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The cryptoterrestrial hypothesis: A case for scientific openness to a concealed earthly explanation for Unidentified Anomalous Phenomena

NOTE: This paper is a speculative thought piece that reflects the authors' own interests and ideas, and is not associated with the Human Flourishing Program at Harvard. We would also like to emphasize that we believe this hypothesis to be in all likelihood *false*, but nevertheless believe it still merits scientific investigation.

Tim Lomas[1], Brendan Case[2], Michael P. Masters[3]

[1] Psychology Research Scientist, Human Flourishing Program, Harvard University
Email: tlomas@hsph.harvard.edu
https://orcid.org/0000-0001-9458-6185

[2] Associate Director for Research, Human Flourishing Program, Harvard University
Email: brendan_case@fas.harvard.edu

[3] Professor of Biological Anthropology, Montana Technological University
Email: mmasters@mtech.edu

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Recent years have seen increasing public attention and indeed concern regarding Unidentified Anomalous Phenomena (UAP). Hypotheses for such phenomena tend to fall into two classes: a conventional terrestrial explanation (e.g., human-made technology), or an extraterrestrial explanation (i.e., advanced civilizations from elsewhere in the cosmos). However, there is also a third minority class of hypothesis: an unconventional terrestrial explanation, outside the prevailing consensus view of the universe. This is the ultraterrestrial hypothesis, which includes as a subset the "cryptoterrestrial" hypothesis, namely the notion that UAP may reflect activities of intelligent beings concealed in stealth here on Earth (e.g., underground), and/or its near environs (e.g., the moon), and/or even "walking among us" (e.g., passing as humans). Although this idea is likely to be regarded sceptically by most scientists, such is the nature of some UAP that we argue this possibility should not be summarily dismissed, and instead deserves genuine consideration in a spirit of epistemic humility and openness.

Keywords: philosophy; science; extraterrestrial; ultraterrestrial

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This paper explores a hypothesis concerning Unidentified Anomalous Phenomena (UAP), and follows another by the same first author focusing on a related hypothesis recently published in the Journal of Transpersonal Psychology (Lomas, 2023a). Essentially, the discourse around UAP is dominated by two main classes of explanation: a conventional terrestrial origin (e.g., human technology), or an extraterrestrial origin (i.e., advanced civilizations arriving from elsewhere). However, such is the strange nature of many UAP that observers close to the topic have been compelled to consider a more unconventional set of theories known collectively as the "ultraterrestrial" hypothesis. This denotes a broad category of conjecture centred around the possibility that UAP may involve forms of non-human intelligence (NHI) that are already present in Earth's environment in some sense, which Puthoff (2022) describes as "sequestered terrestrial cultures… existing alongside us in distinct stealth." One is an "interdimensional" hypothesis, which was the focus of the previous

paper; this suggests UAP may involve beings from dimensions that coexist alongside the four dimensions of spacetime we usually perceive, and/or that UAP occupants are "extratempestrial," traveling through the fourth dimension to visit different periods of Earth's history, which may involve our descendants returning to study their own hominin evolutionary past (Masters, 2019, 2022). In writing that paper though, the author became increasingly aware of the depth of evidence and theory that also tentatively supports another ultraterrestrial explanation: the "cryptoterrestrial" hypothesis (CTH) – our focus here – which holds that UAP may reflect activities of NHIs concealed here on Earth (e.g., underground) and its environs. Indeed, the philosopher Bernado Kastrup (2024) recently argued that a version of the CTH was – despite its seemingly outlandish, unlikely, and "far out" nature – the "most reasonable scenario" for UAP and NHI. As such, a paper which explored the CTH in depth seemed a logical next step, and furthermore a useful counterpart to the interdimensional paper.

Fundamentally, UAP constitute an extraordinary empirical mystery, which science is surely obligated to investigate, yet has rarely done so (at least in an open, public, visible way), especially when it comes to these more unconventional ultraterrestrial hypotheses. As such, together, the previous and current paper will hopefully serve as valuable pieces of this emergent jigsaw puzzle that is humanity's attempt to better understanding this existentially important yet hitherto all-too-often overlooked phenomenon. The paper begins by briefly noting the recent history and concern over this topic; however, this subject has been extensively covered elsewhere – including by Lomas (2023a), whose paper offers a relatively recent summary of the relevant terrain – so we will merely point to such sources rather than delving into detail. Then, we explore the CTH over five sections, reflecting on: (a) limits to historical and geological knowledge; (2) traces of lost civilizations; (3) traces of underground civilizations; (4) traditions around "magical" cryptoterrestrials; and (5) UAP-related activity underground, underwater, and nearby (i.e., the moon). We conclude by noting that across these various considerations are actually four distinct CTHs, whose merits we briefly consider. We recognize these CTHs may rightly be regarded sceptically by most scientists, but argue they nevertheless should not be ruled out, and deserve consideration in a spirit of epistemic humility and openness.

The UAP Issue

For centuries, people worldwide have observed aerial phenomena that seemed "anomalous" in some way, some of which crucially we today – even with our more advanced technologies and scientific understanding – might still regard as extraordinary (Vallée, 2008; Lomas & Case, 2023). During the 20th Century these attracted the label Unidentified Flying Object (UFO), and more recently Unidentified Aerial Phenomena (UAP), with the latter now expanding even further by changing the "A" to simply denote *anomalous* (given that some UAP are not only airborne, but capable of travelling underwater, a capacity which is central to the hypothesis considered here). However, although there have been many sightings over the years – with the Mutual UFO Network receiving over 200,000 reports since 1969 (Mellon, 2022) – these have generally not been taken seriously by authorities, at least in public. However, there was a dramatic shift in 2017, when footage of three US military encounters with UAP was published online, bringing the topic to wider attention, not only in the US but across the globe (Cooper et al., 2017). (Although UAP are a worldwide phenomenon (Lomas, 2023b)[1], the dynamics of this topic are mostly driven by developments in the US, which of all nations has seen the most UAP-related activity, both in terms of sightings and the attention paid to them.) The military angle was especially significant, as it involves observers who excel in occupations that require the highest skill and training in visual perception and processing, and whose testimony is often triangulated with other information sources (e.g., radar). As a result, the Department of Defense (2020) confirmed the footage was genuine, and soon after established a UAP Task Force to investigate such incidents, now known as the All-domain Anomaly Resolution Office (AARO).

It has subsequently published three main reports (Office of the Director of National Intelligence, 2021, 2023a, 2023b), and even though these had a very limited scope (mainly events since 2019 and focusing on US airspace and waters), the number of cases under consideration is over 800. At a presentation in May 2023 by Dr Kirkpatrick, then-director of AARO (having since left the post), he argued that the majority probably did have conventional explanations, and currently remained unidentified only through lack of good data that would allow conclusive identification. However, around two to five percent of the 800 – roughly 15-40 – were "possibly really anomalous" (cited in Wendling, 2023). To that point, its most recent report noted that "many reports from military witnesses do present safety of flight concerns, and there are some cases where reported UAP have potentially exhibited one or more concerning performance characteristics such as high-speed travel or unusual maneuverability." Furthermore, it suggests these cannot be attributed to the US ("AARO has de-conflicted these cases with potential US programs") or other nations ("none of these UAP reports have been positively attributed to foreign activities").

Moreover, many critics suspect that AARO may be deliberately downplaying the topic and concealing or at least obfuscating the extraordinary nature of many UAP-related events[2]. Indeed, if so, this would follow a pattern set by its predecessors like Project Blue Book, which overall have served to minimise the significance of UAP and even to deny their reality at all. This prerogative was admitted as such by Rear Admiral Hillenkoetter, first Director of the CIA, from 1947 to 1950, who is quoted by The New York Times (1960) as 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"[3]. Crucially though, as Hillenkoetter admits, authorities have privately long had concerns about UAP, and indeed appear to still do: in August 2023, for instance, General Mark Milley, Chairman of the Joint Chiefs of Staff, said the military "can explain a lot of it [UAP], but there is some that's really kind of weird and unexplainable" (cited in Wolfgang, 2023).

Moreover, in June 2023 explosive "whistleblowing" claims were made publicly by David Grusch – a veteran of the National Reconnaissance Office and National Geospatial-Intelligence Agency[4] – who alleged that the US government and private aerospace companies had for decades maintained a secret "crash retrieval" and "reverse engineering" program (Kean & Blumenthal, 2023). At the time of writing there is no way to know the validity of his claims. However, although they may seem extraordinary, myriad contextual factors mean they cannot be summarily dismissed. For a start, it is significant that he has testified to these claims under oath to Congress (i.e., under penalty of perjury), including in a televised hearing of the US House Subcommittee on National Security, the Border, and Foreign Affairs on July 26, 2023, as well as other sessions behind closed-doors. It is also noteworthy that the Intelligence Community Inspector General (ICIG) deemed his complaint "credible and urgent." Likewise, on January 12, 2024, 16 of the 47 members of the House Oversight Committee (34%) met the ICIG for a secure briefing in relation to Grusch, after which many made remarks indicating his allegations may indeed be genuine; Rep. Moskowitz (2024) for example posted on X, "Based on what we heard many of Grusch claims have merit!", while Rep. Burchett (2024) said, "I think everybody left there thinking and knowing that Grusch is legit".

Perhaps even more significantly, other figures with the relevant expertise and security clearances have publicly vouched for his claims. For example, Retired Army Colonel Karl Nell – who served alongside Grusch in the UAP Task Force – said "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). Indeed, 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 (2024b), former head of the National Oceanic and Atmospheric Administration – the federal agency tasked with monitoring oceanic and atmospheric conditions – said in a recent 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 (2024c) 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." Furthermore, in addition to Gallaudet and Nell, numerous other significant figures have gone on public record either supporting Grusch's allegations or making similar claims[5]. Additionally, a substantial number of other credible figures have followed Grusch in making their own whistleblowing complaints behind closed doors, with Shellenberger et al. (2023) reporting in September that over the past several months "at least 30 other whistleblowers working for the federal government or government contractors have given testimony" to the Office of the ICGC, the Defense Department Inspector General, or to Congress, while a further 30-50 have offered similar testimony to AARO.

Moreover, these allegations seem to have been taken seriously by the intelligence, military, and political communities. In July 2023, Chuck Schumer, Majority Leader of the Senate, introduced bipartisan proposals for an Unidentified Anomalous Phenomena Disclosure Act (U.S.C. S.2226, 2023). As reported in The New York Times, this would create "a commission with broad authority to declassify government documents about U.F.O.s and extraterrestrial matters, in an attempt to force the government to share all that it knows about unidentified phenomena" (Barnes, 2023). Explaining his motives, Schumer wrote, "The American public has a right to learn about technologies of unknown origins, non-human intelligence, and unexplainable phenomena" (Bolton, 2023). Indeed, many political figures seem not only convinced that UAP are genuinely extraordinary, but that Grusch's allegations of a crash retrieval program are credible, or at the very least deserve to be taken seriously and investigated genuinely (von Rennenkampff, 2024b)[6]. However, the proposals faced resistance from select House Representatives, and only minimal aspects of the Act were passed into law in December 2023 within the National Defense Authorization Act for the fiscal year. Even so, the provisions that were retained still contained some striking legislation and language, not least in referring explicitly to "non-human intelligence" in relation to UAP[7]. Moreover, in May Congressman Robert Garcia (2024) filed an updated version of the UAP Disclosure Act as "a possible amendment to be considered on the floor of the House of Representatives during action on the Fiscal Year 2025 National Defense Authorization Act (NDAA, H.R. 8070), which is expected around mid-June" (Johnson, 2024). Its official description is as follows: "Enacts the remaining pieces of the

Schumer-Rounds Unidentified Anomalous Phenomena Disclosure Act that passed the Senate [in July 2023], but were eliminated from the final FY24 NDAA. Creates an Unidentified Anomalous Phenomena Records Review Board, with exercise of eminent domain over UAP-related material controlled by private persons or entities, modeled on the President John F. Kennedy Assassination Records Collection Act of 1992."

Evidently, political complications aside, authorities are perplexed and moreover concerned about UAP, which are a real empirical mystery that science is surely obligated to investigate, as indeed is already happening in some quarters. In that regard, scholars are beginning to formulate hypotheses about what UAP may be, with most attention focused on two classes of explanation: a conventional terrestrial origin (e.g., human technology), and more radically, an extraterrestrial origin (i.e., advanced civilizations from elsewhere). Indeed, revolutionary as the latter would be, recent scholarship does suggest it is plausible (Lomas, 2024). However, such are the strange nature of some UAP that people are also contemplating other possibilities. To that point, the linguistic nuance around this topic is intriguing, particularly the emphasis on "non-human intelligence" in the proposed Disclosure Act, where it appeared 22 times and was defined as "any sentient intelligent non-human lifeform regardless of nature or ultimate origin that may be presumed responsible for unidentified anomalous phenomena or of which the Federal Government has become aware" (p.6). This wording implies the two classes of explanation above are not the only possible ones[8].

