. https://doi.org/10.1080/00856407908722988

Oldenberg, H., & Shrotri, S. B. (2024). *The religion of the Veda: Die Religion des Veda (1st ed.)*. Motilal Banarsidass Publishing House.

Olivelle, P. (2005). *Manu's code of law: A critical edition and translation of the Mānava-Dharmaśāstra*. Oxford University Press.

Petlenko, I. V. (2018). *The concept of the history of philosophy by S. Radhakrishnan* (Candidate of Sciences dissertation). Taras Shevchenko National University of Kyiv.

Petlenko, I. V. (2025). India's colonial experience: Chronology and tools of colonial rule. *Philosophy and Political Science in the Context of Contemporary Culture*. https://doi.org/10.15421/352511

Plowden, W. C. (1883). *Report on the census of British India taken on the 17th February 1881.* Eyre and Spottiswoode.

Pobocha, T. D., Khmil, T. V. (2025). The Ontological Basis of Hryhorii Skovoroda's Ethical Doctrine. *Anthropological Measurements of Philosophical Research,* 28, pp. 74–84. https://doi.org/10.15802/ampr.v0i28.349026

Radhakrishnan, S. (2008a). *Indian philosophy: Volume I* (2nd ed., Vol. 1). Oxford University Press

Radhakrishnan, S. (2008b). *Indian philosophy: Volume II* (2nd ed., Vol. 2). Oxford University Press

Ramaswamy, S. (2010). *The goddess and the nation: Mapping Mother India.* Duke University Press.

Rudenko S., Changming Z. (2022) Lady Xian's Cosmology and Philosophy as a Masterplot of Modern Chinese Culture. *Philosophy and Cosmology,* Volume 29, 116-124. https://doi.org/10.29202/phil-cosm/29/10

Rudenko, S., & Liashenko, I. (2020). Chinese studies in Ukrainian philosophy of the Soviet period. *Studia Warmińskie, 57*, 85–100. https://doi.org/10.31648/sw.6007

Srinivas, M. N. (1952). *Religion and Society among the Coorgs of South India*. Oxford University Press.

Stevenson, J. (1842). *The Samaveda Sanhita: A Collection of Hymns used by the Adhvaryu Priests*. Oriental Translation Fund.

Walby, K., & Haan, M. (2012). Caste confusion and census enumeration in colonial India, 1871–1921. *Histoire sociale / Social History,* 45(90), 301–318. https://doi.org/10.1353/his.2012.0026

European Dictionary of Philosophies: Lexicon of Untranslatables (2009). Kyiv: Dukh i Litera.

Yogamaya, P. S. (2025). *Conflict management in Vedic traditions: The term Jāti, conventional meaning and solution in the Vedas* [Paper presentation]. WAVES International Conference 2025, Puri, Odisha, India.

Eternal Inflation and the Hermeneutics of the Infinite: Interpreting Cosmology at the Edge of Meaning

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The theory of eternal inflation — according to which our observable universe is just one bubble within an endlessly self-replicating multiverse — presents not only a physical but also a hermeneutic challenge. It describes a cosmos that surpasses the possibility of complete representation, where every act of measurement remains limited by a local horizon, and prediction dissolves into contingency. The infinity it introduces is not numeric but interpretive: an open proliferation of possible worlds and meanings that exceeds the conceptual reach of the observer. This article argues that eternal inflation marks a crucial moment in the modern philosophical history of science, where cosmology confronts its own limits of comprehensibility. Drawing on hermeneutic theory — from Gadamer's horizon of understanding to Cassirer's symbolic forms — it explores how cosmological formalism becomes an epistemology of the infinite, creating models that are mathematically consistent yet semantically unstable. At this point, cosmology becomes a self-reflective hermeneutics: a discipline interpreting the impossibility of its own closure. The goal is not to dissolve the tension between mathematics and meaning, but to see that tension as the condition of knowledge today — a universe that interprets faster than it can be understood.

Keywords: Eternal inflation; multiverse; quantum cosmology; hermeneutics; epistemology of physics.

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Introduction
When the Universe Refuses to End

In 2011, the Nobel Prize in Physics was awarded to Saul Perlmutter, Brian P. Schmidt, and Adam G. Riess for the discovery that the universe's expansion is accelerating. What began as a straightforward astronomical survey of distant Type Ia supernovae soon reshaped our sense of cosmic history. The cosmos was not slowing down, as many expected, but pushing itself apart under the influence of a mysterious "dark energy" embedded in the vacuum. Instead of approaching a static fate, the universe appeared to be moving toward unending renewal — a world that, in a sense, never completes its own beginning.

Among the most unsettling possibilities raised by modern cosmology is that this refusal to end might not be accidental. What we call the Big Bang could be only one local instance of a process that never entirely stops. In the early 1980s, theorists such as Alan Guth (1981), Andrei Linde (1983, 1986), and Alexander Vilenkin (1983, 2007) reworked the inflationary scenario into what became known as eternal inflation. In this picture, the exponential expansion that shaped our own cosmic region persists elsewhere, freezing in some domains while continuing in others. The result is an unbounded proliferation of "bubble universes," each developing with its own constants, histories, and physical possibilities.

For physics, eternal inflation is a mechanism of ceaseless generation. For philosophy, it marks a turning point in the conditions under which explanation becomes possible. A model introduced to clarify the universe's early moments ends by opening a vast epistemic dilemma. If every universe permitted by the laws of physics exists somewhere (Tegmark, 2003), what becomes of explanation itself? If each domain carries its own version of the laws of nature (Ellis et al., 2004), what is left of lawfulness as a universal category? The classical question of origin gives way to a question of selection: not why something exists rather than nothing, but why *this* world emerges rather than another from an apparently limitless set.

Eternal inflation thus challenges not only the physics of the early universe but also the frameworks through which meaning is constructed. The infinite ceases to be a distant metaphysical speculation and takes up residence inside the formal structure of the theory. Yet, as often happens in encounters with the infinite, clarity brings its own crisis. The equations generate a cosmos that grows far faster than our capacity to interpret it. The Fokker–Planck formalism, used to describe the stochastic behavior of the inflationary field (Starobinsky, 1986; Linde, Linde, & Mezhlumian, 1994), yields predictions only by invoking averages over infinities that defy normalization — the notorious measure problem (Aguirre, Gratton, & Johnson, 2007). The universe begins to resemble a mathematical projection whose own procedures threaten the coherence they aim to secure.

Each attempt to describe the totality of universes demonstrates that such a description cannot avoid reflecting the standpoint from which it is made. The very effort to encompass the whole reveals its own partiality. The infinite, in this context, resides not only in the cosmos but in the interpretive horizon through which the cosmos is approached. As Hans-Georg Gadamer (1960/2004, p. 302) reminds us, "The horizon is not a rigid boundary but something that moves with one's perspective." Eternal inflation makes this remark almost literal: the horizon itself becomes something to be interpreted, a shifting frame rather than a stable edge of knowledge.

The philosophical implications of this shift are significant. Since Immanuel Kant's *Critique of Pure Reason* (1781/1998), cosmology has been tethered to the conditions of possible experience. The universe could be investigated only insofar as it appeared within the

forms of human cognition — space, time, causality. But the inflationary paradigm unsettles this arrangement. The features that make experience possible turn out to be contingent facts about one cosmic region among countless others. There is no longer a single standpoint from which reason surveys the whole, but a multitude of observers, each located in a vacuum domain whose physical parameters govern what can be known (Carr, 2007; Ellis, 2011). Kant's Copernican revolution thus acquires a cosmological counterpart: reason is decentered, dispersed across an ensemble of worlds.

A cosmology of this kind requires a hermeneutics capable of accommodating openness rather than closure. Ernst Cassirer's philosophy of symbolic forms (1923/1953) offers one route into this problem. For Cassirer, mathematics does not mirror an independent reality; it constitutes a mode of world-making, an instrument through which experience takes shape. In the context of eternal inflation, this creative function becomes radical. The formalism does not merely articulate a single reality; it generates a plurality of them. The physicist becomes, almost despite himself, the constructor of possible worlds — a participant in a symbolic activity whose products exceed his interpretive reach.

Seen from this angle, the inflationary multiverse appears as the latest chapter in a much older intellectual effort: the attempt to render the infinite thinkable through systematic form. From Nicholas of Cusa's *De docta ignorantia* (1440/1985) to Giordano Bruno's *De l'infinito universo e mondi* (1584/1998), Western thought has oscillated between awe and anxiety in the face of the unbounded. What marks the present moment as distinctive is not the idea of infinity itself but the fact that it emerges from calculation, not speculation. The multiverse is not used as a metaphor or theological image; it comes from a model whose implications surpass the interpretive framework needed to understand them (Davies, 2004; Susskind, 2005). Theology once discussed divine infinitude; cosmology now talks about self-replicating space. The language changes, but the tension stays the same: how can the mind grasp something that has no natural limit?

This tension — an epistemic vertigo produced by an ever-growing universe — is the central concern of this essay. My aim is not to debate the empirical adequacy of eternal inflation, nor to translate physics into metaphysics, but to follow the trajectory of the infinite as it migrates from theology to formal cosmology and, finally, into hermeneutics. I approach eternal inflation not as a comprehensive description of the cosmos but as a text that requires interpretation: a narrative of unending genesis whose coherence lies less in empirical confirmation than in conceptual necessity. If we read it hermeneutically, we may notice what the equations themselves cannot disclose: every formalization of the infinite is also a tacit admission of the limits of human understanding.

1. The Logic of Eternal Inflation

The inflationary paradigm emerged in the early 1980s as an attempt to resolve several persistent difficulties in the standard Big Bang model — the flatness, horizon, and monopole problems, each pointing to a puzzling degree of fine-tuning in the universe's initial conditions. In his influential article *Inflationary universe: A possible solution to the horizon and flatness problems* (1981), Alan Guth proposed that a brief interval of exponential expansion could smooth out primordial irregularities and drive the cosmos toward near-homogeneity. During this phase, space expanded faster than the speed of light, reducing curvature and diluting unwanted relic particles. Inflation introduced a distinctive kind of cosmological causality: not the familiar dynamical evolution of matter in time, but a geometric transformation of space

itself. The early universe was recast not as a violent detonation but as the rapid swelling of a vacuum state.

What began as a temporary episode, however, soon acquired a very different character. In later developments by Andrei Linde (1983, 1986) and Alexander Vilenkin (1983, 1995, 2007), the inflating vacuum was shown to possess a natural inclination toward self-reproduction. Quantum fluctuations in the scalar field — the inflaton — could bring inflation to an end in certain regions while allowing it to continue elsewhere. Where inflation ceased, a localized Big Bang would occur, giving rise to a distinct "bubble universe." In surrounding regions, expansion persisted, eventually generating further bubbles. The process did not stop; it repeated itself indefinitely.