In fact, key figures have made this very point, including Grusch. Interviewed by Ross Coulthart on News Nation (2023), when asked if the government had been "concealing the existence on this planet of alien life," he pointedly clarified, "I would couch it as "non-human intelligence"… [because] I don't necessarily want to denote origin. I don't think we have all the data to say, "Oh, they're coming from a certain location."" Moreover, in another interview, Grusch (2023) made some intriguing comments about the NHI involved with the alleged crash retrieval program being "actually not that much more advanced than you and I," saying, "If I was a betting man, some of these NHI, they're similarly as advanced as us but they just made … asymmetric evolution or whatever. They went a different path. Where we made nuclear weapons and stuff, they ended up making this civil propulsion kind of equivalent discovery where they're able to do this now." Thus, seemingly, the nature of UAP and their associated NHI is an open question, and the two options above are not the only explanations. As such, there is an emerging debate around other possibilities, which can be grouped together under the label "ultraterrestrial" hypotheses. This is a broad category of conjecture involving the idea that UAP may represent the activities of NHIs *already* present in the Earth's environment in some sense, hence *ultra*-terrestrial, which Puthoff (2022) defines as "sequestered terrestrial cultures… existing alongside us in distinct stealth." In that respect, Puthoff offers a taxonomy of such hypotheses, including "extradimensional, crypto-terrestrial, demonic/djinn, proto/ancient human, [and] time-travelers, etc., or some combination or mutation of any or all of these" (p. 20001).

Admittedly, these are extraordinary hypotheses that scientists may struggle to seriously consider. Many find an extraterrestrial hypothesis for UAP incredible enough, as evidenced by dismissive reactions to Grusch's allegations by outspoken figures such as Neil DeGrasse Tyson (2023). Given that epistemological context, ultraterrestrial hypotheses may be a stretch too far for some people. Indeed, many who have broached this possibility *themselves* seem wary of even considering it, being aware how far outside conventional scientific discourse such ideas are. However, it is the mission of science to investigate all aspects of physical existence, regardless of the extent to which they push at the circumscribing boundaries of our notions of conventional reality. Indeed, such is the deeply strange nature of UAP that people seem *compelled*, even against their own objections, to consider these alternatives. Consider Garry Nolan, an immunologist with an endowed chair at Stanford, who has for the past decade been involved in UAP research (Nolan et al., 2022). In an interview with Nolan on Spotlight (2022), Coulthart posed a similar question to the one he asked Grusch, and received a comparably ambiguous answer: "You believe, on the evidence, that there is a non-human intelligence, of advanced technology, on this planet?" Nolan 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." Thus, some data relating to UAP are seemingly so extraordinary that people are forced to think "outside the box" and consider possible ultraterrestrial explanations.

Indeed, there are many potential hypotheses, especially when one makes fine-grained distinctions between different versions of explanations. Consider for example a presentation given by Colonel Karl Nell (2023) – cited above as corroborating Grusch's allegations – at a conference convened in November by the newly-launched 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"). His presentation included a detailed taxonomy of possible UAP explanations, involving 72 different hypotheses organized into 14 categories[9]. 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" – with four of these being cryptoterrestrial specifically, as discussed in the conclusion. However, we would argue that his definition of ultraterrestrial, and the 20 hypotheses he selects for this, better fit the cryptoterrestrial hypothesis specifically. Then, many of his other hypothesis could be construed within an ultraterrestrial hypothesis more broadly, along the lines of the more expansive definition offered by Puthoff above.

Within the broad ultraterrestrial category, one theory – or collection of theories, if differentiated in a fine-grained way – is the interdimensional hypothesis (of which Nell offers 14 different variations, though he only positions *some* of these as ultraterrestrial). This suggests UAP may involve beings from dimensions that coexist alongside the four dimensions of spacetime humans usually perceive (Lomas, 2023a). Indeed, following the briefing on Grusch that members of Congress received from the ICIG on January 12, Rep. Luna said, "I think it's important to listen to the specific words that Grusch uses. Grusch never said 'extraterrestrial' or 'alien.' He said 'inter-dimensional'" (Clifford, 2024). On a similar theme, Ron James – Director of Media Relations for UFO research group MUFON – claims he has been informed by intelligence insiders of "a very large contingent" of biblically-minded people within the Pentagon who have sought to shut down investigations into UAP based on the fear that these may actually involve "demons" coming from "hell" (Moran, 2023b).

Another hypothesis which could – depending on how it is construed – be regarded as ultraterrestrial is time-travellers, which is now being given serious consideration, most notably by Masters (2019, 2022, who calls this the "extratempestrial" explanation. One might also note that time-traveling NHIs or future humans could also be an aspect of the *crypto*terrestrial hypothesis (i.e., the two hypotheses may overlap). Consider Puthoff's claim that there could be an "ancient occult group, isolated pre-Diluvial high-tech society… existing alongside us in distinct stealth." Unless this advanced technology had been developed by an early civilization on Earth whose traces have since disappeared (which *is* a remote possibility, as we consider below), or likewise gifted to the group by extraterrestrial visitors (which is likewise an explanation that does have some viability; Lomas & Case, 2024), one of the only other means by which it could have been acquired would be it being brought back through time by those who benefited from its development over preceding eons. Indeed, regarding the time-travel hypothesis generally, Coulthart (2021) said his sources in the intelligence community were specifically worrying about this explanation, linking it to concerns that future humans may have around our development of nuclear weapons, among other potentially calamitous future events. Thus, in the broad class of ultraterrestrial hypotheses, various possibilities are receiving serious consideration. Most relevantly here, these include the cryptoterrestrial hypothesis.

The Cryptoterrestrial Hypothesis (CTH)

In essence, as per all ultraterrestrial hypotheses, the CTH suggests the NHI responsible for UAP may already be present in Earth's environment in some sense, as opposed to having an extraterrestrial explanation. However, rather than existing in other "dimensions" (per the interdimensional hypothesis), or other "times" (per the extratempestrial hypothesis), they are present in a relatively more conventional sense (i.e., within current standard spacetime dimensions) but are nevertheless "hidden" in some way (e.g., living underground). As with other ultraterrestrial hypotheses, we should state outright that we consider this unlikely. Crucially though, we do not regard it as *impossible*. Indeed, emerging observations seem to suggest it may well have some validity. It could also help to assign some probability weightings. For instance, before the past few years, we personally would have rated the possibility of a CTH having *some* basis in truth as low as 1%. Now, in light of recent data discussed shortly, we would put it at around 10%. This still of course means we view the CTH as nine times more unlikely as likely. From the other direction though, we also consider it 10 times *more* likely than we did before, with our "priors" having significantly shifted. Thus, not only should the CTH not be summarily ruled out, we argue it should be explicitly given due consideration. Epistemologically, the rationale is similar to Nolan's remark about "leaving open the idea that it's some form of consciousness that is non-material"; even if the CTH also "sounds absolutely crazy," people are seemingly becoming compelled to take it seriously. Indeed, going further, we concur with Puthoff (2022) that a CTH should be *actively* investigated; rather than passively and reactively waiting for relevant data to make itself apparent, he suggests "it would behoove us to set aside our tentativeness about any given hypothesis, place it on the table as almost certainly true, and "go for it"", doing so "by incorporating elements of a more forensic "gumshoe" style, as in criminalistics and intelligence work."

The starting point for taking the CTH seriously is perplexity over two interrelated empirical mysteries. First, it is increasingly apparent that UAP are not only aerial but can also move underwater in ways that – per their airborne counterparts – defy explanation. The importance and indeed urgency of paying attention to such phenomena has been outlined in a White Paper by Retired Rear Admiral Tim Gallaudet (2024a) – cited above as corroborating Grusch's claims – who argues that an extensive body of accounts and data show "Unidentified Submersible Objects" (USOs) acting in ways that surpass human technology, and even challenge scientific understanding of what is possible underwater. For example, reporting on interviews with Navy Submariners who had "direct or indirect encounters with underwater UAPs," McGregor (2023) summarises the situation by saying, "These objects have been observed to behave in ways that defy our current understanding of physics,

much like their aerial counterparts. They are said to move at incredible speeds, and are capable of sudden and rapid acceleration, deceleration, and direction changes, all without any visible means of propulsion or control"[10]. In one case from 1987 divulged by Knuth (2024), for example, a New Zealand frigate was reportedly followed by a USO 150ft wide and 800ft long calculated to have a top speed of 2980 mph (having closed a distance of 20km in 30 seconds). Moreover, some UAP seem capable of moving through air *and* water with comparable ease (and perhaps even other mediums/substances, such as rock), with these transmedium capabilities being one reason the UAP acronym was expanded from "aerial" to the broader *anomalous*. Indeed, in an article in *The Daily Mail* (Waugh, 2024) – titled, "Forget UFOs, alien hunters say we should be focusing on Unidentified Submerged Objects (USOs)" – former Russian Navy officer turned UAP researcher Vladimir Azhazha is quoted as saying, "Fifty percent of UFO encounters are connected with oceans. Fifteen more - with lakes. So, UFOs tend to stick to the water."

To that point, USOs seem to be of increasing concern to relevant authorities; for example, in May 2024, Rep. Anna Paulina Luna, co-chair of the Congressional UAP Caucus, was asked by reporter Matt Laslo (2024) whether she had any updates on a planned UAP hearing in the House of Representatives, and replied "We're working on doing something with USO." Similarly, the proposed UAP Disclosure Act (U.S.C., S. 2226, 2023) would have required authorities to release information regarding "damaged or intact ocean-surface and undersea craft associated with unidentified anomalous phenomena" (p.8). Thus, there is increasing recognition of an underwater dimension to the phenomenon. As Nolan (2022) stated in an interview, when asked if "whatever this is is coming from outside our atmosphere or … from beneath our oceans," he replied "Both," adding with respect to undersea activity that "sonar images show these things moving at speeds a dozen times faster than our fastest submarines." Although subsurface observations of these craft do not necessarily mean they *reside* underwater, such accounts should be considered in light of the CTH possibility. Moreover, some sightings do involve objects that appear to be *coming from* the water, as opposed to merely moving through it. Indeed, arguably the most famous UAP event of recent years – a series of encounters in November 2004 centred on the USS Nimitz nuclear aircraft carrier – seemed to involve one such object[11]. A less well known but perhaps even more striking case was divulged by Lue Elizondo (2021a) – a former intelligence officer closely linked to US investigations into UAP – involving a military encounter in the Caribbean in which a circular object "about the size of a small island" rose up from the deep on two separate occasions[12].

The second related empirical mystery is that some UAP sightings involve craft and other phenomena (e.g., "orbs") appearing to enter/exit potential underground access points, like volcanoes. The Popocatepetl volcano in central Mexico, for example, is considered a "hotspot" for such observations (Carter, 2023), with numerous such events captured on camera in 2023, which some UAP observers suggested was a "smoking gun" regarding NHI activity on Earth (Donald, 2023). Various hypotheses have been touted about these observations. In the latter article, one observer is quoted as suggesting the volcano functions as an inter-dimensional "portal" (an "intergalactic gateway between two locations in space-time"). However, other people speculate that some UAP might not only be *drawn* to such locales (e.g., as a portal, or for purposes such as hiding or gathering energy), but might *come from* underground (i.e., with the NHI responsible residing in a subterranean way). Similarly, there are rumours of underwater bases in areas notable for reports of UAP entering/exiting the water, as discussed below. Together, these two empirical mysteries have led some to contemplate a CTH. Discussing Grusch's allegations, Rep. Mike Gallagher (2023) noted that one potential explanation for UAP is "an ancient civilization that's just been hiding here, for all this time, and is suddenly showing itself right now," with numerous seemingly well-informed individuals making similar comments[13].

Indeed, the notion of cryptoterrestrials has a long pedigree. For a start, it has often been imagined that mysteries may be concealed within the Earth, such as deep caverns, as memorably captured in literature by Jules Verne (1864). Then, building on this possibility, people have speculated these realms could potentially host ancient civilizations – whether human or some other species – which chose to conceal themselves there. Among the earliest modern proponents of this idea is the writer Richard Shaver. According to Ray Palmer (1975), editor of Amazing Stories magazine, Shaver argued in a 10,000-word manifesto that advanced prehistoric races had built cities inside Earth but fled to another planet due to concerns about radiation damage from the Sun, leaving a cohort of offspring who remained underground. Palmer revised the manuscript and published it as "I Remember Lemuria!" in the March 1945 issue of Amazing Stories, a tale which became the foundation for a genre of science fiction on this theme. Although many people condemned Shaver's narrative as a "hoax" (Dash, 2000), he and Palmer continued to maintain its veracity. Furthermore, over the years, UAP scholars have begun to contemplate similar ideas in relation to the burgeoning UAP observations, most notably John Keel (1983), who – without believing Shaver per se – was persuaded of the notion of cryptoterrestrials living underground.

Indeed, in an article titled "Secret UFO bases across the U.S.", Keel (1968) suggested that the idea of such entities being responsible for UAP was more reasonable than the extraterrestrial hypothesis (ETH) which was gaining some momentum at that time. Given that UAP have "been consistently active in the same areas for many years," he argues "it is quite reasonable to speculate that these objects originate in some unknown manner from these areas, rather than traversing great spatial distances to make brief random and apparently pointless

"visits." In short, many of the thousands of observed "flying saucers" and "spook lights" are more apt to be a part of the Earth's environment than extraterrestrial craft flying in from some distant point" (p.9). In that sense, a CTH avoids issues like the difficulties of interstellar travel. Moreover, it would also explain why UAP appear to take a particular interest in Earth, and furthermore seem concerned about nuclear weapons (see e.g., Hastings, 2015, Hanks, 2023), since these would be a danger to cryptoterrestrials themselves. He further argues this hypothesis is a better fit for people's purported experiences of NHI over the decades (Kelley-Romano, 2006), which most often involve entities with surprisingly similar physiognomy to humans, which one might not necessarily expect given the myriad of evolutionary pathways intelligent life might take in the cosmos (Sagan, 1978; Tipler, 1980; Vakoch, 2014; Masters, 2019; 2022). However, if NHIs were cryptoterrestrial, their species may well be related to *Homo sapiens* in some way – as discussed below – which would more easily account for their resemblance. That said, given the widespread terrestrial evolutionary convergence even across distantly related lineages (as in sharks and dolphins, or hedgehogs and echidnas), it is also possible that extraterrestrial NHI might well look at least something like *Homo sapiens* (cf. Conway Morris, 2003, 2015; McGhee, 2019).

In any case, although the CTH has remained somewhat niche and undertheorized, it has nevertheless been taken seriously by some observers. Most notably, these include Mac Tonnies (2011) in his book The Cryptoterrestrials: A Meditation on Indigenous Humanoids and the Aliens Among Us, and more recently Kastrup (2024), who as noted above called this the "most realistic scenario" for UAP. Similarly, claims relating to the CTH can be found included within various UAP-related texts; in his book The NASA Conspiracies, for example, Redfern (2011) includes an interview with someone seemingly associated with the Gemini program who claimed there was a small band of individuals who represent the last vestiges of an ancient advanced, isolated civilization – responsible for the legends of Atlantis and similar stories – forced by circumstances to retreat into remote sequestered locales for survival. Indeed, comparable testimony continues to emerge that lends further support to the CTH. An example is the apparent testimony of Dr Shirley Wright, Albert Einstein's assistant in 1947. Speaking in 1993 – in recordings which only became public in 2021 – Wright claimed she and Einstein had helped investigate the famous Roswell UAP crash (Verma, 2023c). Incredibly, she said this was not only a genuine UAP, but that biological entities had survived the crash and were subjected to questioning. Most relevantly here, she suggested these were actually "just humans, but an advanced form," and as Verma summarizes it, that many of their "species" actually "reside underground on our planet." On that point, former CIA officer John Ramirez claimed that the authorities conducted biological tests and "were able to sequence something in those bodies that look like a genome and from there they checked the human genome and saw the correlations" (Verma, 2022d).

Given such stories, together with the general strangeness of the UAP topic, there is increasing openness to the CTH, as seen above with the comments of Rep. Gallagher. To reiterate, this hypothesis carries a very low probability weighting, and even people open to it remain sceptical. However, such scepticism is entirely appropriate, and does not negate the point of this paper, namely taking seriously the CTH as a possible explanation for UAP. We are not arguing that UAP *do* have a cryptoterrestrial explanation, but simply that they *could*, and the judicious approach is to consider all valid theories until the evidence decisively demonstrates they should be rejected. We therefore suggest scientists should keep an open mind and investigate the CTH as a genuinely viable theory. To that end, we offer various speculative strands of thought that could provide a tentative foundation and evidence for such a theory. For context, we begin by considering the limits to current historical and geological knowledge.

Limits to Historical, Geological and Biological Knowledge

If the CTH is viable, this would require – if viewed through the lens of certain CTHs, such as a possible "breakaway civilization" in our hominin past – re-thinking human and planetary history as we currently understand it. As such, the first strand of our argument in taking the CTH seriously is to appreciate how relatively fragile and contingent this understanding is, built upon evidence that happened to have withstood the ravages of time and moreover was stumbled upon by people who recognized its significance and preserved it. That is not to imply that we lack knowledge about our past; far from it. Over recent centuries, the field of palaeoanthropology has accrued a plethora of carefully preserved and analysed hominin skeletal and fossil remains, including fully intact bones and teeth from thousands of different specimens. Even so, new discoveries have the potential 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)[14]. However, scientists can only work with the evidence that has been preserved, and it is possible that aspects of biological evolution on this planet have been entirely lost to time. For example, Robert Martin of Chicago's Field Museum suggests we have "fossil evidence for only about 5 percent of all extinct primates" – with his estimation of the number of extinct primate species being up to 9,000, while fewer than 500 have been identified from the fossil record – meaning that the task facing paleontologists in trying to get an accurate picture of primate evolution is like "trying to reconstruct a 1,000-piece jigsaw puzzle using just 50 pieces" (cited in Wong, 2002). Indeed, this uncertainty and contingency even applies to relatively modern human history, the conventional narratives of which have been challenged by archaeological discoveries.

In the 1920s, for instance, British and Indian archaeologists discovered the remains of an ancient civilization along the Indus River at the sites of Harappa and Mohenjo-daro. This site was contemporary with other early urban centres along the Nile, the Tigris and Euphrates, and the Yangtze, but had been lost to history for nearly four thousand years, and its script and the language it encodes remain undeciphered (Keay, 2010). Likewise, much has been made of a settlement in Turkey called Göbekli Tepe – discovered by Klaus Schmidt in 1994 – described by the BBC as "an immense mystery older than Stonehenge" (Curry, 2021). There Schmidt found more than 20 circular stone enclosures, the largest 20m across, featuring a circle of stone with two 5.5m tall pillars at its centre, engraved with "eerie, stylised human figures with folded hands and fox-pelt belts." Significantly, the structures are at least 11,000 years old, making them humanity's oldest known monumental structures, possibly being a site of worship, hence it being called the "world's first temple" (Ananthaswamy, 2013). Even more crucially, the discovery pushes back our understanding of when humans were capable of – and interested in – creating these kinds of elaborate monuments and practices by at least several thousand years, hence Curry describing the site as "reshaping previous ideas on the story of civilisation." Similarly striking was the discovery in 2007 of a "Stonehenge-like structure" in Lake Michigan that is thought to be at least 10,000 years old – a figure partially derived from analyses of the rock used, but also from a potential carving on one stone in the outer circle resembling a Mastodon, a large proboscidean mammal that roamed across North America during the Pleistocene epoch, which ended 11,700 years ago. Yet even these discoveries may have now been superseded by claims by Natawidjaja et al. (2023) that the Gunung Padang site in Java features human megalithic constructions dating to between 25,000 and 14,000 BCE – although their analysis has been fiercely disputed by other archaeologists, and indeed pressure from such scholars even led the journal to retract the article (as discussed in endnote 20). Nevertheless, the point remains that even our relative history is somewhat shrouded in mystery, given the possibility for finds like Göbekli Tepe – the analysis and dating of which is generally not disputed – to be undiscovered and/or unappreciated for their significance.

Then, if such uncertainty is possible with events as recent as 11,000 years ago, this is a blink of an eye in planetary terms, given that Earth is 4.5 *billion* years old (Jain, 2014). As McPhee (1998) noted, "Geologists will sometimes use the calendar year as a unit to represent the time scale," and in that respect, the Precambrian – from the Earth's initial formation 4.5 billion years ago until the Cambrian Explosion ca. 500 million years ago – "runs from New Year's Day until well after Halloween. Dinosaurs appear in the middle of December and are gone the day after Christmas. The last ice sheet melts on December 31st at one minute before midnight, and the Roman empire lasts five seconds" (p.89). Indeed, the entirety of recorded human history takes place within the year's last 30 seconds. In world-historical terms, Mammoths and Smilodons were with us a few deep breaths ago, and Charlemagne's afterimage is still fading from our collective retinas. Moreover, given how easily even relatively recent evidence can be destroyed, lost, or remain undiscovered, our understanding of the far more distant past – apart from brute geological facts such as the age of mountains – is nearly totally blank[15].

Schmidt and Frank (2019) therefore suggest that, given the poor resolution of the geological record, particularly extending millions of years into the past, intelligent or even industrialized species might have long pre-dated human existence on Earth but vanished without leaving a discernible paleontological trace (or, at least, traces that have been discovered by humans). They term this possibility the "Silurian hypothesis," named after a 1970 episode of the British science fiction TV series Doctor Who, in which "a long-buried race of intelligent reptiles [called] 'Silurians' are awakened by an experimental nuclear reactor." There are of course caveats to the plausibility of such a hypothesis: the more recent, advanced, and/or expansive such a civilization was, the more likely it is that they would have left behind discoverable remains. Nevertheless, as Harvard astrophysicist Avi Loeb (2022) puts it, "Planets like 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." Similarly, Kastrup (2024) notes the viability of the Silurian hypotheses, suggesting there has been "plenty of time and opportunity for other non-human species to have arisen on Earth, developed to a level of technology far beyond ours … and then to have effectively vanished due to one or more of the myriad possible civilisation-ending cataclysms."

Moreover, as we continue to explore space – whether distant constellations though inventions like the James Webb Telescope, or nearer to home through initiatives like NASA's Curiosity Rover – new evidence may emerge that could challenge our assumptions about places like Mars. Joseph and Schild (2023) for instance, published "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). Of course, caution is needed in interpreting such data, particularly given the human cognitive habit of "pareidolia": the tendency to perceive a specific, often meaningful, image in a random or ambiguous visual pattern. This is the prevailing scientific interpretation of the famous "Face on Mars," a mile-wide likeness from the Cydonia region obtained by NASA's Viking 1 in 1976 (Martinez-Conde & Macknik, 2012). However, 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 (Corlotto, 1997)[16].

The general point is that if another intelligent species had inhabited Earth (or Mars) long before *Homo sapiens*, it is possible that we could have *no* idea. Of course, for these considerations to be relevant to the CTH, such a species would need to *still* be present on Earth and existing in stealth – whether a branch of *Homo sapiens*, a different hominin subspecies, an even earlier precursor, or something else entirely. As we discuss below, while this notion may sound unlikely on first hearing, many observers are persuaded that it is at least *conceivable*, not least because whole swathes of our planet remain virtually unexplored and uncharted; this of course includes the vast regions underwater, but even includes areas above ground. There has been recent speculation for instance about an "Alaskan Triangle," a sparsely populated area between Anchorage and Juneau in the south to Utqiagvik on the northern coast that is a prominent "hotspot" for UAP, as well as other oddities, such as over 20,000 unexplained disappearances in the area since the 1970s (Moran, 2023a).

Moreover, our epistemological humility ought to extend to biology too, as argued by Davies et al. (2009) in a paper on the potential for Earth to host a "shadow biosphere" (or "shadow biome") involving forms of "weird life … whose biochemistry is so nonstandard that it would not be detected by life-detection tools targeted at standard terran biochemistry." This kind of idea has sometimes been known as the "paraphysical" hypothesis, which essentially denotes forms of life that are physical but are usually undetected and unknown to us[17]. Here one might note that although Davies et al. were generally referring to a shadow biome on a molecular level, there has recently been speculation with regard to larger life forms, as seen for example in relation to a strange airborne "jellyfish" UAP reported by Corbell (2024)[18]. Of course, this point about the limits of our knowledge provides no particular argument *for* the CTH (and moreover, our anthropological knowledge of the historic and prehistoric hominin past is relatively substantial). Crucially though, it means we must have epistemological humility and realise neither can we *dismiss* it just because it contradicts the standard narrative of history. Furthermore, some traces of earlier civilizations possibly *are* still evident, as we see next.

Traces of Lost Civilizations

All cultures have their myths and legends. There are of course many ways to interpret such tales, ranging from works of playful imagination to vehicles for conveying ethical teachings. However, there is an increasing appreciation that even if myths do involve such functions, they may also sometimes, perhaps even often, actually be attempts by pre-literate societies at memorialising, interpreting, and communicating real historical events (Simala, 2015). This hermeneutic framework gains further credibility when bolstered by observations of a particular narrative recurring among *different* cultures. A preeminent example is a great flood, found across many geographically dispersed traditions, including Sumerian (Jacobsen, 1994), ancient Israelite (Davidson, 2004), Greek (Apollodorus, 1921) Indian (Britannica, 2023), and Cheyenne (Seger, 1934). Similarly, albeit less immediately dramatic, Nunn and Cook (2022) show that many coastal cultures have mythologized stories of land becoming separated from mainlands by submergence. They point out 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." Thus, rather than being merely imaginative creations, such myths may instead have arisen from "eyewitness accounts of these transformative processes," so should be engaged with as potential historical testimony. Thus, it is increasingly thought that flood myths may depict events from around 20,000 to 12,000 years ago, "when sea level in the aftermath of the Last Glaciation (last ice age) was rising and transforming coastal landscapes and their human uses in exactly the ways these stories describe" (p.29)[19]. 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, finding the sea transgressed more than 1000 kilometres, with waters sometimes flooding this floor by more than a kilometre per year, and so suggest flood myths in the region – from the Babylonian Epic of Gilgamesh to the biblical Noah – are genuine records of these events.

Even more relevantly here, across world cultures are not only myths of flooding and rising seas, but of land – and moreover civilizations – being lost to these events, disappearing beneath the waters. Most famous is Atlantis, an island featured in Plato's works Timaeus and Critias. While some scholars suggest it is merely fictional, created for allegorical purposes (Tarrant, 2007), there are ongoing attempts to identify it as an actual location, such as a highly advanced Bronze Age culture in Crete and its surrounding islands that was devastated by the eruption of the Santorini/Thera volcano, 120 km north of Crete, around 1,600 BCE (Downey & Tarling, 1984). Moreover, efforts to trace legendary lost civilizations have been encouraged by underwater findings that *may* – though many claims are disputed – be extant traces. For example, in 1986 a diver found apparent submerged stone structures in waters off Yonaguni Jima in Japan, the largest being described as "a complicated, monolithic, stepped pyramid" that rises from a depth of 25 meters (Ryall, 2007). Sceptics dismiss these as merely natural formations, arguing their straight edges result from the "natural stratigraphy of sandstones" (Joshua, 2020). Others however, like marine geologist Masaaki Kimura (2004), believe these to be the ruins of a "Japanese Atlantis" – perhaps a city around 5,000 years old that was sunk by an earthquake around two

millennia ago, or even more radically, one created during the last ice age, when sea levels in the area were 40 meters lower than today. Indeed, the Joe Rogan (2024) podcast recently hosted a lively debate about the claim that it might represent an ancient undiscovered civilization[20]. While conventional narratives of history would find that possibility unlikely, discoveries like Göbekli Tepe are perhaps now making people reconsider.