The result is a cosmos that acquires a layered structure: smooth in its initial conception but wildly diversified in its consequences. What came to be called the "multiverse" (Tegmark, 2003; Carr, 2007) is not a philosophical invention but a consequence of the inflationary mechanism itself — a branching architecture in which countless domains follow their own physical histories, each shaped by local values of fundamental constants. Linde (1986, p. 396) captured the idea succinctly: "eternal inflation produces not one universe but an infinite number of exponentially expanding regions." In this sense, inflation does more than set the initial conditions for our universe; it generates an ever-growing ensemble of universes, each emerging from the same underlying mechanism yet evolving under different conditions.

1.1 From Mechanism to Metaphor

The logic of eternal inflation is, at first sight, straightforward: a physical mechanism gradually expands into a cosmological picture of unending creation. Each bubble universe emerges from the same inflating vacuum yet inherits distinct vacuum energies and physical constants. Instead of a single, continuous cosmic narrative, we obtain a branching collection of histories. The universe does not stem from one origin but from a succession of local beginnings. As Vilenkin (2007, p. 9) remarks, "the inflationary universe is a self-contained system that creates itself from nothing," a description that already hints at more than physics alone.

That statement points toward a subtle shift from mechanism to metaphysics. The model introduces a form of recursion in which creation becomes both event and process, and the cosmos acquires the character of an indefinitely self-referential system. No observer can encompass the whole of it; each is confined to a single bubble, bounded by causal horizons beyond which other universes recede faster than light (Ellis, 2011). In this setting, the infinite is not an external totality waiting to be surveyed but a structural feature that conditions what can be known. It marks a boundary of interpretation rather than a physical frontier.

For this reason, the inflationary picture inevitably draws physics into a hermeneutic domain. The universe begins to resemble a text formulated in stochastic equations and accessible only from within its own horizons. The more the model is extended to explain, the less it can, in principle, verify. Sean Carroll (2019, p. 362) observes that the multiverse "is not an empirical hypothesis but an inference from the structure of our best theories." Eternal inflation thereby dramatizes a central tension of contemporary cosmology: the more precise and mathematically consistent the formalism becomes, the more interpretive the enterprise must be.

1.2 The Fokker–Planck Universe

At the heart of this self-reproducing cosmos lies a mathematical language aimed not at describing matter but at describing probability. The inflation field — the scalar field that drives inflation — evolves through a combination of two influences: a deterministic drift that pulls the field down its potential, and a stochastic component arising from quantum fluctuations that occasionally push it upward. In certain regions, these fluctuations extend the inflationary phase indefinitely, ensuring that the process never comes to a universal halt.

Technically, this interplay is captured by the Fokker–Planck formalism, which governs the temporal evolution of the probability distribution associated with the field's values. Rather than charting particles, motions, or trajectories, it follows the transformation of uncertainty itself. It is, in effect, a dynamical equation not for matter but for the dispersal of possibility — a mathematical account of how potentiality spreads through the cosmos.

Each term in the Fokker–Planck equation embodies a familiar philosophical tension: the predictable versus the random, classical continuity versus quantum interruption. In this framing, the universe does not present itself as a single system undergoing change, but as a shifting landscape of probabilities — an ongoing diffusion of possibilities in an abstract, self-referential space. Formalism expresses in mathematical terms parallels what hermeneutics describes as an open horizon of meaning: a structure in which actuality is always accompanied by an excess of potential.

This reframing of the universe marks an ontological departure within cosmology. Reality is no longer treated as a single trajectory but as a statistical ensemble, a fluctuating balance of the expected and the unforeseen. John Barrow (2005, p. 247) referred to this as "the physics of possibility," a domain in which the real and the potential interpenetrate. Yet this same framework leads to the interpretive puzzle known as the measure problem. Attempts to assign probabilities to events within an infinite ensemble yield divergent outcomes; different procedures for "measuring infinity" produce incompatible predictions (Aguirre et al., 2007). No canonical method exists to normalize what has no natural bound.

Thus, the very mathematics designed to provide clarity exposes the limits of its own ambition. The Fokker–Planck universe is less a system awaiting solution than a reminder of interpretive openness — a cosmos whose proliferation of possibilities continually exceeds the frameworks devised to contain it.

1.3 The Measure of the Unmeasurable

This crisis of measure carries significant philosophical weight. In conventional physics, probability describes uncertainty within a bounded system; in eternal inflation, it encounters a far more fundamental problem — the absence of any natural closure. Every region of the multiverse can contain an infinite number of observers, events, and outcomes. If all relevant quantities diverge, relative frequencies lose their meaning, and probability itself becomes undefinable. As George Ellis (2011, p. 1212) remarks, "the multiverse hypothesis removes the possibility of observational confirmation by definition." What remains is not measurement but interpretation — an effort to ascribe meaning where empirical constraints no longer apply.

Some physicists, including Leonard Susskind (2005, pp. 270–273) and Max Tegmark (2003, pp. 44–45), take this situation as a cue to embrace a more radical view: that physical existence is nothing over and above mathematical existence. According to the Mathematical Universe Hypothesis, every internally consistent solution to the fundamental equations exists somewhere in the multiverse. In this picture, the cosmos becomes indistinguishable from its formal structure. Yet such a move collapses the distinction between model and world, between symbolic form and empirical content. It approaches what Michel Foucault (1966/1970, p.

71) described as "the dream of a language that would coincide with the things it names." The endless proliferation of universes reflects the boundless generativity of symbols, each complete, yet none anchored to a universal standpoint.

From a hermeneutic perspective, this represents the culmination of a certain formal realism: the conviction that truth resides in the architecture of the equations rather than in their empirical reach. Cassirer (1923/1953) cautioned against this very conflation. For him, the symbol does not simply mirror reality; it actively shapes the domain in which meaning arises. Within eternal inflation, this creative dimension becomes strikingly literal: the mathematical framework does not merely describe worlds — it produces them. The formalism turns out to be less a representation of the infinite than the mechanism through which that infinite is brought into conceptual existence.

1.4 The Paradox of the Observer

If the cosmos consists of an infinite ensemble, then any observer occupies only a minute position within an unbounded totality. Observation loses any claim to universality and becomes inherently local, shaped by perspective and conditioned by probability. As Ellis and Silk (2014, p. 321) note, "the multiverse may be a philosophical rather than a scientific hypothesis, for it lacks a definitive observational anchor." Under these circumstances, the epistemic status of cosmology shifts: it becomes a discipline grounded in models, analogies, and interpretive frameworks rather than in direct empirical access to the whole.

This confinement of the observer marks a significant philosophical shift. Since the time of Galileo and Newton, physics has pursued invariance — laws that are held everywhere and for everyone, regardless of point of view. Eternal inflation, however, places the observer within an unavoidable context. Every measurement becomes part of a narrative constructed from a particular vantage point, and every law takes on the character of regional grammar rather than a universal syntax. The anthropic principle, often invoked to explain why our universe supports life, becomes in this setting a hermeneutic principle: meaning is generated from within the system, not imposed from above.

Sean Carroll (2019) argues that this perspectival turn does not diminish cosmology but reframes it as a theory of conditional knowledge. "The multiverse teaches us humility. What we know depends on where we are in the cosmic landscape" (Carroll, 2019, p. 365). From this viewpoint, cosmology abandons the aspiration to all-encompassing knowledge and instead adopts a reflective stance — recognizing that its models are shaped by the particular region of the infinite in which the observer finds themselves.

1.5 The Infinite as Epistemic Condition

The logic of eternal inflation replaces the finite cosmos of classical physics with an infinite epistemic horizon. In this framework, the universe does not merely *contain* infinity; it takes on the character of the infinite through its own continual self-replication. Every attempt to model such a cosmos expands, rather than narrows, the field of uncertainty. The physicist becomes a cartographer working with maps that enlarge as they are drawn, charting a landscape that refuses to stay still. The resulting picture resembles theology not in content but in structure: both seek to interpret what cannot be grasped in its entirety.

Through this shift, cosmology finds itself aligned with hermeneutics in a shared task — the interpretation of what resists representation. The inflationary equations, however precise, operate as symbols of our broader interpretive predicament: they describe a universe whose coherence depends on meanings that persist beyond what can be directly observed. This

epistemic open-endedness demands a philosophical counterpart — a hermeneutic horizon within which the infinite becomes, if not representable, at least intelligible.

2. The Hermeneutic Horizon of the Infinite

The concept of eternal inflation displaces the notion of the universe as a single, self-contained totality. Instead, it proposes an unbounded manifold of universes — each finite, yet collectively infinite. This shift, while born from physics, inaugurates a new hermeneutic situation. Meaning itself becomes distributed across an ensemble of worlds that no single observer can encompass. The epistemic horizon of cosmology turns into a metaphor for the horizon of interpretation.

2.1 The Crisis of Totality

From Aristotle's *On the Heavens* to Einstein's general relativity, cosmology traditionally assumed that the universe could, at least in principle, be grasped as a whole. Even when it was conceived as spatially infinite, its structure was thought to be uniform and governed by laws whose universality made them accessible to human reason. Eternal inflation overturns this expectation. Different regions of the cosmos may operate under different laws, vacuum energies, or fundamental constants. As George Ellis (2011, p. 1210) notes, "In the multiverse, the very idea of a single set of physical laws may have no meaning beyond a local domain."

Such a fragmentation of law inevitably entails a fragmentation of meaning. The universe can no longer function as the transparent mirror of rational order that it once represented in the Western philosophical imagination. Instead, it becomes an open field of partial viewpoints — an ontological pluralism that echoes the linguistic and cultural pluralism with which hermeneutics has long been concerned. Hans-Georg Gadamer (1960/2004, p. 302) emphasized that understanding is always situated within a horizon that is both inclusive and limited: "The horizon is that range of vision that includes everything that can be seen from a particular vantage point." In the context of eternal inflation, this metaphor acquires a literal cosmological expression. The horizon becomes not simply an image of thought but the actual boundary of each observable universe.

To interpret cosmology under these conditions is to recognize that our own horizon of intelligibility is shaped — and constrained — by the structure of spacetime itself. What lies beyond cannot be observed, yet it influences what appears within our view. The cosmological horizon of physics thereby becomes the hermeneutic horizon of thought. Both mark the limit that gives meaning to its shape by setting its boundaries.

2.2 Cassirer and the Symbolic Construction of Infinity

For Ernst Cassirer, writing in the early twentieth century, human knowledge is not a passive mirror of the world but an active process of constructing meaning through symbolic forms — language, myth, art, and science. Each form offers its own mode of ordering experience, shaping the raw manifold of sensation into patterns that can be grasped and understood. The mathematical form, in particular, abstracts from concrete experience to articulate the relations that make experience intelligible. "Mathematical thought," Cassirer (1923/1953, p. 25) writes, "no longer seeks to copy the given but to construct the possible."