Easter Island has likewise become a focus of speculation about lost civilizations. Alessio (2016) writes, "As a result of its remote island location in the Pacific, and with so many questions about its mysterious stone ruins, myriad caves, and as yet undeciphered script, it is not surprising that people have fantasized about this isolated and small pocket of land" (p.51), including linking it to "a technologically advanced and ancient civilization known as Mu [or Lemuria], a hypothetical 'Lost World,' which purportedly had created a globe-spanning empire" before being swallowed by the ocean, and whose survivors "formed the nucleus of the world's first civilizations"[21]. Of course, if global in scope, common artifacts and features would be easily identifiable to terrestrial and underwater archaeologists. However, such a speculative thesis about a lost, *global* empire goes far beyond what the CTH requires vis-à-vis the possibility of a "lost" human civilization being responsible for some UAP, which "only" needs, (a) a civilization, of whatever size, to have existed at some point, and (b) its members retreating and surviving underground. To that point, there are many rumoured examples of lost civilizations – and similarly, if not "civilizations" per se, then areas of land that supported human populations[22] – with those noted above just a handful among many. Moreover, besides apparently strange examples like Easter Island – in which scholars struggle to account for the level of societal complexity and technical sophistication in such a remote place – there are other potential sources of evidence for such civilizations.

One intriguing line of enquiry concerns "out of place artifacts" (Freer, 1993): objects that seem to be incompatible with our knowledge of the era with which they are linked, especially if they evince technological mastery that exceeds assumptions of what people in that era were capable of, which thus challenge conventional historical chronology[23]. That said, caution is warranted in interpreting artifacts that seem "too advanced for the time," considering these claims largely stem from a lack of understanding about the capacities of earlier groups. Such assertions can also have racist undertones, implying past people in those places were incapable of such feats, while the achievements of Europeans are rarely if ever similarly questioned (Masters, 2021). However, such insinuations are not inevitable; a more benign and even celebratory perspective is to suggest these objects challenge conventional chronology by making it more *accurate*, bringing a deepening appreciation of the expertise of people in earlier ages who had more knowledge and abilities than they are credited with today.

Most relevantly here, while many such objects seem a millennium or more out of place, other findings might be even more historically anomalous. At the Kalambo Falls in Zambia, for example, researchers in 2019 discovered an example of wood craftmanship and technology – involving two pieces of wood fashioned to "interlock" together – that is 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 being 300 million years old (Archaeology News Network, 2022). Similarly, a Russian team found what appeared to be a 2cm "screw" embedded within a rock that was estimated to be 300 million years old (though skeptics have argued it could be the fossilised imprint of an ancient sea creature called a crinoid) (Griffiths, 2015). Or consider a photo shared by Roemmele (2023) of what appears to be a "petrified book" encased in rock in Western Australia, which some interpreted as possibly being 350 million years old.

Such findings are evidently relevant to a CTH. Indeed, Coulthart (2023a) suggests the intelligence community has taken a great interest in such objects, such as Egyptian relics dated to 5,500 years ago that display "mastery of technology, involving the shaping of stone, that is far beyond the … known technology of that era," as indicated in endnote 23. More generally, he said the CIA has "spent a lot of time investigating ancient civilizations" seeking answers to "who were the people who crafted these buildings?" As he noted, "We still don't know. There are fundamental mysteries in human civilization that we haven't answered." In that respect, the possibilities discussed here of advanced pre/historic civilizations lend some support to a CTH. However, this would not merely require such a civilization to have existed in the past, but to have *continued* to do so. In that respect, there are also many such myths, and even potential evidence, as we explore next.

Traces of Underground Civilizations

Just as recent centuries have seen a proliferation of legends about lost civilizations, so have flourished myths about their people retreating underground and continuing to prosper. Before considering these, it is worth noting that the idea of subterranean living is not outlandish. Indeed, many historical underground cities have been found, most famously Derinkuyu in Turkey (Jacobs, 2022)[24]. Relatedly, recent decades have seen the construction of numerous underground complexes, most notably military bases, with an estimated 10,000 worldwide (Richelson, 2013). For example, the Cheyenne Mountain Complex – a Space Force installation in Colorado, which used to host the North American Aerospace Defense Command (NORAD) – was built under 2,000 feet of granite on five acres as a protective "underground city" to shield occupants from threats, including an electromagnetic pulse and even a 30-megaton nuclear explosion as close as 1.2 miles away

(McKee, 2019). The affordance of such protection is a consideration when reflecting on why advanced civilizations in earlier epochs may have opted for a subterranean existence. Moreover, while places like the Cheyenne Mountain Complex are remarkably deep, they are still relatively close to the surface, and it is possible to go much farther down, with the deepest point humans have so far been underground being 4,000m (Ashanti's Mponeng gold mine in South Africa), while the farthest humans have dug is the Kola Superdeep Borehole in Russia, 7.6 miles deep (Piesing, 2019).

It is thought humans could not live much deeper than the Mponeng gold mine due to heat. However, above that level it may be possible to survive for years: in Russia a 70-member sect lived in a bunker for nearly a decade, including 20 children, many of whom had never seen sunlight (Reuters, 2012). In such conditions, the main issue would be sunlight deprivation, which could increase susceptibility to myriad diseases, particularly through deficiency of vitamin D, though even this can be remedied by diet (Palmer, 2012). Moreover, it should be emphasized that the internal structure of Earth is still mostly a mystery, with discoveries constantly prompting re-appraisals; for instance, it was recently found that the mantle transition zone (255 to 410 miles underground) acts as a large reservoir of water (Schmandt et al., 2014). We should also note that, vis-à-vis the CTH, the constraints mentioned here – from diet to inability to withstand heat – only apply to *Homo sapiens* as we are today. It is possible that, over a long period of time, another hominid species, or even a branch of *Homo sapiens*, could have adapted to live underground (though if so, their evolution would have been markedly different from our own, resulting in numerous divergent physiological characteristics). Indeed, adjacent to this topic is a fascinating line of enquiry known as crypto*zoology*: the study of species whose existence is not supported by strong empirical evidence but rather "hypothesized via indirect and uncertain information" (Rossi, 2016, p.573). As with the UAP topic, it has been derided as "pseudoscience" (Schembri, 2011). However, also as per UAP studies, scholars like Rossi argue there is no *a prior* reason for this denigration, and it is possible to put the paradigm on a solid scientific footing.

A paper in the Proceedings of the National Academy of the Sciences, for instance, estimated roughly 20% of living mammal species remain undescribed, with the bulk of that predicted "hidden diversity" likely found among rodents and bats, two families with strong preferences for subterranean dens and nesting sites (Parsons et al., 2022). Among the most notorious candidates for hidden mammalian diversity is the "Sasquatch" or "Bigfoot," a large hairy primate purported to inhabit forests in North America (with similar legends of comparable creatures also found in other countries). Indeed, this was mentioned in relation to the "Alaska triangle" above, in which cryptozoologist Cliff Barackman is reported as saying "anything, of any size," could be hiding in the wilderness: "With so much fantastic habitat and so few people to compete with, Sasquatches basically have the run of Alaska" (Moran, 2023a). While disregarded by sceptics as "mythical," the likelihood of its existence has been attested to by no less a figure as Jane Goodall, the world's foremost primatologist (Murgia, 2023a)[25]. Indeed, Bindernagel and Meldrum (2012) argue that dismissals of its possibility "has more to do with unawareness of evidence for its existence as a North American mammal than the absence of such evidence" – with such evidence actually being quite solid and genuine – and that reasons for resistance is the topic "challenges prevailing knowledge" (p.81). Even more relevantly here, some UAP cases involve apparent NHIs that resemble such creatures; in Brazil, a farmer reported encountering a craft that had crashed on his property, out of which two "animals" appeared, one of which was a stereotypical "Grey" alien humanoid, but the other was "hairy, like a sloth" (Correrio, 2022). That said, there are also reasons to be sceptical about the potential existence of such creatures. For instance, one often-overlooked counterargument regarding the existence of a self-sustaining population of Sasquatch is that nearly all primate species are intelligent, social, and curious animals. Because this mythical creature is classified as a member of the primate order of mammals, and considering its bipedal form of locomotion would be a member of the hominin clade specifically – which is the most intelligent and curious of all primates – one would expect to see Sasquatches frequently peering into villages and rummaging through trash cans; however, such instances are rarely if ever reported. On the other hand though, it is also possible that Sasquatches could be an anomalously solitary form of primate, hence their general elusiveness.

Another prominent arena of intrigue within cryptozoology involves seemingly anomalous skeletal remains that purport to subvert our understanding of evolutionary development. This includes speculation, for instance, suggesting that such biologics may be extraterrestrial in nature, although so far, they have generally been ascertained to be more prosaic in origin, or at least their analysis has proved inconclusive. One case is the Chilean Atacama skeleton – the 15 cm remains of a human fetus with an unusually shaped skull reminiscent of classic depictions of aliens – which Nolan and Butte (2018) concluded was merely a human girl "with many DNA mutations, not anything more exotic." Another prominent example emerged as this article was being written – and which is still being studied and debated – centring on two tiny, mummified bodies, with elongated heads and three fingers on each hand and foot, allegedly found in Peru in 2017. These were dramatically and controversially presented before the Mexican Congress in a UAP hearing in September 2023 by self-proclaimed "ufologist" Jaime Maussan, who claimed they were extraterrestrial in origin. However, while tests on these specimens are still underway, on balance most observers seem sceptical that they are genuine (Norton, 2023),

including us, for reasons we elucidate in an endnote[26]. Somewhat relatedly, there is a long history of tales, and potentially even suggestive evidence, of the skeletal remains and other traces of species of humanoid "giants"[27]; here again there are probably good reasons for scepticism, though as with other aspects of this topic we would not simply want to dismiss such ideas out of hand.

Of particular relevance here are claims of an intelligent cryptozoological species thriving *underground*. Across cultures are legends for instance of anthropomorphic reptilian races, such as the *Nagas*, a semi-divine species of half-human, half-serpent beings thought to reside in *Patala* (a netherworld), venerated in Hinduism and Buddhism (Vogel, 1995). Moreover, palaeontologists have even speculated whether such creatures could possibly have evolved from known zoological origins; Russell and Séguin (1982) analysed the morphological trends among dinosaurs towards larger brains and upright posture in relation to a species called a troodon, and suggested that had it survived the mass extinction event 65 million years ago, it would likely have evolved into an upright reptilian-like figure they dubbed a "dinosauroid." Crucially, some people argue it *could* actually have survived the extinction and continued to develop by retreating below ground (Redfern, 2007), though it is unclear how viable this theory is. Even so, it is intriguing that "reptilians" have long been associated with the UAP topic, with speculation that some such species does indeed represent an NHI that may be responsible for some UAP (Kasten, 2017). As mentioned in endnote 13, for example, John Ramirez has claimed that such entities are "walking among us" disguised convincingly as regular humans (Verma, 2023b). Indeed, he speculates authorities are aware of these NHIs, pointing for example to the National Reconnaissance Office – which he calls "the actual secret space program of the US intelligence community" – using lizards on their logos, and suggests such entities are "crawling all over the Earth." Another possibility, overlapping with the extraterrestrial hypothesis, is that an NHI could have arrived on Earth from *elsewhere* at some point and subsequently taken up residence underground or underwater, or otherwise concealed itself nearby (e.g., on the moon)[28].

Then, as to the central question of whether any intelligent species – *Homo sapiens* or otherwise – *has* actually gone underground in the past, there is no direct or generally accepted evidence. However, not only are there many such legends, a surprisingly extensive body of reports exists alleging encounters with such beings. In terms of legends, many cultures have myths about realms under the earth, ranging from "underworld" places associated with death and the afterlife, such as Sheol in Hebrew teachings (Sanders, 2009), to fabled kingdoms inhabited by godlike figures, such as Shambhala in the Tibetan Buddhist tradition (Maclellan, 2011). Moreover, people persuaded of the reality of these places have embarked on quests to find them. Numerous locations have been proposed for entrances to Shambhala for instance, with explorers from the Soviet Union in particular making considerable efforts to find it. These include a mission by the Soviet Foreign Commissariat to search Tibet in 1924 (Znamenski, 2012), and an expedition from 1924 to 1928 by prominent theosophists Nicholas and Helena Roerich, covering vast areas of Central Asia, including Belukha Mountain in the Altai Mountains (along the border of Russia and Kazakhstan), which in the region is commonly believed to host such an entrance (McCannon, 2002). However, such efforts to locate these realms have seemingly proved fruitless, and their supposed inhabitants elusive.