Within the inflationary multiverse, this constructive impulse appears with unprecedented force. The equations of cosmology do not simply describe a universe already there; they generate a space of possible universes. Different parameters in the inflaton potential yield

different spacetimes and different physical orders. Here, the mathematical symbol becomes cosmogenic. What Cassirer treated as a symbolic mode of world-construction becomes, in cosmological practice, an operative principle: to calculate a possibility is, in a certain sense, to bring a world into conceptual being.

This shift carries deep hermeneutic implications. If mathematics is a symbolic form rather than a direct representation, then the multiverse becomes a proliferation of symbols without a single referent. Each bubble universe stands as a local realization of a symbolic schema, a partial actualization of the possibilities encoded in the equations. The result is a cosmos intelligible only piecemeal, a patchwork of meanings with no overarching interpretive key.

Cassirer's central insight — that science constructs rather than merely discovers — thus anticipates the epistemic situation created by eternal inflation. The equations lose their transparency as representations and instead appear as creative projections, interpretive acts that open new ontological domains. Viewed hermeneutically, the multiverse is not a physical terrain alone but also an interpretive one: a topology of potential meanings that no single perspective can unify.

2.3 Gadamer and the Moving Horizon

If Cassirer illuminates the constructive dimension of symbolic forms, Gadamer offers a phenomenology of how understanding itself takes place. In *Truth and Method* (1960/2004), Gadamer argues that understanding is not the retrieval of an original meaning but the event of a "fusion of horizons," in which the interpreter's horizon and that of the text encounter one another and are mutually transformed.

In the setting of eternal inflation, such a fusion becomes structurally impossible. The horizons of distinct universes never meet; no signal or observation can traverse the inflating voids between them. Each cosmic region remains enclosed within its own frame of intelligibility. What functions in hermeneutics as a metaphor for shared understanding becomes, in this cosmological context, an image of radical separation. The universe, in Gadamerian terms, is not one horizon expanding through dialogue but an infinite multiplicity of horizons that can never converge.

And yet, this very impossibility demands interpretation at a higher level. When no single horizon can encompass the whole, reflection shifts from understanding the universe to understanding the conditions that make understanding possible. Cosmology becomes reflexive: it interprets the limits of interpretation itself. As Paul Ricoeur (1976, p. 8) wrote, "Interpretation is the work of thought which consists in deciphering the hidden meaning in the apparent meaning." Eternal inflation lends this claim a new resonance: the hidden meaning is not behind appearances but beyond horizons in regions that remain forever inaccessible.

This hermeneutic condition — where meaning is approached only through its absence — recalls Martin Heidegger's conception of Being as that which withdraws. In *Being and Time* (1927/1962), Heidegger describes the human relation to Being as one of disclosure that is inseparable from concealment; we encounter Being only through what it withholds. Likewise, in cosmology, we encounter the universe through the boundaries that hide most of it from view. The cosmological horizon thus becomes a metaphysical analogue of Heidegger's *aletheia*: truth as an unveiling that never fully removes its veil.

2.4 From the Finite Mind to the Infinite Cosmos

The philosophical implications of this parallel are considerable. For the first time, cosmology and hermeneutics appear to converge on a shared structural insight: understanding

is fundamentally finite, shaped by horizons that enable intelligibility even as they restrict it. In the inflationary multiverse, each observer's limited horizon becomes a concrete expression of this hermeneutic condition. The infinite is not a magnitude awaiting measurement but the ever-retreating background against which meaning is formed.

Viewed in this way, the traditional divide between science and philosophy begins to dissolve. Cosmology is not an enterprise conducted outside interpretation; it participates in interpretation from the outset. The equations of eternal inflation can be read as interpretive gestures cast into mathematical form — efforts to articulate what escapes direct comprehension. As John Barrow (2005, p. 7) observes, *"Infinity is not a place to be visited but a way of understanding the limits of thought."* The infinite, whether approached through physics or through language, provides the horizon within which meaning becomes possible.

From this perspective, the multiverse can be understood as an allegory of human knowing: a vast array of local truths, each internally coherent yet inaccessible to the others. Every universe resembles a text in a library lacking catalogues, evoking Borges's "Library of Babel," where all conceivable books exist but no reader can ever grasp the whole (Borges, 1941/1998). In this sense, the inflationary cosmos becomes a hermeneutic labyrinth — a space in which interpretations multiply without converging on a final, unifying view.

2.5 The Infinite as Hermeneutic Principle

What does it mean, then, to speak of a hermeneutics of the infinite? It means recognizing that interpretation must adjust itself to a cosmos that resists total comprehension. Classical hermeneutics sought to relate part and whole, finite and infinite, by showing how understanding arises within that relation. Eternal inflation disrupts this structure. The "whole" can no longer be conceived as a unified totality. Meaning emerges not from synthesis but from movement — an ongoing navigation across local pockets of sense.

In theological traditions, the infinite belonged to God, the unreachable source from which all being flowed. In cosmology, it appears instead as a process: the continual generation of new worlds. Yet the human task in both domains remains strikingly similar — to interpret what always exceeds the scope of interpretation. A hermeneutics of the infinite is therefore not an attempt to know everything but an acknowledgment of the impossibility of doing so. It is a discipline of understanding grounded in the recognition of its own limits.

Eternal inflation becomes, in this light, a mirror of our interpretive condition. The multiverse is not merely an object to be studied; it is a symbol of the limits that shape knowledge itself — finite understanding set before an unbounded reality. To read the universe, as to read any text, is to encounter an excess that no system can fully absorb. The task of philosophy is not to eliminate this excess but to dwell within it, to think where meaning approaches its own edge.

3. The Failure of Representation

If eternal inflation reveals the infinite as an epistemic condition, it also brings into view a second consequence: the failure of representation that follows from such infinity. Every cosmological model — however refined — must compress what is unbounded into finite symbols, translating an immeasurable totality into the limited grammar of mathematics. Modeling the universe becomes, inevitably, an act of translation, and as any translator knows, translation always alters what it conveys. Something is lost, displaced, or reshaped in the passage from the immeasurable to the representable.

3.1 From Map to Mirror: The End of Representation

From Aristotle's nested spheres to Einstein's manifold, cosmology has long aimed to present an image of totality. The universe served not only as an object of investigation but as a mirror of rational order. Eternal inflation disrupts this aspiration. The multiverse cannot be pictured in any literal sense; it can only be computed. It is no longer a cosmos available to vision but an algorithmic process that generates its own field of possibilities. As George Ellis (2011) and John Barrow (2005) both observe, a model that seeks to include everything cannot be verified from within. Observation requires a vantage point outside what is observed, yet nothing exists "outside" the universe. The tension recalls Wittgenstein's remark in the *Tractatus* (§5.632): "The subject does not belong to the world but is a limit of the world."

In *The Order of Things* (1966/1970), Michel Foucault argued that the modern age begins when representation ceases to reflect the world and becomes an autonomous network of relations. Something comparable occurs in contemporary cosmology. Mathematical structures that once described the universe now generate internal realities of their own. As in Foucault's epistemic shift, the order of representation gives way to the order of production.

This shift underlies what might be called the cartographic paradox of cosmology. To map the universe is to create a space that mirrors our conceptual tools more faithfully than the cosmos itself. The map no longer records exploration; it initiates it. In the inflationary multiverse, the equations themselves bring into being the landscape they portray. The "cosmic landscape" of string theory (Susskind, 2005) illustrates this logic vividly: a configuration space of roughly 10^{500} possible vacua, each corresponding to a different universe. Here, the map effectively replaces the territory.

The representational failure of cosmology is therefore not a mark of incomplete knowledge but an inherent feature of the attempt to know an infinite system. The universe resists depiction not because it is concealed but because representation is itself generative — always producing more than it can encompass. This is what Paul Ricoeur (1976, pp. 87–88) called the "surplus of meaning": the excess that eludes any final interpretation. In cosmology, this surplus appears as the unobservable infinity beyond our cosmic horizon — the remainder that sustains the very possibility of understanding.

3.2 The Horizon as Hermeneutic Structure

The cosmological horizon, introduced through general relativity and later sharpened by inflationary theory, functions as both a physical boundary and a conceptual one. It marks the region of spacetime from which light has reached us since the Big Bang; beyond it, information remains forever inaccessible — not because it is absent, but because it cannot cross into our view. Stephen Hawking (1974) and Roger Penrose (1989) demonstrated that such horizons are not fixed walls but dynamic properties of spacetime — event horizons that hide singularities and reshape what can be known.

From a hermeneutic perspective, the horizon works in much the same way. It is not the limit of understanding but its enabling structure. We make sense of the world by delimiting it; interpretation proceeds by drawing boundaries. As Gadamer (1960/2004, p. 304) reminds us, "To acquire a horizon means that one learns to look beyond what is close at hand." Yet in cosmology, what lies beyond cannot be brought nearer. The infinite does not broaden comprehension but disperses it into an ever-receding vista.

This is not a scientific defeat but a revelation of cosmology's interpretive character. Every model offers only a partial opening onto the whole, shaped by the position of an observer who cannot exit the system. To represent the universe is, inevitably, to construct a horizon around

oneself. The task of cosmology is thus not to remove horizons but to interpret them — to understand both what they reveal and what they conceal.

3.3 The Epistemology of the Unobservable

Confronted with unobservable infinities, cosmology increasingly turns to indirect forms of reasoning — analogy, coherence, and aesthetic judgment. As Davies (2004, p. 742) notes, "We can no longer rely on empirical closure; instead, we evaluate theories by coherence, simplicity, and fertility." This shift signals a movement away from strict positivism toward a hermeneutic epistemology, in which meaning arises from interpretation rather than from direct verification.

The unobservable regions of the multiverse are not beyond thought; they function as its necessary horizon. They play a role similar to that once served by myth in premodern cosmologies: providing symbolic order where direct knowledge is unattainable. As Hans Blumenberg (1966/1985) argues in *The Legitimacy of the Modern Age*, the mythic impulse does not vanish but reappears in new intellectual forms. Eternal inflation may represent not the culmination of rational explanation but its transformation into a new myth of the infinite — a scientifically articulated mystery.

In this sense, cosmology reclaims an ancient narrative function. The story of endless creation replaces the story of a single origin; "in the beginning" becomes "always beginning." The equations of physics echo what myths once expressed: that both the universe and the mind contemplating it are caught in continual cycles of emergence and dissolution. The failure of representation is therefore not a flaw but an indication of a deeper symmetry between cosmology and consciousness — each is a system that cannot fully capture itself.

3.4 The Language of the Infinite

Wittgenstein ends the *Tractatus* with the stark injunction: "Whereof one cannot speak, thereof one must be silent" (§7). Yet silence, in this context, is not an absence of representation but a gesture that acknowledges what lies beyond it. In eternal inflation, silence assumes the shape of mathematical abstraction. The equations articulate what ordinary language cannot, though they do so in a mode that remains mute about meaning.