That said, certain locales have attracted considerable interest as potential places to which an advanced civilization may have retreated, and moreover have even accrued reports of engagement with their members. Among the most well-known is Mount Shasta, a currently dormant volcano in the Cascade Range in California. Long revered as sacred by indigenous tribes of the region (Hall & Hall, 2004), more recently it has also become a magnet for "non-indigenous spiritual pilgrims" (Huntsinger & Fernández-Giménez, 2000). One contributing factor to the latter are stories emerging in the early 20th century linking it to the myth of Lemuria (see endnote 21), suggesting that before this legendary civilization disappeared beneath the ocean, some survivors trekked over land to the American continent and eventually took refuge inside the mountain[29]. Of course, these stories are most likely nothing more than imaginative fictions or embellished rumours. Sceptics would surely point to the appeal of occult philosophies during that era, viewing these narratives perhaps as literary attempts to capitalize on these trends. However, Mt. Shasta continues to be notorious for unusual activity, which helps explain its growing appeal to spiritual pilgrims. Relatedly, the mountain is also infamous for numerous mysterious disappearances, in which people have gone missing without a trace (Srivastava, 2021). Then, to return to our central UAP theme, Wallenstein (2012) notes the mountain is one of the most prominent UAP hotspots in the US: www.ufosightingsusa.com (2023) records 25 officially reported sightings from 1995 to 2020, and there even seems to be recent photographic evidence of UAP emerging out of its peak, including one described as a "large light" with a cigar-shaped object directly below it, which suddenly took off and disappeared from sight (Kettley, 2019).

To that point, in our final section below we return to our main theme, and the *reason* people are contemplating a CTH, namely UAP activity suggestive of NHI actually having some durable concealed presence on Earth. First though, our discussion would be lacking if we did not touch upon an area of speculation that is even stranger than the material above, bringing us even further into unusual ontological territory, but

which is nevertheless a prominent theme across cultures worldwide, and even more relevantly is a long-standing topic within the UAP arena. This concerns what might be called "magical" cryptoterrestrials.

"Magical" Cryptoterrestrials

The ideas canvassed thus far, while not generally *accepted* by contemporary natural science paradigms, nevertheless still fit somewhat within their rough boundaries. Aliens on the ocean floor or subterranean hominids would be highly surprising but not genuinely metaphysically revisionary in any strong sense, and essentially just involve extrapolating from activities in which we humans already undeniably engage, from flying spacecraft to living in caves. However, as noted above, a striking feature of the UAP topic has been the extent to which its phenomena seem to resist explanation in conventional terms (e.g., craft without visible means of propulsion or sources of exhaust). Such observations have prompted some observers, including in the US federal government and defense establishment, to speculate that *unconventional* "ultraterrestrial" explanations are precisely what is called for – from interdimensional beings (Lomas, 2023a), to future human time travellers (Masters, 2019; 2022), to the panoply of aethereal NHIs recognized in most cultures, such as the class of beings known in the contemporary West as angels (Lomas & Case, 2023), which Case and Lomas (forthcoming) label "sacraterrestrials" or "aetherrestrials." Most relevantly here, among these varied unconventional hypotheses is a fascinating class of proposed ultraterrestrial beings that overlap with notions like angels but which can still be considered part of the cryptoterrestrial paradigm. Specifically, this is the crowd of concealed or fully integrated terrestrial NHIs, or perhaps *Non-Conventional Human Intelligences*, that go by many names the world over, but which have traditionally been grouped in European cultures under the broad heading of "faerie" or "*longaevi*," the "longlivers": fairies, elves, gnomes, brownies, trolls, and the like. As Lewis (1960) noted in his study of the medieval worldview, the *longaevi*'s "place of residence is ambiguous between air and earth," with their nature conceived as "a third rational species distinct from angels and men" (p.124, 129).

One of the most compendious and influential sources of pre-modern fairy lore, for example, is the Rev. Robert Kirk's 1691 book *The Secret Commonwealth of Elves, Fauns, and Fairies* (Kirk, 2021), a survey of Scots-Irish folk beliefs regarding faerie, at least some of which he deemed credible[30]. The pre-modern traditions about these beings collected by Kirk feature tales of a subterranean civilization engaging in uncanny aerial apparitions and periodically abducting humans (usually for brief periods). This, of course, has important family resemblances to the CTH, albeit without the Space-Age framing which is so intuitive for us today. It might well be that some part of the "magical" framing is the result of pre-modern attempts to interpret advanced technology, whether extraterrestrial, inter-temporal, or cryptoterrestrial. After all, according to Arthur C. Clarke's Third Law, "any sufficiently advanced technology is indistinguishable from magic." However, we ought not rule out the "magical" framing potentially being at least as close to the truth as the technological one, which could itself be an imposition by observers anchored on the tropes and techniques of the Space Age (Lomas & Case, 2023). It bears emphasis that, while Kirk took these traditions and reports seriously, he was hardly credulous: he justified his "modest inquiry" into such phenomena by reflecting, "How much is written of pygmies, fairies, nymphs, sirens, apparitions, which though not the tenth part true, yet could not spring of nothing?" (p.64) And while contemporary readers might feel justified in thinking all such reports are now intrinsically incredible, this arguably has more to do with metaphysical prejudices than with any growth in our empirical or theoretical acquaintance with the world.

As philosopher and theologian David Bentley Hart (2009) observed in an essay on Kirk's Secret Commonwealth, "One need not believe in fairies to grasp that there is no good reason why one ought not to do so. To see the world as inhabited by these vital intelligences, or to believe that behind the outward forms of nature there might be an unperceived realm of intelligent order, is simply to respond rationally to one of the ways in which the world seems to address us, when we intuit simultaneously its rational frame and the depth of mystery it seems to hide from us." Disbelief in the very possibility of fairies or other spiritual forms of life, however one defines them, might be entailed by a materialist metaphysics of mind (though even this is more often asserted than argued), but then, materialism (or physicalism or naturalism) has been subject to cogent critiques from a variety of "mind-first" or at least non-reductive standpoints, from Plato's *Phaedo* right up to the present (Nagel, 2012; Hart, 2012; Kastrup, 2019). Indeed, Hart (2022) goes so far as to argue that classical theism entails the existence of something like fairies[31].

Of course, one might concede the possibility of belief in the *longaevi* but reject their actuality on the empirical grounds that we simply can't find them, any more than we can find unicorns or the Loch Ness monster. This is a more reasonable position, one even shared at least in part by Kirk and Hart themselves, but it too ought to be held lightly. After all, direct acquaintance with these phenomena has always been believed to be rare, and even today people continue to report a variety of broadly supernatural encounters. Most Icelanders for example are at least unwilling to deny the existence of the elves and trolls who figure so prominently in their folklore (Iceland Magazine, 2016), while many Irish remain open to – or perhaps, fearful of – the existence of fairies (Phelan, 2023). And Hart (2012b) describes a sometime English acquaintance, Reuben, who believed himself to possess that "second sight" which allowed him to plainly see spiritual beings all around him, until a well-intentioned course of state-mandated anti-psychotic drugs "closed the door" within him, leaving him

depressed and listless until his premature death a few years later. New York Times columnist Ross Douthat (2017) has even argued – as per Vallée (e.g., 2008) – that the *most likely* explanation of "contemporary U.F.O. narratives" is that they are "of a piece with stories about Northern European fairies and their worldwide kith and kin – and that it's more reasonable to think that we're reading our space age preoccupations into a persistent phenomenon that might be much weirder than a simple visitation from the stars" (cf. Douthat, 2023).

Moreover, some UAP reports, while not explicitly connected to traditions concerning fairies, bear striking resemblance to aspects of those traditions; indeed, this is the central theme of Vallée's (1969) classic *Passport to Magonia: On UFOs, Folklore, and Parallel Worlds*. Some of the encounters described above – for instance, abductions near Mt. Shasta – already "rhyme" in significant ways with fairy lore. Another intriguing example is the spate of "airship" sightings in 1896-1897 that captivated attention in the US, which – as charted by Vallée – involve "aeronauts" interacting with witnesses in ways that have a strange dreamlike quality[32]. Perhaps even stranger are the occasional references to mysterious *lands* concealed within Earth that are home to NHI. In some sense, these could be regarded as "non-local," in that they are not easily accommodated by a conventional understanding of Earth's geology and geography, and instead seem suggestive of another terrestrial *dimension* that is usually unseen. One prominent rumour centres on a military mission from 1946-1947 known as Operation Highjump, led by Rear Admiral Richard Byrd, ostensibly to establish an Antarctic research base. The trip itself is well documented (e.g., Byrd, 1956). However, there have long been strange rumours regarding the mission, both in terms of its real purpose and actual outcome, including the claim that Byrd himself was pulled through some kind of "vortex" while flying and encountered a fantastical city inside the Earth inhabited by an advanced race of beings. Significantly, although certain aspects of these rumours have been debunked – as for instance explained on an episode of The Why Files (2022) – other parts are nevertheless potentially credible, including Byrd appearing to have a period of "missing time" on one of his flights, and intensive UAP activity that could be interpreted as being in the service of protecting a secret base[33]. As a result, the story has compelled the attention of UAP scholars over the years (Harrison, 2021). That said, it does likely fall into the category of myth rather than veridical reports, on a par with Churchward's (1926) tales of Mu. Still, such is the sheer "high strangeness" of the UAP topic (Vallée & Davis, 2004) – and potentially also of Antarctica itself, about which there are numerous UAP-related narratives besides that associated with Byrd, including of NHI bases, as well as unusual photographic data that seems suggestive of anomalous structures[34] – that we should not *completely* rule it out.

Cryptoterrestrial-Suggestive UAP Activity

Let's now bring the discussion back to where we started: the empirical mystery of UAP. Myths of lost or underground civilizations are fascinating, but people might be tempted to leave such ideas in the realm of speculative literature and esoteric religion. However, the reason the CTH is being invoked is because of the two empirical mysteries, noted above, around UAP activity (a) underwater, and (b) in relation to underground or underwater "entry" points. We do not merely mean UAP have been *observed* in these locations (even if such sightings may be what encouraged people to consider this hypothesis to begin with). After all, an underwater UAP could still be extraterrestrial, interdimensional, extratempestrial, etc. in origin. Rather, what might tip the balance of probability towards a CTH-specific interpretation would be indications of a relatively permanent NHI presence on or around Earth, possibly involving some kind of "base." In that respect, some argue there is such evidence, albeit contentious and contested. Here we briefly note a few such examples (though it is beyond our scope to be exhaustive), including suggestions of bases underground, underwater, and on the moon.

In terms of potential underground NHI bases or enclaves, numerous locations have been alleged. One is Antarctica, as noted in the previous section (and discussed in Endnote 34). Another is the so-called "Dulce Base" that some people believe exists under Archuleta Mesa near Dulce, New Mexico. As with many aspects of this topic, the allegations are suffused with confusion and mystery. Claims of an NHI base there are thought to have first arisen from Albuquerque businessman Paul Bennewitz (Barkun, 2006), though it transpires he had been fed disinformation by Ufologist Bill Moore and an Air Force intelligence operative called Richard Doty (who has corroborated this claim), possibly to distract him from genuine US military bases in the area (Rojas, 2014). However, the rumour has persisted, particularly because of Phil Schneider, who claimed publicly – before his untimely death in 1996, ostensibly by suicide – that he had been employed there as an engineer, and that it was in fact jointly operated by the US military and a NHI species (with the latter having long been the original occupants of the mesa, and who were more recently encountered when the military were constructing their base)[35]. It goes without saying that these claims have not been substantiated. Nevertheless, some people close to the UAP topic think they should be considered (Faletto, 2019).

There are also allegations of NHI bases underwater. For context, by some estimates, more than 80% of Earth's oceans remain unexplored and uncharted, not merely because of their immense size, but also due to factors such as limited visibility (Petsko, 2020). Indeed, scientists investigating these unknown territories continue to make startling discoveries: an exploration of the Gulf of Alaska recently retrieved "a mysterious golden 'orb'" from 3,300 meters underwater, and although believed to be "biological in origin," researchers have no idea what it is, and are reportedly trying to ascertain if it is "associated with a known species, a new

species or represents a previously unknown stage of life" (Osborne, 2023). As the expedition coordinator said, "While somewhat humbling to be stumped by this finding, it serves as a reminder of how little we know about our own planet and how much is left to learn and appreciate about our ocean." Relatedly, there have been UAP events involving objects or entities that would appear to resemble some form of marine life, such as an airborne incursion over a US military base by an object resembling a "jellyfish" that has been officially designated as a UAP by intelligence agencies, as noted above. Given our relative ignorance of, and especially lack of access to, the underwater realms of our planet, it has been argued that deep oceans would be an ideal place for an NHI to conceal their presence (at least, assuming they could cope with water pressures many times greater than at sea-level). This possibility has been influentially explored in creative endeavours like James Cameron's 1989 film The Abyss, which may be more than just fiction, with journalist/filmmaker Jeremy Corbell (2022) saying "I know for sure" that it was "highly informed by the actual information we have about the UFO phenomenon." In terms of potential locales for NHI to "hide," Tim Gallaudet (2023a) – former head of the National Oceanic and Atmospheric Administration, introduced above – and Preston Dennett (2018) suggest one such base could lie in the Catalina Channel off the southern California Coast,[36] while other locations have also been alleged[37]. Indeed, Gallaudet (2023b) actually suggested authorities had established *communication* with an NHI (albeit without specifying their location), saying "I think it's about time that we do disclose that we are in contact with non-human intelligence." Other cases include NHIs known as "Friends" who supposedly lived in bases along the Adriatic coast, with whom various Italians claimed to be in contact between 1954 and 1990 (Verma, 2023d). As such, there have been calls to more actively and systematically search underwater for UAP activity; as marine scientist Brian Helmuth put it, "If I were investigating an alien planet like Earth, the ocean would definitely be the place to start" (cited in Dixit, 2023).