As Barrow (2005) and Ellis (2011) both emphasize, mathematical consistency is not equivalent to intelligibility. A theory may be internally coherent and still resist understanding. The multiverse can appear naturally within the equations, yet refuse any stable narrative form. Cosmology oscillates between two idioms: the precise but inexpressive language of mathematics and the more flexible, metaphor-rich language of philosophy. The challenge is to allow these languages to inform one another without collapsing one into the other.

This tension echoes Ernst Cassirer's (1923/1953) insight that symbolic forms do not form a hierarchy but a series of translations across different modes of sense. Science, art, and myth each give form to the infinite in their own way. In the modern era, mathematics has become the dominant symbolic form, yet it carries within it a tension akin to that which once animated theology: the effort to speak about what ultimately exceeds language. The inflationary multiverse, as a theoretical construct, is therefore not only a physical model but also a linguistic act — a new grammar devised for approaching the ineffable.

3.5 The Representation That Fails and Persists

To describe the failure of representation is not to abandon the pursuit of knowledge but to reframe it. Representation falls short not because reality is unreachable, but because reality

exceeds any single act of grasping. Every model, every equation, every metaphor renders a portion of the infinite into human form. The failure is paradoxical: it is the very condition that allows understanding to proceed. As Ricoeur (1976) argues, interpretation does not confer possession of the real; it opens a pathway through the realm of the possible.

In this sense, eternal inflation can be viewed as an expansive allegory of the human condition. We inhabit one limited province of meaning within a far broader semantic multiverse. Our theories and narratives function as local coordinates within an ever-growing interpretive landscape. The cosmos reflects our thought in this respect: infinite in scope, finite in comprehension. Representation does not come to an end here; it continually begins anew.

4. Toward a Negative Hermeneutics of Cosmology

The logic of eternal inflation brings cosmology to a paradoxical threshold: a theory that claims to explain everything by appealing to what can never be observed. If the multiverse is real, it would encompass every possible arrangement of matter and law, making explanation nearly indistinguishable from enumeration. Prediction blurs into proliferation; probability becomes an index of unbounded possibility. At this limit, cosmology no longer fits the mold of a purely empirical science. It becomes a discipline of interpretation, though one that requires a different interpretive posture — one that seeks meaning not in what is present, but in what withdraws.

To interpret a theory concerned with the unobservable is to engage in what might be called negative hermeneutics: a mode of understanding grounded not in disclosure but in concealment. While positive hermeneutics aims to recover meaning from a given text, negative hermeneutics treats opacity itself as revelatory. In this respect, the cosmologist encounters a dilemma familiar to the theologian or phenomenologist: the task of interpreting what cannot be fully brought to light without distortion.

4.1 Interpretation after Representation

As discussed above, the limits of representation do not extinguish meaning; they transform it. What lies beyond the cosmological horizon is not devoid of significance — it is meaning that lacks manifestation. Martin Heidegger described truth as *aletheia*, an unconcealment that always carries within it an element of concealment. “Every disclosure,” he wrote, “is simultaneously a covering up” (Heidegger, 1927/1962, p. 133). Something similar occurs in cosmology: each theoretical advance reveals new aspects of the universe while expanding the domain of what remains inscrutable. The inflationary picture enlarges our understanding even as it enlarges the territory of the unexplained.

Under these conditions, interpretation assumes a dual role. At one level, it operates as explication — the translation of mathematical expressions into conceptual frameworks. At another, it functions as acknowledgment — the recognition that some aspects of the universe will remain beyond comprehension. Gadamer (1960/2004) conceived interpretation as a dialogue between what is known and what resists knowing, a fusion of horizons. In the cosmological setting, this dialogue is profoundly asymmetrical: our horizon meets that of the universe only by acknowledging that they can never coincide. The infinite remains outside our grasp, shaping the finite from the position of absence.

Paul Ricoeur (1976, p. 33) described this posture as the “hermeneutics of suspicion,” a way of reading that treats even the clearest text as concealing further layers of meaning. Applied to cosmology, this suggests that every theoretical statement functions as a displacement — a metaphor for what cannot be said directly. The equations of eternal inflation become, in this

sense, a form of symbolic discourse. They do not describe the universe as it is; they describe how it hides itself.

4.2 The Cosmological Sublime

The experience of this interpretive limit recalls what Immanuel Kant (1790/2000) described as the mathematical sublime — the feeling that arises when the imagination fails to encompass the magnitudes presented by reason. The infinite, Kant argued, overwhelms the senses yet elevates the mind, compelling the subject to recognize reason's independence from perception. In the context of eternal inflation, however, the relationship is inverted. It is not reason that asserts its supremacy over the infinite; it is the infinite that exposes the boundaries of reason.

John Barrow (2005, p. 235) has suggested that contemporary cosmology embodies a "new form of the sublime," one rooted not in awe before vastness but in the vertigo produced by incompleteness. The equations that describe the multiverse sketch the outline of totality only to reveal that such totality escapes containment. The cosmological sublime thus lies not in the grandeur of the universe but in the discomfort of interpretation — the realization that meaning must continue even when closure is impossible.

This aesthetic dimension of knowledge is not an embellishment but a structural feature. As Hans Blumenberg (1966/1985) observed, modern science inherits from theology the task of addressing the infinite without collapsing it into the finite. The language of cosmology, precise though it is, continues a symbolic labor long performed by myth: to express what cannot be fully represented. In this respect, eternal inflation becomes a secularized theology of creation — a kind of *ars magna* of the infinite, faintly echoing Llull's medieval dream of a combinatorial logic capable of embracing all truths.

4.3 Knowing by Not Knowing

The negative hermeneutics of cosmology must therefore begin by recognizing that ignorance is not the negation of knowledge but its precondition. As Ellis and Silk (2014, p. 323) note, "Science does not progress by eliminating uncertainty but by refining our awareness of it." To interpret the universe is to trace the silhouette of ignorance — to map the darkness that frames every illumination.

Modern cosmology embodies this principle unmistakably. Each new theoretical advance — whether in inflation, string theory, or quantum gravity — brings us closer to an understanding that retreats even as it is approached. The frontier of the knowable expands, but so does the region of what cannot yet be known. Knowledge grows not through closure but through exposure — by revealing deeper layers of mystery within the real.

In this dynamic, interpretation becomes an act of balancing assertion with restraint. Ricoeur (1976) described this as the dialectic between discourse and the surplus of meaning: every act of understanding opens more possibilities than it resolves. In cosmology, the infinite plays precisely this role — an excess of intelligibility that ensures thought never fully coincides with its object. Ignorance, viewed in this light, is not a gap to be eliminated but the horizon that sustains inquiry: the openness that keeps understanding alive.

4.4 The Observer and the Abyss

The cosmologist, much like the hermeneut, works at the edge of an abyss — the point where explanation yields to reflection. The observer's horizon, both physical and cognitive, determines not only what can be seen but what can be conceived. Hawking's (1988) well-

known question, "What breathes fire into the equations?", remains unresolved not because it lies outside science, but because it exposes the existential core of scientific inquiry.

From a hermeneutic point of view, the finitude of the observer is not a limitation to be overcome but the very locus where meaning takes shape. Heidegger (1927/1962) would say that *Dasein*, the being that understands Being, is defined by its limits — by its being-toward-death. In an analogous sense, cosmology is a science-toward-horizon: it grasps the universe only by working within its own boundaries. The infinite becomes the precondition of finitude rather than its negation.

Acknowledging this changes the ethical character of interpretation. Cosmology has long felt the pull of totalization — the hope that one final theory might explain everything. A negative hermeneutics resists this impulse by accepting partiality as the authentic condition of truth. As Gadamer (1960/2004, p. 302) observed, "Understanding is never a subjective relation to a given object but the participation in a meaning that is common." In this light, the multiverse is not an object to be mastered but a conversation between human reason and cosmic infinity.

4.5 Hermeneutics as Cosmological Practice

If cosmology is to be understood hermeneutically, its task extends beyond constructing models to interpreting them — making explicit the conditions under which its symbols acquire sense. This shift moves inquiry from ontology to phenomenology, from questions about what the universe *is* to questions about how it appears within the limits of understanding. The equations of eternal inflation are not transparent windows onto the real; they are structured languages through which the real becomes thinkable.

A negative landscape of interpretation reads these equations as texts — texts written in a symbolic grammar that both discloses and withholds. The hermeneutical task is not to simplify them but to acknowledge how they mediate between the finite and the infinite. Interpretation here aims to preserve complexity rather than resolve it. To understand an infinite universe is to recognize that every explanation remains provisional — each a metaphor for its own incompleteness.

In this regard, cosmology echoes apophatic or negative theology, which speaks of the divine primarily through negation. God is not this, not that. Similarly, the cosmologist describes the universe by what it is not: not finite, not closed, not fully representable. Such negation is not resignation; it is methodological. It turns ignorance into a tool and transforms limitation into a mode of insight.

4.6 Interpreting the Uninterpretable

In the end, the hermeneutics of cosmology confronts the paradox of interpreting what resists interpretation. The universe, like a sacred text without an identifiable author, demands to be read even though it refuses full comprehension. The task of philosophy is not to dissolve this tension but to sustain it. Hans Blumenberg (1966/1985) observed that modernity persists by continually rearticulating the absolute through new symbols — replacing divine transcendence with mathematical infinity, revelation with rational structure, myth with theoretical models.

Eternal inflation is the most recent of these symbols: a formal myth of the infinite emerging from quantum field equations and the imagination of human reason. Its significance lies not in empirical confirmation but in its capacity to articulate the boundaries of intelligibility

itself. To study such a cosmos is to step into the hermeneutic circle — to interpret the very conditions of interpretation.

The negative hermeneutics outlined here does not question the reality of the universe. It questions the finality of our representations. It affirms that meaning persists precisely because understanding never reaches completion. In this sense, the cosmos is not a finished manuscript but an open commentary — an ongoing exegesis written into expanding space and time. To interpret it is to inhabit the threshold where knowledge touches wonder, where science shades into philosophy, and where each horizon conceals another still beyond it.

Conclusion – Interpreting the Infinite

From the geometric cosmos of Aristotle to the expanding universe revealed by Hubble and De Sitter, cosmology has always tried to render the universe intelligible. The theory of eternal inflation marks a break with that tradition. It replaces the notion of a single, ordered cosmos with an immense ensemble of self-reproducing universes — each governed by different parameters and inaccessible to the others. What began as a physical account of origins becomes, in the end, a reflection on the limits of knowledge itself.

Within this new landscape, cosmology appears less as an ontology than as an interpretive practice. Every model — from Linde's chaotic inflation to Vilenkin's quantum tunneling — translates the universe into mathematical form, yet no equation can exhaust the meaning it attempts to convey. As Cassirer argued, scientific knowledge constructs order rather than merely reflecting it. The inflationary multiverse exemplifies this: a symbolic rendering of the infinite in which mathematics generates the very worlds it seeks to describe.

Hermeneutics, in this context, names the attempt to understand what cannot be fully modeled. For Gadamer, understanding is never the mastery of a system but participation in its unfolding. The cosmologist, much like the interpreter, works within a horizon shaped by limits — what can be observed, measured, or simulated. Such limits do not halt inquiry; they give it orientation. As Heidegger emphasized, finitude is the condition of disclosure: boundaries are what allow meaning to emerge.

Eternal inflation thus transforms infinity from an obstacle into a medium for understanding. Infinite becomes not what eludes knowledge, but what sustains it — the open backdrop against which each local theory acquires its significance. Explanation and interpretation converge: to describe spacetime is already to articulate the structure of comprehension itself.

The task moving forward is to maintain scientific rigor while acknowledging this interpretive dimension. Cosmology remains a precise discipline, yet one is increasingly aware that modeling the universe is also a dialogue with the unknown. The infinite is not reason's negation but its horizon — a reminder that knowledge, like the universe it studies, grows by confronting what it cannot yet contain.

🕮 References

Aguirre, Anthony, Steven Gratton, and Matthew C. Johnson (2007). Hurdles for Recent Measures in Eternal Inflation. *Physical Review D* 75, no. 12 (2007): 123501.https://doi.org/10.1103/PhysRevD.75.123501.

Barrow, John D. (2005) *The Infinite Book: A Short Guide to the Boundless, Timeless, and Endless.* London: Vintage.

Blumenberg, Hans (1985). *The Legitimacy of the Modern Age.* Translated by Robert Wallace. Cambridge, MA: MIT Press, 1985. Originally published in 1966.

Borges, Jorge Luis (1998). The Library of Babel. In *Collected Fictions*, translated by Andrew Hurley. London: Penguin, 1998. Originally published 1941.

Bruno, Giordano (1998). *On the Infinite Universe and Worlds.* Translated by Edward Gosselin. Cambridge: Cambridge University Press, 1998. Originally published in 1584.

Carr, Bernard, ed. (2007) *Universe or Multiverse?* Cambridge: Cambridge University Press.

Carroll, Sean (2019). *Something Deeply Hidden: Quantum Worlds and the Emergence of Spacetime.* New York: Dutton.

Cassirer, Ernst (1953). *The Philosophy of Symbolic Forms: Volume I – Language.* New Haven: Yale University Press. Originally published in 1923.

Cusa, Nicholas (1985) *On Learned Ignorance (De Docta Ignorantia).* Translated by Jasper Hopkins. Minneapolis: Arthur J. Banning Press, 1985. Originally published 1440.

Davies, Paul (2004). "Multiverse Cosmological Models." *Modern Physics Letters A* 19, no. 10: 727–743.

Davies, Paul (2004). *The Goldilocks Enigma: Why Is the Universe Just Right for Life?* London: Allen Lane.

Ellis, George F. R. (2011) Issues in the Philosophy of Cosmology. In *The Oxford Handbook of Philosophy of Physics*, edited by Robert Batterman, 1189–1244. Oxford: Oxford University Press.

Ellis, George F. R. (2011) The Multiverse: Conjecture, Theory, Fact? *Astrophysics and Space Science* 332, no. 1: 1–10.

Ellis, George F. R., and Joe Silk (2014). Scientific Method: Defend the Integrity of Physics. *Nature* 516, no. 7531: 321–323.

Ellis, George F. R., U. Kirchner, and W. R. Stoeger (2004). "Multiverses and Physical Cosmology." *Monthly Notices of the Royal Astronomical Society* 347, no. 3: 921–936. https://doi.org/10.1111/j.1365-2966.2004.07261.x.

Foucault, Michel (1970). *The Order of Things: An Archaeology of the Human Sciences.* New York: Vintage. Originally published in 1966.

Gadamer, Hans-Georg (2004). *Truth and Method.* Translated by Joel Weinsheimer and Donald G. Marshall. London: Continuum. Originally published in 1960.

Guth, Alan H. (1981) Inflationary Universe: A Possible Solution to the Horizon and Flatness Problems." *Physical Review D* 23, no. 2: 347–356. https://doi.org/10.1103/PhysRevD.23.347.

Hawking, Stephen (1988). *A Brief History of Time: From the Big Bang to Black Holes.* London: Bantam.

Hawking, Stephen (1974) Black Hole Explosions? *Nature* 248, no. 5443: 30–31.

Heidegger, Martin (1962). *Being and Time.* Translated by John Macquarrie and Edward Robinson. New York: Harper & Row. Originally published in 1927.

Kant, Immanuel (1998). *Critique of Pure Reason.* Edited and translated by Paul Guyer and Allen W. Wood. Cambridge: Cambridge University Press. Originally published 1781.

Linde, Andrei D. (1983) Chaotic Inflation." *Physics Letters B* 129, no. 3–4: 177–181. https://doi.org/10.1016/0370-2693(83)90837-7

Linde, Andrei D. (1986) Eternal Chaotic Inflation. *Modern Physics Letters A* 1, no. 2: 81–85.

Linde, Andrei D. (1986) Eternally Existing Self-Reproducing Chaotic Inflationary Universe." *Physics Letters B* 175, no. 4: 395–400. https://doi.org/10.1016/0370-2693(86)90611-8

Linde, Andrei, Dmitri Linde, and Arthur Mezhlumian (1994). From the Big Bang Theory to the Theory of a Stationary Universe." *Physical Review D* 49, no. 4: 1783–1826. https://doi.org/10.1103/PhysRevD.49.1783.

Penrose, Roger (1989). *The Emperor's New Mind: Concerning Computers, Minds, and the Laws of Physics.* Oxford: Oxford University Press.

Perlmutter, Saul, Gerson Goldhaber, Robert A. Knop, et al. (Supernova Cosmology Project) (1999) Measurements of Ω and Λ from 42 High-Redshift Supernovae. *The Astrophysical Journal* 517, no. 2: 565–586. https://doi.org/10.1086/307221.

Ricoeur, Paul (1970). *Freud and Philosophy: An Essay on Interpretation.* New Haven: Yale University Press.

Ricoeur, Paul (1976) *Interpretation Theory: Discourse and the Surplus of Meaning.* Fort Worth: Texas Christian University Press.

Riess, Adam G., Alex V. Filippenko, Peter M. Garnavich, et al. (1998) Observational Evidence from Supernovae for an Accelerating Universe and a Cosmological Constant." *The Astronomical Journal* 116, no. 3: 1009–1038. https://doi.org/10.1086/300499.

Starobinsky, Alexei A. (1986) Stochastic de Sitter (Inflationary) Stage in the Early Universe. In *Field Theory, Quantum Gravity and Strings*, edited by H. J. de Vega and N. Sánchez, 107–126. Berlin: Springer.

Susskind, Leonard (2005). *The Cosmic Landscape: String Theory and the Illusion of Intelligent Design.* New York: Little Brown.

Tegmark, Max (2003). Parallel Universes. *Scientific American* 288, no. 5: 40–51. https://doi.org/10.1038/scientificamerican0503-40.

Vilenkin, Alexander (1983). The Birth of Inflationary Universes. *Physical Review D* 27, no. 12: 2848–2855. https://doi.org/10.1103/PhysRevD.27.2848.

Vilenkin, Alexander (1995) Predictions from Quantum Cosmology. *Physical Review Letters* 74, no. 5: 846–849.

Vilenkin, Alexander (2006) *Many Worlds in One: The Search for Other Universes.* New York: Hill and Wang.

Wittgenstein, Ludwig (1961). *Tractatus Logico-Philosophicus.* Translated by D. F. Pears and B. F. McGuinness. London: Routledge & Kegan Paul. Originally published 1921

Epistemological Aspects of Edward Fredkin's Digital Cosmology in the Context of the Development of Artificial Intelligence Ideas

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The article examines the main features of E. Fredkin's digital cosmology. Based on the analysis of the epistemological aspect of his concept, it is considered how he interprets the question of the possibilities of our knowledge of the world around us, defines the fundamental principle of the Universe, throught the analysis of the Other, and reflects on the world of human existence through the study of the soul in its static and dynamic manifestations. It is shown that despite the attempt to define the informational-computational approach as a universal one, in the study of the human inner world it appears to be imperfectly developed, and the further development of artificial intelligence theory has only confirmed that many assumptions about the digital nature of the world, which seemed obvious to Fredkin at the beginning for the transition from metaphors and parallels with the computer sphere to the construction of digital cosmology, as well as ontology and clarification of the metaphysical basis of reality, not only remained unconfirmed, but interpretations appeared that offered conclusions that differed significantly from them (while radicalizing certain ideas, replacing the real with the virtual, and developing not so much the idea of discreteness as the idea of continuity). In addition, attempting to explain how the world works by reducing everything to computational fundamentals provides a technocentric explanation of the nature of reality, which may be overly simplistic, as it leaves gaps in the explanations and does not solve the problem of consciousness and human experience. At the same time, it has been stated that the development of artificial intelligence technologies can clarify many issues of digital cosmology, in particular by improving our knowledge of the external world and human existence.

Keywords: digital cosmology, finite nature, information-computational approach, limits of cognition, reality, metaphysics of the Other, human inner world.

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Introduction

The idea of representing the foundations of our Universe based on the analysis of digital information processes gained popularity long before the advances in artificial intelligence became so significant that scholars even began to discuss the inevitability of technological singularity. At some point, it became evident that the digital approach, information-computational in its essence, was claiming the status of a universal one, capable of explaining not only the ideas of the macrocosm but also those of the microcosm. From a philosophical perspective, this approach advocates the idea of pancomputationalism, based on the assumptions of (i) finite nature, (ii) the existence of a first cause, and (iii) the interpretation of change as a process of computation.

It is not difficult to notice that these ideas are essentially not new to philosophy. Indeed, digital cosmology has developed and refined a number of philosophical ideas, including realistic, naturalistic, deterministic, reductionist, and monistic ones. Here it is worth mentioning the discreteness of matter according to the doctrine of atomism, as well as the idea of logical atomism, and ancient philosophical and theological explanations about the origin of the world, the necessity of the existence of some first cause, and the fact that the idea of describing changes in the surrounding reality as a process of implementing computation was formed entirely in the Pythagorean paradigm, according to which the world is fundamentally based on number and proportion, and for now we will not go into details about what these numbers are (discrete or continuous as series of real numbers), how many of them there are (two, three or more), and how the process of interaction between them is implemented. The fundamental feature of the digital philosophy approach is that it gives new meaning to all these philosophical ideas. Thus, not only material things, but also the attributes of matter – space and time – turn out to be discrete; the first cause begins to be interpreted from the standpoint of the computer paradigm as the Other, and any physical or mental relations as those that are conditioned by the process of computation and information processing at the most fundamental level of reality. And even though interpretation from the position of digital philosophy destroys traditional ideas about the continuity of physical phenomena, its proponents believe that this approach describes things and relationships as they are and does so much more accurately than mathematical abstractions that describe continuity using differential calculus and therefore have nothing to do with reality at all.