A third site of intrigue is the moon, and particularly its "far" side, which remains perennially hidden from view. Indeed, of all possible cryptoterrestrial locations, it has attracted the most speculation, 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[38]. Indeed, some observers suggest the moon *itself* is very strange, characterised, as recently noted by Avi Loeb (2024), by numerous extraordinary "coincidences regarding its size, behaviour, and composition"; as a result, some have speculated that the entire object may be an artificial NHI construction (Knight & Butler, 2006, Chase, 2022)[39]. Perhaps the most keenly studied stories are those associated with NASA missions and observations. Most directly, there is apparent photographic evidence in the public domain which, while not confirmatory of NHI, does at least seem anomalous and hard to explain, and which some have interpreted as "lunar bases" (Hoagland & Bara, 2007), although sceptics have sought to find various naturalistic explanations for these, with varying degrees of plausibility[40]. Relatedly, some NASA whistleblowers – such as Karl Wolfe (Griffiths, 2018) and Ken Johnston (Verma, 2022a) – claim that even more conclusive photographic evidence of potential bases exists, but that NASA has actively sought to deny, suppress, and conceal such information[41]. Finally, there are the views of the actual Apollo astronauts, and although none have said (in public at least) that they encountered such bases, many have been vocal about their beliefs in NHI, most famously Edgar Mitchell, who is on record in 2008 as saying, "Yes, there have been E.T. visitations, there have been crashed craft, and bodies recovered. We are not alone in the universe, they have been coming here for a long time" (cited in McKeown, 2015)[42]. In any case, whatever the validity of these claims, scientists like Davies and Wagner (2013) have proposed specifically searching for "alien artifacts" on the moon, given that, (a) extraterrestrial NHIs may well have engaged with it at some point in the history of the solar system, and moreover, (b) unlike Earth the lunar environment could preserve artifacts for millions of years.

Conclusion

This paper has made the case for taking seriously the CTH as a potential explanation for UAP, while noting that it probably ranks lower than other hypotheses, such as the extraterrestrial explanation, although such calculations are hard to quantify. To be precise, the material above actually contains four different CTHs. All would involve entities existing in stealth during recent human history – and possibly even before the emergence of *Homo sapiens* in some cases, such as CTH 2 – but differ in the nature of the beings in question.

1. CTH1: Human cryptoterrestrials. A technologically advanced ancient human civilization that was largely destroyed long ago (e.g., by flood), but continued to exist in remnant form.
2. CTH2: Hominid or theropod cryptoterrestrials. A technologically advanced non-human civilization consisting of some terrestrial animal which evolved to live in stealth (e.g., underground), perhaps a hominid, or alternatively a species much more distantly related to us (e.g., descendants of unknown, intelligent dinosaurs).
3. CTH3: Former extraterrestrial or extratempestrial cryptoterrestrials. Extraterrestrial aliens or our intertemporal descendants who "arrived" on Earth from elsewhere in the cosmos or from the human future, respectively, and concealed themselves in stealth.
4. CTH4: Magical Cryptoterrestrials. Entities which are less like homegrown aliens and more like earthbound angels, relating to the world inhabited by humans in ways that (at least from our present

perspective) are less technological than magical, who are known in European languages by names like fairies, elves, nymphs, etc.

We might note that, in his detailed taxonomy of UAP hypotheses, Nell (2023) also offered four CTHs: ancient / proto-human survival; breakaway civilization; cryptids / humanoids; and stranded "Gods." Thus, we can see some subtle classificatory differences between the two schemas. Although we share our CTH 2 in common (namely, hominid or theropod cryptoterrestrials), the remainder differ subtly: arguably, CTH 1 and 2 in his taxonomy are both variables of our CTH 1; although our CTH 3, involving extraterrestrial or extratempestrial beings, does feature in his taxonomy, he does not categorize these as cryptoterrestrials per se; similarly, with regard to our CTH 4, while some of his hypotheses could be interpreted as "magical," he also does not file these within the cryptoterrestrial category; conversely, while we are open to the idea of "stranded Gods," we have not considered these as being situated within the cryptoterrestrial category. However, classificatory nuances aside, it is interesting to see our own taxonomy – which we prepared before and without knowledge of Nell's schema – share considerable similarities with his.

Finally, in closing, it's worth comparing these CTHs to assess their relative strengths in explaining UAP. CTHs 1-2 have the advantage over the extraterrestrial hypothesis (ETH) of not having to appeal to interstellar space travel – an extraordinary technological feat for any species – to account for UAP. Nonetheless, CTHs 1-3 suffer from some of the same weaknesses as the ETH, as well as several which are unique to them. For instance, if the cryptoterrestrials belong to a human (or hominid or theropod) civilization with advanced technology, we would still have to explain how their craft seem to defy physical laws (e.g., speeds and rates of acceleration which seem very likely to kill anything living), as well as why the remnants of an advanced past civilization haven't yet been discovered despite our broad temporal and geographic archaeological and paleoanthropological knowledge. And CTHs 1-2 presumably cannot explain this away by appealing to the builder's discovery of, e.g., some as-yet-unknown super-resilient substance, since they live on the same planet as us. Furthermore, if the cryptoterrestrials belong to a conventional but highly advanced civilization, it seems reasonable to wonder why they have chosen to remain hidden from humans for so long. The ETH can at least posit that, e.g., we've only recently been visited by aliens for the first time, perhaps by a small number of outriding scouts with orders not to interfere too boldly. But on CTHs 1-2, this silence seems more puzzling still, particularly since the cryptoterrestrials would be, *ex hypothesi*, both our longtime neighbors and by far our technological superiors.

The principal weakness of CTH 4, by contrast, is its utter strangeness, particularly for readers schooled to limit themselves to modes of explanation within the bounds of, say, the standard model of physics. While belief in extraterrestrials is tenable, belief in (something like) fairies is simply not a live option for many scientists. On the other hand, this weakness might equally and paradoxically be CTH 4's principal strength: accepting that explaining UAPs will require (as Quine, 1951, once wrote in a *very* different context) "swelling ontology to simplify theory." Given the apparent implausibility of explaining at least some aspects of UAP by reference to beings much like ourselves, just more advanced in relevant respects, CTH 4 (like the ultraterrestrial hypothesis more broadly) explains them in terms of beings so *unlike* ourselves that we have to resort to words like "magic" and "supernatural" to account for them, especially considering labels like fairies, elves, angels, nymphs, etc. were ascribed at a time that predates rapid scientific progress and our more recent ability to understand previously "magical" encounters in more conventional terms. In other words, considering our historic and prehistoric ancestors likely interacted with this same phenomenon, current humans are undoubtedly better placed to comprehend such advancements, less as magic, but as a result of continued evolution of both technology and consciousness. CTH 4 is unlike the *interdimensional* ultraterrestrial hypothesis in that it sees the agents of UAP as in some sense at home on Earth – trolls and fairies would be terrestrial and perhaps even social or cultural beings in a way that angels and demons seem not to be. But, indeed, CTH 4 also suggests that, if human traditions are to be trusted, these beings have *never* been fully hidden from us, with people in all times and places reporting encounters with something like magical cryptoterrestrials, even though they don't appear to (or can't be seen by) most people.

All four CTHs are far-fetched on their face; we entertain them here because some aspects of UAP are strange enough that they seem to call for unconventional explanations. Most investigations of UAP to-date have focused on the ETH, which does have several lines of evidence in its favor (Lomas, 2024). Nonetheless, the ETH does not exhaust the possible accounts of UAP. Given how little is known about these strange phenomena, it seems prudent to keep every line of inquiry – including the various CTHs – in play. Indeed, this is a fitting summary of the CTH: it may be exceedingly improbable, but hopefully this paper has shown it should nevertheless be kept on the table as we seek to understand the ongoing empirical mystery of UAP. This point was made in a recent article in Scientific American, for example, titled "It's time to hear from social scientists about UFOs" (Eghigian & Peters, 2023). It notes the topic "often evokes talk of a separate, mysterious intelligence that must somehow be behind the sightings," and that "We need scholars to figure out how to talk to a being with a nonhuman mind. But we should also examine our assumptions in thinking about and doing research on such intelligence." It further argues how "easily reason falls into anthropocentrism and

cultural bias when dealing with the nonhuman," citing work by Bohlmann and Bürger (2018) which suggests scientific assumptions around UAP and NHI tend to be constrained by epistemological limitations that are heavily anthropomorphized. As noted above, the first main "extraordinary" hypothesis for NHI is often humanoid-like extraterrestrials. They therefore ask, "How to look for something we have no idea of?" One possibility they suggest are sentient "swarms" ("single-cell organisms that operate in groups … controlled by a single hive-mind"), but they also note UAP may involve "something else entirely." In that respect, as this paper has hopefully demonstrated, we ought to include openness to a cryptoterrestrial hypothesis in a spirit of curious and genuine enquiry.

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Endnotes

[1] The introduction – and to an extent the article more broadly – focuses mainly on a North American context, for various reasons, including: (a) limiting its scope to a manageable amount; (b) of all world regions, this has had the most UAP activity, both in terms of sightings and attention paid to them; and (c) this is the authors' own context and area of expertise. However, it should be emphasized that, contrary to some misconceptions, this is a genuinely worldwide phenomenon (Lomas, 2023b). For the US Congressional UAP hearing on 26 July 2023, for example, the journalist George Knapp submitted testimony regarding UAP investigations conducted by the USSR during the Cold War, and stated that during a 10-year period, "thousands" of case files were accumulated, including 45 incidents in which "Russian warplanes engaged with UFOs, chased them, even shot at them" (Eberhart, 2023). Or take Latin America, of which The Washington Post reports that at least four countries – Uruguay, Argentina, Chile, and Peru — have dedicated government programs that for decades have assessed UAP (McCoy, 2023), while others like Brazil similarly have an extensive history of sightings, with Vernet (2023) reporting that its Air Force has investigated 674 events just between 1954 and 2005 (i.e., omitting more recent cases). Even nations like China, which have historically been more secretive on this topic, have admitted tracking the phenomenon, with an article in the South China Morning Post acknowledging that "China military uses AI to track rapidly increasing UFOs" (Chen, 2021). That said, not all countries have approached the issue in identical ways; it appears for example that authorities in Latin America have generally been more open compared to counterparts elsewhere (McCoy, 2023). Nevertheless, there are indications that many trends observed in the US, discussed here, pertain to other countries.

[2] Critics of AARO have accused it of deliberately downplaying the extraordinary nature of some evidence, per comparable previous investigations. 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." Indeed, AARO, and the Department of Defense (DoD) more generally, were rebuked by the DoD Inspector General (2024) in a critical classified report in August 2023 (of which an unclassified version was released in January 2024). Among the complaints was the charge that "the DoD has not used a coordinated approach to detect, report, collect, analyze, and identify UAP," and consequently, "lacks assurance that national security and flight safety threats to the United States from UAP have been identified and mitigated." Going further, in an article in The Hill, von Rennenkampft (2024a) explicitly accuses the Pentagon of lying about specific UAP cases, citing in particular an incident over the Gulf of Mexico in January 2023. In the Congressional UAP hearing, Rep. Matt Gaetz divulged that it had involved four objects that moved in a "very clear formation [with] equidistant" separation," with these details not only obtained from the pilot but picked up by radar. However, in late April, AARO published a case resolution report that concluded with "moderate" confidence that the UAP observed by a military pilot was a balloon, likely "a large commercial lighting balloon." As von Rennenkampft argues, this "so-called explanation insults the intelligence of any reader who takes a few moments to review the details of the incident," and hence "serves as a microcosm of the many absurd and implausible explanations that the government has offered up over the years for countless UFO incidents."

As such, in the eyes of many critics, AARO has become discredited as a genuine attempt to engage with the issue, instead seeming to serve – as per its predecessors – to downplay and denigrate the topic. In March 2024, for example, AARO (2024) released a Historical Record Report, purporting to cover more than 70 years of US records relating to UAP, and stated that it had "found no evidence that any USG investigation, academic-sponsored research, or official review panel has confirmed that any sighting of a UAP represented extraterrestrial technology." In response though, observers were scathing at what they regarded as a yet another official attempt to obfuscate the subject; indeed, Lue Elizondo (2024), former director of a UAP investigative program at the Pentagon, publicly called it "intentionally dishonest, inaccurate, and dangerously misleading." Moreover, it has been revealed that skepticism and mistrust regarding AARO has led to figures with relevant information (e.g., whistleblowers) refusing to engage with them, with Senator Gillibrand recently divulging that two knowledgeable individuals with whom she has met "refused to meet with" Kirkpatrick or his office, as discussed in a recent article by von Rennenkampft (2024b). Indeed, commenting on this article, Elizondo (2024) said, "I encourage everyone to read this article carefully. It succinctly illustrates the distrust of AARO's former leadership. I was told some time ago that senior elements in AARO were trying to have Dave [Grusch] prosecuted for going public. And the Pentagon wonders why people don't trust them? Trust works both ways!"

[3] Over the decades various investigative efforts have been marshalled by the US to examine UAP, most notably Project Blue Book, which ran from 1952 to 1969. However, as per the admission by Rear Admiral Hillenkoetter quoted in the main text, critics have accused these of attempting to downplay or obscure the topic by minimizing or ignoring the potentially extraordinary nature of some UAP. A 1955 Blue Book report, for example, "prepared by a panel of scientists both in and out of the Air Force," examined 2199 cases. Of the 213 in the "excellent" category (i.e., the most credible and of the highest quality), while the majority were judged as having prosaic explanations – including astronomical phenomena (52), an aircraft (41), a balloon (25), or other / insufficient information (24) – one third (71) were classified "unknown." However, despite this large percentage, the overall conclusion was that it was "highly improbable" that the UAP studied "represent observations of technological developments outside the range of present-day scientific knowledge." Significantly, this attitude of downplaying the topic and overlooking the extraordinary nature of some UAP seems to persist today, pervading the efforts of AARO, as noted in endnote 2.

[4] In terms of understanding the significance of Grusch's allegations, it is important to appreciate the apparent nature of his role, authority, and security clearances within the institutions in which he has served. In that respect, one such account was provided by an alleged member of the US intelligence community in a detailed post on a private UAP discussion group on Facebook that was shared on X, with the poster's permission, by a prominent UAP commentator (Murgia, 2024). Without being able to vouch for its veracity, commentators did suggest it is plausible. As such, it is worth including some excerpts from the post here – focusing mainly on aspects that address questions of Grusch's credibility – since it potentially offers valuable context to the nature of Grusch's claims.

> I'm a former member of the US intelligence community. Here's why I think aliens are real. Let's talk about David Grusch. He's the guy who testified before Congress last year. Once upon a time, David

> Grusch was a GS-15 (Colonel equivalent) at the National Reconaissance Office (NRO). The NRO is a DOD agency. They basically manage all the US's satellites. Grusch was the intel chief in the NRO's Operations Center. That means he was the top intelligence person in the Operations Center. The operations center is where they monitor what's actually happening in space with the satellites. In addition, he was also the agency's lead for Special Access Programs (SAP). You might hear of SAPs as being above Top Secret. That's kind of true, kind of not. Point is, you have to have the right clearance and the need to know to get access to any classified information. As NRO's lead for SAPs, he was read into every single SAP that NRO was connected to. NRO is DOD's main space based intelligence agency. He knew everything it was possible to know at NRO. He also coordinated NRO's contribution to the President's Daily Brief. This means, when it comes to intelligence coming from NRO, Grusch knew everything the President knew. He was also NRO's representative to DOD's UAP Task Force for two years. If ANYONE in DOD had access to classified government programs about UAPs and aliens - it was this dude … To me, Grusch has as much credibility in this area as it's possible to have. But don't take MY word for it. When Grusch brought his concerns about the gov't coverup to the Inspector General of the Intelligence Community (IGIC), they didn't laugh him out of their office. Grusch was able to show the IGIC everything. EVERYTHING. All the true classified evidence for crashed craft, alien bodies, everything. No matter what SAP this information belonged to, the IGIC is cleared to access it. Upon examining all that evidence - and there was MOUNTAINS of it - the IGIC said that Grusch's claims were "credible" and "urgent". He did NOT say that Grusch was correct. In legal terms, this is an indictment not a conviction. This is a little like a judge refusing to throw a case out but insisting that the case has merit. Except it's actually MORE than that. The IGIC doesn't adjudicate these cases. That's not their job. Their job is to say, "Hey, this case has merit, and it should be investigated. This person isn't making this up." For the IGIC to say that this is credible is about the biggest bombshell you and I are likely to see any time soon. This is an incredibly experienced and powerful member of the intelligence community saying, "Yep, this is legit." To add that it's "urgent" means not only that this needs to be investigated, but that it needs to begin immediately… It's PAINFULLY obvious that Grusch is telling the truth. It couldn't possibly BE more obvious. There couldn't BE a more credible witness… I don't know how much or of what kind of evidence you want, but this is about as good as it gets until all this stuff is actually declassified.

[5] Besides the prominent people who have corroborated Grusch's allegations – such as Tim Gallaudet and Karl Nell, as noted in the text – other significant figures have made comparable claims (without necessarily vouching for Grusch specifically). In 2023 James Lacatski, for instance, a rocket scientist and former Defense Intelligence Agency intelligence officer who led a secret US program investigating UAP from 2008-2010 – the Advanced Aerospace System Weapons Application Program – published a book that states "the United States was in possession of a craft of unknown origin" (Lacatski et al., 2023). Curiously, the book was cleared for release by the Pentagon; queried about this by Jeremy Corbell (2023), who asked, "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?", Lacatski replied, "Yes, I was allowed to tell you." 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.

[6] In an article titled, "Top senators believe the US secretly recovered UFOs", von Rennenkampff (2024b) notes that "Sen. Chuck Schumer (D-N.Y.) and the late Sen. Harry Reid (D-Nev.) were not alone in their focus on UFOs. The Democratic heavyweights received critical support and encouragement from a bipartisan group of high-profile senators over the years, including former fighter pilot and famed astronaut John Glenn (D-Ohio); Ted Stevens (R-Alaska), who observed a UFO as a World War II pilot; Daniel Inouye (D-Hawaii), then-chairman of the Senate Appropriations Subcommittee on Defense; 2008 GOP presidential nominee Sen. John McCain (R-Ariz.); Senate Intelligence Vice Chairman Marco Rubio (R-Fla.); Kirsten Gillibrand (D-N.Y.) and Joe Lieberman (D-Conn.)." The article further outlines political efforts to uncover the details of alleged UAP crash retrieval programs: "In late 2011, for example, the top scientist at the Department of Homeland Security met with Lieberman, then chairman of the Senate Homeland Security and Governmental Affairs Committee, and Reid to discuss the establishment of an ultra-secret UFO program. As outlined in remarkable detail in newly released documents, the intent of the proposed program was to "gain access to and inventory" UFOs secretly under "investigation in National Laboratories, government organizations and/or contractors.""

[7] As noted in the main text, the provisions in the proposed UAP Disclosure Act were significantly weakened when only minimal aspects were passed into law in December 2023 within the National Defense Authorization

Act for the fiscal year 2024 (of which it was a proposed amendment). Notably, resistance reportedly came from House Representatives with close ties to the very aerospace companies rumoured to have engaged in UAP reverse engineering efforts, and hence who would be affected by, and moreover motivated to oppose, the original legislation (Sharp, 2023). As Schumer (2023) himself posted on X, "It is an outrage that the House didn't work with us on our UAP proposal for a review board [one of the most consequential aspects of the proposed legislation]. This means declassification of UAP records will be up to the same entities who have blocked and obfuscated their disclosure for decades. We will keep working to change the status quo". Crucially, it seems highly unlikely the Senate Majority Leader would make such public remarks, and especially propose such remarkable legislation, absent highly credible corroborating evidence or testimony. Furthermore, even in its stripped-back state, the NDAA still contains some remarkable UAP-related provisions and language, including requiring federal agencies to release "all records that most un-ambiguously and definitively pertain to unidentified anomalous phenomena, technologies of unknown origin, and non-human intelligence" (HR.2670, Sections 1841-1843; see Johnson, 2023).

[8] It may be worth noting that if UAP occupants turn out to be our interdimensional and/or extratempestrial human descendants, then using the term "Non-Human Intelligence" (NHI) provides agencies like AARO plausible deniability when claiming there is no evidence of NHI activity, technology, crash-retrieval programs, etc.

[9] Karl Nell's (2023) classificatory taxonomy has three overarching categories (physical, psychosocial, and meta-physical) with myriad sub-categories, as follows:

1. Physical
    - 1.1 Intra-dimensional
        - 1.1.1. Prosaic
            - 1.1.1.1. Natural
                - 1.1.1.1.1. Optical artefact / illusion
                - 1.1.1.1.2. Celestial
                - 1.1.1.1.3. Meteorological
                - 1.1.1.1.4. Geophysical
            - 1.1.1.2. Human
                - 1.1.1.2.1. Governmental
                - 1.1.1.2.2. Extra-governmental
                - 1.1.1.2.3. Inter-governmental
                - 1.1.1.2.4. Private / commercial
        - 1.1.2. Cryptoterrestrial
            - 1.1.2.1. Ancient / proto-human survival
            - 1.1.2.2. Breakaway civilization
            - 1.1.2.3. Cryptids / humanoids
            - 1.1.2.4. Stranded "Gods"
        - 1.1.3. Extra-terrestrial
            - 1.1.3.1. Solar system
            - 1.1.3.2. Inter-stellar
            - 1.1.3.3. Inter-galactic
            - 1.1.3.4. Unknown region of our space-time
    - 1.2 Extra-dimensional
        - 1.2.1 3-D entity from hyperspace
            - 1.2.1.1 "Compactified" dimensions
            - 1.2.1.2 Hyperspace "bulk"
            - 1.2.1.3 Disconnected hyperspace
        - 1.2.2 Hyper-D "brane"
            - 1.2.2.1 Projection / "shadow"
                - 1.2.2.1.1 0-to-2 dimensional
                - 1.2.2.1.2 3-dimensional
                - 1.2.2.1.3 Fractal dimensional
            - 1.2.2.2 3-D avatar
                - 1.2.2.2.1 Hologram / "telepresence"
                - 1.2.2.2.2 Automaton
                - 1.2.2.2.3 Artificial lifeform
    - 1.3 Inter-dimensional
        - 1.3.1 Multiverse

- 1.3.1.1 Portal / wormhole
- 1.3.1.2 Colliding universe(s)
- 1.3.1.3 Parallel universe(s)
- 1.3.1.4 QFT “many worlds”

1.3.2 Time travel

- 1.3.2.1 Humans from future
- 1.3.2.2 Humans from past
- 1.3.2.3 Humans from alternate timeline
- 1.3.2.4 Non-human entities
- 1.3.2.5 Additional time dimensions

1.3.3 Scale invariance

- 1.3.3.1 Macro quantum fluctuation
- 1.3.3.2 Distance recursion
- 1.3.3.3 Pan-galactic entanglement
- 1.3.3.4 Unobserved “vibratory modes”
- 1.3.3.5 Conformal cyclic cosmology

2. Psychosocial

2.1. Sociological

- 2.1.1. Hypnosis
- 2.1.2. Mass hysteria
- 2.1.3. Memetic virus
- 2.1.4. Conditioning / disinformation
- 2.1.5. Hoax

2.2. Psychological

- 2.2.1. False belief / misinterpretation
- 2.2.2. Fallible / screen memory
- 2.2.3. Psychosomatic disorder
- 2.2.4. Psychosis / hallucination
- 2.2.5. Collective unconscious

2.3. Neurological

- 2.3.1. Psychedelics / pharmacology
- 2.3.2. Pathology / trauma
- 2.3.3. Neuro-divergence
- 2.3.4. High intuition / functioning
- 2.3.5. “Alien” implants

3. Meta-physical

3.1. Paranormal

- 3.1.1. Psychotronics / extraordinary potential
- 3.1.2. NDE / OBE
- 3.1.3. Disembodied spirit / consciousness
- 3.1.4. Incorporeal / bosonic lifeforms
- 3.1.5. Mediumship / possession
- 3.1.6. New physics

3.2. Occult

- 3.2.1. Hidden powers of nature
- 3.2.2. Ascended “masters”
- 3.2.3. “Maya” / sensory delusion
- 3.2.4. Artificial reality / matrix simulation
- 3.2.5. Altered / alternate reality
- 3.2.6. Absolute world of archetypes

3.3. Transcendental

- 3.3.1. “Gaia” / nature spirits
- 3.3.2. Angelic beings
- 3.3.3. “Djinn” / neutral powers
- 3.3.4. Demonic forces
- 3.3.5. Hierarchy of being
- 3.3.6. Emanations of godhead

[10] Regarding the capabilities of underwater UAP, one was even reported as travelling faster than the speed of sound underwater – which at 1500 meters/second is more than four times the speed of sound in air (about 340 meters/second) – and had a close encounter with a nuclear submarine (Verma, 2023e). Moreover, such sightings have a long history. A report in *Nature* by Pringle (1879), for instance, offers an account by Capt. Evans, Navy hydrographer, who described seeing "luminous waves or pulsations under the water, moving at great speed and passing under the ship from the south-south-west. On looking towards the East, the appearance was of a revolving wheel … whose spokes were illuminated." Many similar reports have accumulated over the decades (e.g., Railway and Marine News, 1912).

[11] Arguably the most intriguing and well-studied UAP case of recent years is a series of encounters in November 2004 involving the US Navy's Carrier Strike Group Eleven, particularly the USS Nimitz nuclear aircraft carrier, which have been subjected to detailed analysis (e.g., Knuth et al., 2019). Essentially, situated off the Californian Coast, over a two-week period the group encountered as many as 100 UAPs. This culminated in a dramatic sequence of interactions on November 14th, which began when two F/A-18F Super Hornets on a training exercise engaged at close quarters a white airborne UAP, shaped like a cylindrical butane tank (or "Tic-Tac"), moving erratically back and forth, involving instantaneous changes in direction without changing speed, despite lacking apparent flight surfaces or means of propulsion, which eventually suddenly accelerated as if "shot out of a rifle" and was out of sight in a split second. Subsequently, F/A-18Fs with infrared recording technologies went to investigate, and managed to film one of the UAP (albeit from a considerable distance), a segment of which was released to the public in 2017. Most relevantly here, when the two F/A-18F Super Hornets engaged with the Tic-Tac, as described by Corbell (2022), the UAP was observed moving over a "round disturbance in the water … but underneath that 'whitewater' was an object … that appeared from the altitude to be cross-shaped … like a 'T' … and this object was 'doing something,' so in the words that we said to me [by a source] … [the Tic-Tac] appeared to be "docking" with whatever was there just below the surface."