But to what extent is the information-computational approach justified not only in matters of interpretation of the cognitive sphere, but in ontology and cosmology in general? And with the success of artificial intelligence, has the information-computational approach to explaining the foundations of the Universe become more reliable? We will try to find answers to these questions by analyzing, in the perspective of the development of artificial intelligence ideas, E. Fredkin's digital cosmology, formulated primarily in his philosophical works "Finite Nature" (1992), "A New Cosmogony" (1993), "On the Soul" (2000), "An Introduction to Digital Philosophy" (2003) and supported by some research in physics. To achieve this purpose, we will focus on a critical analysis of Fredkin's ideas about the limits of our cognition, the foundations of the Universe, and human existence, and comparing them with later philosophical ideas formed in light of advances in artificial intelligence.

What can we know about the world?

The essence of the first question of digital cosmology, which needs to be clarified from a philosophical point of view, is what exactly we can understand about the foundations of

our world. Are we, with the capacities of our intellect, able to interpret correctly how the Universe is structured? Or perhaps it is more appropriate to take the position of an agnostic and maintain that such an endeavor is impossible – that it is like an attempt to examine an investigative instrument by means of that very instrument, or an attempt to understand issues for which we have neither the appropriate methods of knowledge nor a sufficient empirical basis. And this is despite the fact that the corresponding expressive capabilities of language and even of reason itself do not allow them to become representatives of certain complex ideas. Indeed, if we interpret the basic principles of reality only as something unspeakable, we will obtain a version of the worldview characteristic of Wittgenstein at the time of his "Tractatus Logico-Philosophicus", according to which, even though the limits of our world are outlined by the limits of language, there is something unspeakable (the world of ethics) that influences us and therefore we are able to comprehend it in a certain way, although we cannot express the results of our cognition by linguistic means (Wittgenstein, 1922, § 4.115). Much of what is not expressed in words can be imagined, experienced, or conceived, and for that very reason, it has a certain meaning. For his part, Fredkin prefers to think not so much about the nature of the unspeakable as about what is unthinkable (Fredkin, 2003: 241-242).

Unthinkable does not mean logically contradictory. The unthinkable may well be not just metaphysically possible, but even factually possible (if things like the finite nature hypothesis turn out to be correct). The fact that we can fully understand that there are things that we will never be able to understand is already a certain step in the direction of clarifying what is beyond our knowledge, that is, the unthinkable. It is important to understand here that logic, but not necessarily the one we express using formal means, goes beyond language. To a large extent, this is because the results of our cognition are recorded using a terminology system established in science. This very often determines our very process of describing things and phenomena of the objective world and the way we think about them, and therefore how we understand them. Thus, the unthinkable is such not only because of its complexity, but also because of language.

For Fredkin, it is quite obvious that the capacities of formal systems (mathematical frameworks) are not sufficient to describe the specifics of all the laws of the objective world. As is well known from Gödel's incompleteness theorems, formalization as such is limited in its expressive capacities. At the same time, the results of observations indicate the uncertainty present at the level of quantum mechanics, where the description of the seemingly simplest basic elements of reality becomes quite complex. However, as Fredkin argues, we should try to descend to an even more fundamental level of matter than elementary particles and explore the finite nature of space and time as basic attributes of matter, which will help us understand other important issues in modern theoretical physics, including those within the scope of quantum mechanics (Fredkin, 2004).

In general, it is appropriate to understand space and time as divided into cells, of course, extremely small, which cannot be confirmed experimentally at present. In any case, it is the idea of finitude that is important. As Fredkin explains: "Finite Nature means that the world is made up of digital information" (Fredkin, 1992: 349). In other words, the finitude of nature makes it possible to express the processes and phenomena of the objective world as informational, as well as to state that "…the amount of information in any small volume of space-time will be finite and equal to one of a small number of possibilities" (Fredkin, 1993: 116). These possibilities, which can be defined by two possible states of the bit (0 or 1) play the role of the fundamental alphabet of being, since their configuration determines the "computational" reality of being and makes it possible to express the laws of physics as

algorithms that process information and form the structure of space-time relations between things. It is important that "if finite nature is true, then there are certain consequences that are independent of the scale" (Fredkin, 1992: 345). And also that elementary units of time and space, like information, can be expressed only in integers, and, accordingly, it is integers that will be included in the formulas that characterize the enormous computational capacity of space-time, describe the laws of the objective world, and the nature of things.

According to the information-computational approach: "The meaning of the digits in Finite Nature is that the information process that the digits and cells are engaged in define the space and time and matter and energy of our world" (Fredkin, 1993: 118). In computer modeling, such discreteness of space-time structures is often used, but the available computing power of modern machines is, of course, not enough to model most physical processes. After all, to accurately model a system, the order of computational power of the models and systems would have to be comparable (Fredkin, 1993: 118). So it turns out that we have a theory, but it is unlikely that it will ever be possible to verify it. However, the lack of direct arguments that would prove the correctness of the assumption of finite nature, according to Fredkin's idea, should not be a reason for its rejection, given the development of science, in which it gradually became clear what role the same atoms or quanta of light (photons) play in the structure of matter and its manifestations. All this should lead us to think more about the finitude of nature in general than about its continuity. However, today we can also find alternative approaches that propose rethinking the very idea of continuity as a new methodological framework and demonstrate that, even at the level of finite things, there are continuities, as substantiated in Peirce's theory of synechism, which considers space, time, and laws as continuous (Pietarinen, 2025). Although we note that this alternative approach is valuable mainly in the process of researching issues of biology and bioengineering, which consider the issues of development and acquisition of new qualities. In many ways, the relevance of each approach is determined by the context of the research area. At the same time, it is also determined by the content of the formulations that we take as a basis in the process of conducting scientific research.

The discreteness of space and time, according to the requirements of digital philosophy, is a necessary condition for the transition from physical phenomena to computational processes that operate on information and are universal by their very nature, quite sufficient to explain various physical processes (Fredkin, 1990, 2005). It should be noted that Fredkin distinguishes only four laws of digital physics: "I. Information is conserved. II. The fundamental process of nature must be a computation-universal process. III. The state of any physical system must have a digital representation. IV. The only kind of change is that caused by a digital informational process" (Fredkin, 2003: 206). It is noteworthy that the foundations of nature, according to the approach of digital philosophy, cannot be non-computational. It is computational processes that make possible not only the construction of computers (these computing machines themselves indicate that the foundations of things are computational), but also life as such (we come to understand it gradually, making transitions from computational processes to physical, chemical, and finally biological ones). And although it is not easy to reach a correct digital representation characteristic of a particular state of nature, theoretically such transitions are quite unambiguous.

Even if this transition is accompanied by an explanatory gap, this does not mean that we cannot learn anything about the first cause of our world. It will be something like a retroanalysis task, when we have results and try to understand what the ultimate reality was that preceded them. Whether this understanding of ultimate reality will be close to the reasoning of E. Steinhart ("ultimate reality is a massively parallel computing machine sufficiently

universal for the realization of any physically possible world" (Steinhart, 1998: 117), or whether it will be a world of digital metaphysics of a completely different nature, as radically different from ours as the reality of software is different from the reality of hardware, or even more, can only be assumed.

For Fredkin's interpretation, it is important that the nature of computation itself be universal and remain so even in worlds that humans cannot think or imagine. Or in our world, if the study of its foundations required non-algorithmic understanding, a form of knowledge that goes beyond computation [Faizal, Krauss, Shabir, & Marino, 2025: 10]. Even though Fredkin himself does not develop the corresponding assumption, the opportunities that the development of artificial intelligence brings should not be neglected. It is quite likely that the findings of artificial intelligence and future advances in emerging technologies will contribute to a deepening of human understanding – initially through the attainment of new research results and the development of previously unknown methodological approaches, and later through their influence on human cognitive capacities themselves, in particular through genetic engineering, neuro-computer interaction, or even enhancing the potential of the collective mind. All this should expand the horizons of our knowledge and bring us closer to understanding the first causes of reality.

And all thanks to the flexibility of computation, the ability to use it to explain not only the nature of the surrounding world, but also the principles of cognition and the peculiarities of the functioning of the human mind. Chalmers draws attention to this kind of flexibility characteristic of computation in the process of explaining the nature of things when he argues that computation provides "a common framework within which many different theories can be expressed, and by providing a tool with which the theories' causal mechanisms can be instantiated" (Chalmers, 2011: 357). Computation itself proves useful not only for explaining the nature of physical reality, but also what lies beyond it. This is undoubtedly its advantage; however, as will be demonstrated below, in the quest to go beyond the limits of our reality or in the study of the nature of human existence, things are far from unambiguous.

Knowing the nature of the Other

The question is, how exactly is it possible to apply a computational model to explain the transcendent? The fact is that the finite nature is indicated not only by discoveries such as the atomic structure of matter, but also by the establishment of general principles of cellular automata. Knowledge of these principles of operation suggests the need to find out more about the foundations of the world. Cellular automata are actually specialized computers capable of functioning independently according to given algorithms, ensuring the transition of cells from one state to another, which actually turns the system into a self-organizing one. The very fact that nature is finite makes it possible to model all processes using a universal machine, some cellular automaton that operates on bits of information (Fredkin, 1990: 259). It should be noted that information expressed in bits, as well as space and time, are discrete units for measuring nature. The meaning of information, which is necessary for explaining nature, can only be understood within the framework of a certain information process. However, some processes are so complex that, despite their determinacy, the resources for their computation must be infinite.

The need for unlimited resources, like the nature of computation itself, raises the question of why things are the way they are and not otherwise. According to Fredkin's idea, we may not understand many things and not know how they work, but it is important to understand the general logic of fundamental processes. In other words, to understand how computation

works: "What is certain is that worlds that are qualitatively beyond our power to imagine are also capable of supporting computation" (Fredkin, 1993: 119). Knowing this fact is enough to ask where the ultimate computer is. However, the answer Fredkin himself provides seems unlikely to satisfy many. After all, by asserting that the ultimate computer is located elsewhere, Fredkin acknowledges the absolute difference between this other place and everything we are accustomed to dealing with. It can be reasonably assumed to be a place with a structure that we do not understand, and with laws that we cannot describe using the logic and terminology we are accustomed to. To at least somehow appreciate the Other, we must first learn a great many things about its creation – about our own world. In particular, to know the size of our Universe and whether it will expand infinitely and whether this expansion will ever stop, as well as to establish what excess computational power our Universe possesses. This would make it possible to estimate the computational resources invested in the functioning of our Universe, at least somehow narrowing down the number of reasons for its existence. Although it is possible that knowledge of these facts may remain beyond our understanding only due to the limited capabilities of our mind, which will always lack empirical facts, or sensory data, which, given the scale of the issues under study, we will simply never be able to achieve.

Continuing his reasoning (largely in terms of Aristotle's doctrine of four causes), Fredkin reflects not only on form, matter, and efficient cause, but also on the purpose of the universe's existence. However, this purpose is the result of all the computing resources of the universe and will remain incomprehensible. Although Fredkin says nothing about the possibility of studying the direction of development of the Universe, does not cover all possible computational resources, but resorts to the analysis of particular cases and further prediction, as well as to the extrapolation of knowledge from one subject area to another. Under such conditions, there will always be a possibility that at some point the interpretation of the meanings of individual processes may change beyond recognition (as in Nelson Goodman's "grue" paradox), but at least such a prediction makes it possible to understand this purpose, starting from the information resources accessible to humans. Ultimately, one might wonder whether this Universe is a final creation, or simply part of more complex and fundamental computational processes that operate at higher levels of reality with an abstract logical-mathematical and informational structure and its own physical laws, different from ours. It is quite likely that such primordial universes could be the first cause of the emergence of universes alternative to ours. The identification of the structure of such alternative Universes (possible worlds) would allow us to further clarify what the Other is as their first cause. However, currently, ideas like this or the search for specific characteristics of the creation process in general are only being refined by searching for the necessary indicators, for example, to determine the probability that the Universe was created consciously, and even come to the conclusion that such a probability is not zero (Broadbent, 2023), or they express skepticism about the possibility of clarifying relevant issues and reconciling ethical issues with the multiverse possibility (Pittard, 2023).

Again, Fredkin is only approaching the formation of those hypotheses that have become popular due to the active development of artificial intelligence. First of all, we are talking about the simulation hypothesis, which already in a more categorical manner asserts that the surrounding world is simulated by something more fundamental than anything we have encountered before, in particular by a superintelligence that we are unlikely to ever be able to comprehend. This simulation appears to be a purposeful design, while digital physics, as D. Chandler draws attention to, considers the emergence of the computational foundations of the Universe as a completely natural process that arose naturally (Chandler, 2023: 945). Hence,

the differences in explanations and possibilities of our cognition. Fredkin does not need the simulation hypothesis; it is enough for him to limit himself to the hypothesis of finite nature and to admit that some things will remain incomprehensible even when powerful artificial intelligence is created. Nick Bostrom, one of the supporters of the simulation hypothesis, on the contrary, argues that if the evolutionary development of humanity gradually takes place and subsequent civilizations will be able to achieve incomparably greater computing power than we currently have at our disposal, then it is quite reasonable to assume the existence of some kind of computer simulation in which we find ourselves (Bostrom, 2003: 255). So, our reality may not just have computational processes at its core, but even more – by its very nature, it may be interpreted as a simulation. If we accept that there is no difference at all between the virtual and the real, then, following D. Chalmers, we can conclude that virtual reality is the ultimate reality (Chalmers, 2022). And we can ask the question differently, as R. Yampolskiy does: if we accept that we live in a simulation, is it possible to escape from it, or rather go beyond its limits, and learn about what the real world is like (Yampolskiy, 2023).

But does the space of virtual reality have anything in common with the Other that Fredkin writes about? It is important for him to emphasize that the Other possesses an intellect of a fundamentally different nature and capacities than the intellect possessed by human beings. He writes:

"The point is that machines with Artificial Intelligence (AI) that we may build in the future will be qualitatively different in intellectual capability than are humans. We can't speak of AI as 'intelligent' in human terms. Something that may have created our universe in a purposeful fashion is very different than something with human-like intelligence or the kind of intelligence we will see in Earthbound AI. There might be no more in common than the concept of questions and the concept of finding answers" (Fredkin, 1993: 120).

In other words, Fredkin argues that artificial intelligence, in its principles of functioning, will resemble the intelligence that is generally inherent in biological species on Earth. The behavior of these species is rational and can be explained, and causal relationships can be traced in their actions, etc. Artificial intelligence is also, in principle, understandable to people in its choices and completely predictable, because it acts according to given algorithms. Artificial intelligence is also, in principle, understandable to people in its choices and completely predictable, because it acts according to certain algorithms. And even if it significantly surpasses a person in its capacities (in the course of scientific progress, any technical means each time surpass human abilities – whether physical or cognitive, related to memorization, performing computation, and now solving logical problems), this will not change anything in the matter of understanding the nature of the Other's intelligence, which is qualitatively different from everything we can deal with.

However, Fredkin's reasoning, especially in light of the latest technological advances in artificial intelligence, may be partially revised, since in many aspects, some things remain unclear to him. He writes about artificial intelligence as a process of computation, but says nothing clearly about the possibility of constructing artificial consciousness. It should become an integral part of the superintelligence, and it should already be asking what it means to be "created by the Other." A person may find themselves in the position of the Other in relation to the host of artificial consciousness. From his decisions and considerations obtained in the process of virtual reality simulation, it will be possible to understand a little more about the Other itself, which could be not only external to us, but also emergent in relation to the inner world of those who possess consciousness. Even if the quality of the Other, as Fredkin himself agrees, will remain incomprehensible to us, we can quantify the capabilities of the

Other – for this, we need to know the basic parameters necessary for computing the digital mechanics of our Universe and, accordingly, come closer to understanding its purpose, that is, what it was created for.

Of course, from the perspective of the digital process of creation, it was not so much the Universe that was created as the ultimate computer, which, like the ancient Greek arche, can be interpreted as the foundation of the world. Physics does not explain who set this algorithm, where and under what circumstances it was set, just as it does not explain anything that arose in the Other. In fact, from the standpoint of physics, we cannot say for what purpose this world was created, nor what place belongs to the human being within it. The only thing that can be logically assumed (but this statement would not contain any semantic information) is that: "In either case, our existence here on Earth might or might not be completely incidental to the purpose" (Fredkin, 1993: 120). However, Fredkin says a lot with this. Firstly, things like anthropocentrism or the anthropic principle are nothing more than hypotheses and should be questioned. It may well seem that our existence is not decisive in the project implemented in the Other. Secondly, the meanings embedded in the original intention may never be understood by us, and we will simply not be able to determine the nature of metaphysical truths, but only recognize that different answers to this question are possible (a multiplicity of interpretations). Asking the question about the first principles of the world may prove to be more important than answering it. Thirdly, no matter how uncertain a person's place in the world may be, and no matter how incomprehensible its foundations may be, what is important is that the world has a purpose. Fredkin is prompted to this idea by both the very idea of the finite nature and the possibility of regarding the foundation of our Universe as a vast digital computer that performs computation, as well as by the human capacity to construct computers. For any computer (constructed by humans or constituting the very foundation of the world) is universal by its nature, and therefore operates according to a predetermined algorithm in order to realize a final purpose that can be known only once the computation has been completed.

Knowledge of the inner world

At the same time, the question of whether it is worth looking for manifestations of the Other, and ultimately unique dimensions of being as such – within ourselves, inevitably makes us think about the prospects for digital analysis of the human inner world. Although Fredkin is not inclined to pose the question in this way, he conceives the digital approach as universal, and therefore it can be applied to the interpretation not only of the macrocosm, but also of the microcosm. However, the method that Fredkin himself chooses to analyze the microcosm, and accordingly to understand human beings as informational, seems unsatisfactory, since it concerns not so much the essence of things as the ways of using words. The meaning of the terms we use to describe a person's inner world, in his opinion, needs clarification. In other words, there is no need to invent new terms; we must understand what we are referring to with the terms we already have. Thus, we can reflect on the nature of the soul, as Fredkin himself does (Fredkin, 2000), we can ask whether computation is sufficient for thinking or the cognitive sphere, as Chalmers writes about (Chalmers, 2011), or, accordingly, for solving the mind-body problem, as Ralph Abraham and Sisir Roy do (Abraham & Roy, 2012), etc. Of course, there are many more terms that describe the inner world of a person: we are talking about the spirit, the microcosm, the mechanisms of self-monitoring, consciousness or self-awareness, and terms that have long become part of certain philosophical systems (such as nous, intellectus, Vernunft and Verstand) and which are accepted without evidence, without

conducting relevant experimental research. Fredkin proceeds from the assumption that what is important is not so much how to name internal states or processes, but rather their very essence and the extent to which it corresponds to what we mean by them. It is possible to correctly interpret the nature of things only by clearly realizing that any entities are preceded by a certain computational process.

Thus, from the standpoint of the information-computational approach, Fredkin writes that: "The soul is an informational entity, which is constructed out of the states and the arrangements of material things" (Fredkin, 2000: 5). That is, he does not accept the position of eliminative materialism, according to which terms that describe the inner world of a person but are not neuroscientific do not allow for adequate explanation. From his proposed definition of the soul, it becomes clear that it is a separate entity, which, like everything else in the world, has an informational nature. The soul becomes that structure of information which describes the cognitive states of memory, consciousness, and the way we perceive and understand the world. Its existence is shaped by the presence of a material body, but, in essence, it is an informational, not a physical, process and therefore an informational structure in a computing environment.

Fredkin does not reduce the soul to material processes: "…the soul is not made up of matter; it is an informational construct wherein the states and arrangements of matter and energy are used to represent the information" (Fredkin, 2000: 19). In other words, the nature of the inner world of a person (soul) can be explained as a pattern of different information states, as a kind of program that operates on the basis of a material substrate. Under such conditions, a person's inner world (in its conscious and unconscious dimensions) is a kind of virtual space, and information states as patterns can be reproduced on other hosts and within a certain virtual world. Moreover, these virtual worlds, as evidenced by the development of technologies under the conditions of creation by artificial intelligence, can become something different from what has been created by humans (Synytsia, 2025).

By proposing an information-computational approach to explaining the nature of the world, the cognitive sphere is reduced to the sphere of virtual reality, part of which, according to the simulation hypothesis, may be our consciousness. The distinction between mind and body, virtual and real, may well be reinterpreted within the information paradigm (for the world we think or imagine, in a certain sense, resembles a virtual world, and vice versa). In this case, vision is decisive. Thinking and extended substances become, respectively, aspects of a single informational entity (which is, in fact, analogous to the given in Bertrand Russell's concept of neutral monism). Under the conditions of information-computing processes as the fundamental basis of the world, the virtual no longer becomes one of the manifestations of reality, but, on the contrary, reality becomes a manifestation of the virtual. Within this virtual space, the soul (mental) acts as a stable information configuration that organizes data in such a way that consciousness (an information structure embodied at the local level) and, accordingly, self-awareness (a meta-information function, which is essentially information about information, an algorithm that explores itself) emerge.

The soul can organize data that comes from outside or is the result of introspective analysis because it is not homogeneous itself. This conclusion inevitably follows from the essence of his approach. After all, Fredkin himself argues that: "In order to understand our definition of '*souls'* we need to understand that a *soul* is made up of many parts, that not all *souls* in human bodies have all of the parts that other *souls* have and that parts of a human's *soul* can exist outside of that human's body…" (Fredkin, 2000: 4). He calls the parts of the soul *soullecules* – they are actually particles of information understood by a person (certain

information about something). We can share them with others both in the form of short units of meaning expressed through words, in musical compositions, etc. The learning process enriches our soul with new particles, but sometimes the old ones are lost. In this way, the soul changes every time. The combinations of mental states and processes each time represent the uniqueness of each person's inner world.

To explain how the cognitive sphere functions, Fredkin distinguishes between a dynamic and a static soul. About the first one he says: "A dynamic soul is just what we normally think of as the soul of a living, awake and active being" (Fredkin, 2000: 5), and about the second: "A static *soul* is simply digital information that is similar to a combination of computer programs and computer data" (Fredkin, 2000: 5). As we can see, he actually identifies the dynamic soul with the conscious processes that we experience when we contemplate the world, reflect on it, feel, learn, communicate, etc., and the second (static soul) with the set of knowledge that is stored in our memory and can be activated and used when needed as a component of the dynamic soul. When a person, for example, thinks about proving the Pythagorean theorem, listens to a musical composition by Mozart, or empathizes with one of the literary characters invented by Shakespeare, he actually begins to be in the same state as others when they think about it; all of them actualize in themselves that part of the soul that the corresponding authors once experienced and expressed in their works.

Essentially, a dynamic soul is an activated program that performs computation and uses the body to interact with the environment and make itself known to others. Then the static soul actually corresponds to a set of digital data that is stored on separate media and can be activated each time the program is run. It can only be run in a specific environment. In this case, it is not at all about the uniqueness of this environment, but rather that it satisfies the appropriate conditions: just as a program can be run on different computers, so the soul (its individual parts) can be saved and reproduced. This requires not so much a human body as an environment that will perform all the biological functions of the organism that are necessary for the functioning of the soul. That is, the environment is compatible with the soul, in Fredkin's interpretation, it is some kind of perfect computer. He explicitly states this: "We believe that a contemporary high end personal computer can have the computational resources to host the dynamic soul of one person in real time" (Fredkin, 2000: 21). However, he immediately clarifies that in order to understand the soul, one must first properly understand how the body functions and what the environment in which it functions should be. There will always be a question of how to interact with the soul – and in this matter, Fredkin draws an analogy with the study of the principles of operation of a RAM chip, the study of which, from the outside, tells us nothing about what it is capable of, but there are many methods for discovering what it does.

Contemporary research suggests not only assessing the hardware resources necessary for this kind of manipulation of the soul, but also developing specific operational indicators of consciousness in artificial systems that are not achievable in modern systems but are technologically achievable in general (Butlin et al., 2023). Although learning systems can acquire "multiple selves," evolutionarily, this makes artificial systems more flexible and adaptable to changing environmental conditions (Dulberg et al., 2023). At the same time, such metaphysical issues related to the multiple copying and transfer of personality (the problem of multiplicity), as some researchers argue, can be completely solved not only at the level of an artificial personality, but also at the level of a human personality (as a set of manifested qualities of the soul), which can also develop in different ways (Weber, 2025).

For his part, Fredkin, taking into account the imperfection of artificial intelligence

technologies at the time, sought to focus not so much on the technical aspects of this issue as on the conceptual and philosophical ones, and therefore, in his characteristic manner (giving new meaning to concepts), he tries to reconcile basic tenets of digital cosmology with the key tenets of religious and worldview teachings. For example, he says that: "Reincarnation is possible, but not in ways previously imagined; the soul may, in partial or nearly total form, survive the death of the body; the partial or nearly total soul may be able to exist separate from the body; the soul is potentially an immortal informational construct; thus a part of physics" (Fredkin, 2000: 4). He is convinced that "the laws of physics do not prohibit the survival of a person's soul, largely intact, after the death of that person's body", but immediately adds: "…we do not believe that such an event has yet occurred" (Fredkin, 2000: 4). The possibility of preserving the soul immediately raises the question of the immortality of the soul, which again seems possible to Fredkin, but this cannot be done in violation of the laws of physics: "For a soul to be immortal, it must either be resident in an immortal host, or it must be able to survive the mortality of each member of a sequence of hosts. Since the soul is an informational construct" (Fredkin, 2000: 26).

For this possibility to become a reality, the development of digital technology must obviously take place. Even today, decades after Fredkin first articulated his reflections on digital philosophy, we can only talk about positive dynamics, not about any specific results; about understanding how the relevant processes might occur, not about how to implement them. For example, from the digital perspective, reincarnation is interpreted as the possibility of expressing the same mental states through a host of a different nature. It can be assumed that if it is possible to transfer states of consciousness into a virtual reality, then the reverse process is not excluded – when these states are reproduced on other hosts, not only digital, but also biological (in this case, we will be dealing not with escape in Yampolskiy's interpretation above, but with return). Fredkin's approach does not exclude such a possibility; rather, it regards its occurrence as inevitable.

However, it is precisely this transition that, in many respects, appears to be an insoluble difficulty in contemporary cognitive theory and the main point of criticism of reductionism. Qualia, or the subjective characteristics of sensory experience, as anti-reductionists argue, cannot be reproduced: they are unique in nature. Attempts to make the real part of the virtual rest on analogy; reality is much more complex. So the digital approach, if it ever claims the status of a theory of everything and explains the nature of fundamental interactions, must also explain the cognitive sphere. Fredkin's attempt seems noteworthy, and with the development of artificial intelligence, interest in the information-computational approach has only increased, while human existence, expressed in the correlation of mind and body, continues to remain a mystery, to unravel which, the following more substantiated explanations are needed, not only theoretical, but also at the empirical level. Their attainment would be made possible, in particular, by artificial intelligence technologies, the development of which will demonstrate how reasonable the ideas of Fredkin's digital philosophy are and how they can be used to explain the nature of reality and the human being.

🕮 References

Abraham, R., and Roy S. (2012) A digital solution to the mind/body problem. In *P. Simeonov, L. Smith, A. Ehresmann (Eds.), Integral Biomathics* (pp. 213-225). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-642-28111-2_20

Bostrom, N. (2003) Are we living in a computer simulation? *Philosophical Quarterly,* 53(211), 243-255. https://doi.org/10.1111/1467-9213.00309

Broadbent, D. (2023) Could our Universe have been initiated intentionally: An epistemological framework. *Philosophy and Cosmology*, 31, 4-12. https://doi.org/10.29202/philcosm/31/1

Butlin, P., Long, R., Elmoznino, E., Bengio, Y., Birch, J., VanRullen, R. et al. (2023) *Consciousness in artificial intelligence: Insights from the science of consciousness*. arXiv. https://arxiv.org/abs/2308.08708

Chalmers, D. (2011) A computational foundation for the study of cognition. *Journal of Cognitive Science,* 12(4), 325-359. https://doi.org/10.17791/jcs.2011.12.4.325

Chalmers, D. (2022) *Reality+ : Virtual worlds and the problems of philosophy*. New York: W. W. Norton & Company.

Chandler, D. L. (2023) Could the Universe be a giant quantum computer? *Nature,* 620 (7976), 943-945. https://doi.org/10.1038/d41586-023-02646-x

Dulberg, Z., Dubey, R., Berwian, I. M., & Cohen, J. D. (2023) Having multiple selves helps learning agents explore and adapt in complex changing worlds. *Proceedings of the National Academy of Sciences*, 120(28), e2221180120. https://doi.org/10.1073/pnas.2221180120

Faizal, M., Krauss, L., Shabir, A., & Marino, F. (2025). Consequences of undecidability in physics on the theory of everything. *Journal of Holography Applications in Physics*, 5(2), 10-21. 10.22128/jhap.2025.1024.1118

Fredkin, E. (1990) Digital mechanics: An informational process based on reversible universal cellular automata. *Physica D: Nonlinear Phenomena,* 45(1-3), 254-270. https://doi.org/10.1016/0167-2789(90)90186-S

Fredkin, E. (1992) Finite nature. *Proceedings of the XXVIIth Rencontre de Moriond* (Les Arcs, Savoie, France, March 22–28, 1992) (pp. 345-354). Gif-surYvette, France: Editions Frontieres.

Fredkin, E. (1993) A new cosmogony. In D. Matzke (Ed.), *Proceedings of the Workshop on Physics and Computation* (*October 2–4, 1992)* (pp. 116-121). New York: Institute of Electrical and Electronics Engineers Computer Society Press. https://doi.org/10.1109/PHYCMP.1992.615507

Fredkin, E. (2000) *On the soul* (Unpublished manuscript). https://www.scribd.com/document/235105454/On-the-soul-Ed-Fredkin

Fredkin, E. (2003) An introduction to digital philosophy. *International Journal of Theoretical Physics*, 42, 189-247. https://doi.org/10.1023/A:1024443232206.

Fredkin, E. (2004) Five big questions with pretty simple answers. *IBM Journal of Research and Development*, 48(1), 31-45. https://doi.org/10.1147/rd.481.0031

Fredkin, E. (2005) A computing architecture for physics. *CF'05: Proceedings of the 2nd conference on Computing frontiers,* 273-279. https://doi.org/10.1145/1062261.1062307

Pietarinen, A. V. (2025). Synechism 2.0: Contours of a new theory of continuity in nature. *Studies in History and Philosophy of Science Part A,* 100, 103–118. https://doi.org/10.1016/j.shpsa.2025.05.006

Pittard, J. (2023) The Skeptical challenge of the theistic multiverse. *Ergo*, 9, 36. https://doi.org/10.3998/ergo.2925

Steinhart, E. (1998) Digital metaphysics. In T. W. Bynum & J. H. Moor (Eds.), *The Digital Phoenix: How Computers are Changing Philosophy* (pp. 117-134). Cambridge: Blackwell.

Synytsia, A. (2025) Remarks on Karl Popper's idea of three worlds in the context of the development of virtual reality technologies. *Actual Problems of Mind*, 26, 31-48. https://

doi.org/10.55056/apm.7748

Weber, C. (2025) The multiplicity objection against uploading optimism. *Synthese* 205, 226. https://doi.org/10.1007/s11229-025-05057-9

Wittgenstein, L. (1922) *Tractatus Logico-Philosophicus* / trans. by C. K. Ogden. London, Kegan Paul, Trench, Trubner & Co.

Yampolskiy, R. (2023) How to escape from the simulation. *Seeds of Science*. https://doi.org/10.53975/wg1s-9j16

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