[12] Elizondo's full account runs as follows: "It's pretty incredible … I'm not gonna go into too much detail… The person [who told Elizondo] is kind of very cagey about this. But you have a helicopter going out of a Caribbean island on a regular basis because the navy likes to test fire some of its cruise missile technology and whatnot, and what will happen is that after the cruise missile runs out of fuel, it kind of … splashes into the ocean. It will sink, and then at a certain time it … rises up and we go and fetch it and we analyze it for telemetry… Long story short, helicopter crew goes out to recover one of these things. As they are recovering it … they're pulling up and something what was described round and circular, about the size of a small island, a black dark color, starts rising to the surface. It doesn't break the water, but it starts rising to the surface. They thought, 'wow, that's really really peculiar.' Well, the next month goes around and they go out to retrieve … another missile that was test-fired, and this time we've got a frogman hanging down from the rope about to latch on to the missile, and this thing starts coming out of the water again. And if you know about the Puerto Rican trench out there, you're talking about water that's 22,000 feet deep. It's the second deepest part of the ocean. The thing starts rising up, and the thing is starting to come to the surface. The frogman is literally trying to climb the rope; they're doing an emergency ascent. Everybody is absolutely 'panic at the disco' freaking out, you know, 'what the hell is that, what's going on.' And as they start to pull up, it sucks the missile underwater and then disappears, never to be seen again … Incidents like that just kind of make the hair stand up on the back your neck."

[13] Former CIA officer Jim Semivan, for example, said "There's an entity out there! There's some kind of non-human intelligence that's living with us on this F**KING planet" (cited in Verma, 2023a). Indeed, John Ramirez – who served at the CIA Directorate of Science and Technology, Directorate of Intelligence, and ODNI National Counterproliferation Center between 1984 and 2009 – suggested these ultraterrestrial NHI could even be "walking among us" unrecognized as integrated members of modern human society, even if – according to his speculation – they actually have "reptilian" origins, as discussed in the main text (Verma, 2023b). To that point, retired Army sergeant Clifford Stone – who claims to have worked as part of an elite military unit from 1968 to 1990 tasked with recovering crashed UAP – has claimed that authorities are aware of 57 different NHI species, many of whom "look very much like you and myself, that could walk among us and you wouldn't even notice the difference" (cited in Lewis-Kraus, 2021).

[14] 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). Similarly, new discoveries are prompting re-evaluations of *other* hominid species; for example, Berger et al. (2023) claim an ancient branch of humans, *Homo nalendi*, displayed sophisticated behaviours – including symbolic art and burying their dead – some 300,000 years ago, nearly a quarter of a million years before *Homo sapiens* (although their findings have been contested; McKie, 2023a). Moreover, much about the dynamics of these eras of evolution remain unknown. For example, analysing the genomic sequences of people today, Hu et al. (2023) suggest our human ancestors went through a "severe population bottleneck" between around 930,000 and 813,000 years ago – hypothesized to have been driven by climatic changes at the transition between the Early and Middle Pleistocene periods – in which the number of *Homo sapiens* went down from around 100,000 to as few as *1,280* breeding individuals, with this bottleneck lasting for about 117,000 years, bringing our species close to extinction. Given such contingencies and gaps in our knowledge, scholars are well aware how precarious is our knowledge of human evolution, and how little we should take as final and definitive.

Furthermore, this sense of uncertainty and contingency even extends into relatively modern human history. The standard narrative is that only around 10,000 BCE did early humans transition from existing as scattered groups of hunter-gatherers into instead 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). Comparable developments were also taking place around the world; China for example can also lay claim to being one of the oldest known civilizations, 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.

[15] Our relative lack of understanding of our planet's history was emphasized by Elizondo (2021) in an interview which included discussion of the CTH. As he put it, "How much of our own history do we really know? You know, we can go back 5,000 years, pretty easily; 8,000 years, things start to get a little murky, right? And anything much beyond that we really have no clue." He further discussed how dynamic Earth's environment is, noting "every time we have an ice age every roughly 10-15,000 years, the entire topography of Earth changes, the climate changes, animals change." Moreover, knowledge is hampered by how easily evidence is lost to time, especially given how impermeable materials can be: "It's really hard to make anything that last more than a few 1,000 years… The pyramids… [are] 5,000 years old, and they don't look so great, and probably … you might have a little hill of sand in 100,000 years, but that's going to be about it… Even mountains in millions of years become deserts, right? Time moves on. Then you have the subduction zones of Earth that eventually, if you wait long enough, the surface of the planet all gets recycled anyways. So, it's all going to get sucked down into the mantle and get spit out the other end as new land, so nothing is indelible on this planet." Kastrup (2024) makes a similar point: "Any sign of abandoned urban and industrial infrastructure is unlikely to survive a period of only a few million years, due to weather erosion. Synthesized chemicals, alloys and other compounds, technological artefacts, as well as terrain signatures such as mining holes, are ultimately unlikely to survive the constant recycling of the Earth's crust through plate tectonics. What is now the Earth's crust will eventually sink into the molten asthenosphere and mantel beneath, where it will be reforged, just to eventually re-emerge through volcanic activity as a brand-new crust. As a rough estimate, if we assume an average plate movement of a few centimeters per year, it could take only tens of millions of years for large swathes of the Earth's crust—especially the ocean crust but, to a more limited degree, also the continental crust—to be recycled in this manner. No conspicuous remnants of an ancient, technological, nonhuman civilization would likely survive all this."

[16] There are essentially two competing hypotheses regarding the Cydonia "Face." Either it is, (a), a naturally occurring feature of the geography that just happens to resemble a face, or (b) an artificial construction designed by an NHI to look like a face. Although (a) has tended to be the prevailing, widely-accepted explanation, some observers have pointed to other apparent anomalies in the vicinity that argue against it and tip the balance of probability towards (b) (Hoagland, 1992; Corlotto, 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 hypothesis (a) is more reasonable. However, when these other contextual factors are included in the calculation, some people suggest that (b) starts to become more plausible.

[17] An early and eloquent exposition of the paraphysical hypothesis was provided by RAF Air Marshal Sir Victor, Goddard, KCB, CBE, MA, a very high-ranking member of the British government, in a public lecture in May 1969 (see @SpinDubTracks, 2024). As one can see, at points this hypothesis intersects and overlaps with the interdimensional hypothesis (i.e., entities residing in other dimensions). However, one might well imagine paraphysical entities that are *not* interdimensional, but are "simply" normally invisible to us for some reason.

> That while it may be that some operators of UFO are normally the paraphysical denizens of a planet other than Earth, there is no logical need for this to be so. For, if the materiality of UFO is paraphysical (and consequently normally invisible), UFO could more plausibly be creations of an invisible world coincident with the space of our physical Earth planet than creations in the paraphysical realms of any other physical planet in the solar system... Given that real UFO are paraphysical, capable of reflecting light like ghosts; and given also that (according to many observers) they remain visible as they change position at ultrahigh speeds from one point to another, it follows that those that remain visible in transition do not dematerialize for that swift transition, and therefore, their mass must be of a diaphanous (very diffuse) nature, and their substance relatively etheric... The observed validity of this supports the paraphysical assertion and makes the likelihood of UFO being Earth-created greater than the likelihood of their creation on another planet... The astral world of illusion, which (on psychical evidence) is greatly inhabited by illusion-prone spirits, is well known for its multifarious imaginative activities and exhortations. Seemingly some of its denizens are eager to exemplify principalities and powers. Others pronounce upon morality, spirituality, Deity, etc. All of these astral exponents who invoke human consciousness may be sincere, but many of their theses may be framed to propagate some special phantasm, perhaps of an earlier incarnation, or to indulge an inveterate and continuing technological urge toward materialistic progress, or simply to astonish and disturb the gullible for the devil of it.

[18] Details about an apparent "Jellyfish" UAP were released by Jeremy Corbell (2024), reported as follows:

> Today we release the RAW footage of a military filmed UAP incursion within a United States joint operations base. This UAP of unknown origin displayed transmedium capability - and has been officially designated by the United States intelligence agencies as a UAP (Unidentified Aerial Phenomena). This designation is currently maintained. THE "JELLYFISH" UAP RAW footage received / Video #1 DATE / TIME - October 2018 (night) LOCATION - This footage was taken at a United States joint operations base in Iraq. IMAGING TYPE - Thermographic / Forward Looking Infrared (FLIR). EVENT DESCRIPTION - An incursion by an object of unknown origin was filmed at a United States joint operations base in Iraq. The object was designated UAP (Unidentified Anomalous Phenomena), and was tracked for a durational period. The object moved through a sensitive military installation - and eventually traversed over a body of water, where it actuated a controlled descent - submerging into the water. After an observational period of about seventeen minutes - the UAP reemerged from the body of water and shot-off at an extreme rate of speed - beyond the optical scope of the observation platform. The origin, intent and capability of the Anomalous Aerial Vehicle remains unknown. Official designation remains UAP. ADDITIONAL DETAILS REPORTED BY DIRECT EYEWITNESSES & THOSE FAMILIAR WITH THE FULL RAW FOOTAGE • The UAP displayed transmedium capability - The UAP was filmed entering the water with a controlled descent. The UAP emerged from the water about seventeen minutes later and orientated into a sudden and rapid directional flight - beyond the optical range of the platform monitoring it. • The UAP displayed low observability - The UAP was not visible with Night Vision (IR) and appeared to jam the targeting capability of the optical platform. • The UAP displayed positive lift - without the normally associated aerodynamic means for lift and thrust. The signatures typically associated with the propulsion maneuvers observed - were absent. FULL VIDEO : https://youtu.be/7bns_WhNAQM.

Interestingly, sightings resembling an airborne "jellyfish" seem 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). Indeed, going further back, representations of jellyfish-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).

[19] There are thought to have been five main ice ages in the history of our planet, the last being the Quaternery, from around 2.6 million years ago until the present. These are characterised by low global temperatures and glacial expansion across Earth's surface, leading to geological changes such as lower sea levels and reshaping of landscapes. Moreover, within these broad epochs are times when the glacial and ice sheet coverages *peak*, known as glaciations, in which such changes are heightened (Ehlers et al., 2018). The most recent, usually referred simply as "The Ice Age," was from 29,000 to 18,000 years ago, when eight percent of the planet was covered in ice, and sea levels were approximately 125 metres lower than today. However, 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 that lasted around 8,000 years, involving the gradual but relentless rising of sea levels. Moreover, amidst this general rising were more dramatic eras involving sudden collapses of ice sheets, creating catastrophic "meltwater pulses," causing sharp and extreme rises. The most significant occurred during the Bølling–Allerød interstadial, an abrupt warm period dated to 14,690 to 12,890 years ago (Rasmussen et al., 2006). This coincided with Meltwater pulse 1A – possibly attributed to melting of the Antarctic Ice Sheet, and indeed which may have *caused* the Bølling–Allerød interstadial – in which global sea levels rose by about 20 meters in a little as 500 years (Weaver et al., 2003). Moreover, a particularly dramatic flood around 13,000 years ago – possibly caused by an outburst from the North American glacial Lake Agassiz (Murton et al., 2010), although some speculate it could have involved an impact from a comet or asteroid (Sweatman, 2021; Moore et al., 2024) – caused a return to ice age conditions for over 1,000 years, an era known as the Younger Dryas. Moreover, the warming phase at the end, around 11,500 years ago, was also abrupt, with more melting and sharp sea level rises.

[20] The debate about Yonaguni on the Joe Rogan (2024) podcast was between Graham Hancock (a British writer, researcher, and television presenter) and Dr Flint Dibble (a prominent archaeologist). Hancock is a 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 recent Netflix series, "Ancient Apocalypse." However, he is a rather polarizing and – depending on one's perspective – controversial figure, whose views have been dismissed by prominent academics as "pseudoarchaeology"; indeed, the very first sentence of his Wikipedia article describes him as a someone who "promotes pseudoscientific theories involving ancient civilizations and hypothetical lost lands." The significance of the Rogan podcast was that it offered an opportunity for Hancock to discuss these charges, and the topic generally, with a prominent representative of academic archaeology. Part of the episode focused on Yonaguni, with a fascinating discussion on the plausibility of it being human-made architecture. Dibble suggested the straight lines could have been formed naturally, given that "nature sometimes looks bizarre," while Hancock argued forcefully against the likeliness of that explanation. Rogan took a somewhat middle ground, and without being fully persuaded of Hancock's position, noted that "Some of the right angles and what looks like passageways … that's a wild one ... Things look weird in nature, [but this] blows me away." In the end, Dibble did concede "It's certainly crazy, I'll give you that." Overall, though, it was striking the extent to which Dibble seemed to dismiss intriguing underwater structures out of hand; in relation to another potential structure, the "Bimini Road" – a 0.8 km long line of roughly rectangular limestone blocks in the Bahamas – Dibble said, "I'm just looking for some proof here. [Laughing] It's all right, but things look cool I get that, but it's like a question of how do we tell the difference between man-made and natural and that's not easy and I've never really again seen architecture like this." Rogan then pushed back, somewhat incredulous: "This doesn't intrigue you? You don't look at that and go, 'wow, that really looks man-made'".

Also of note, the discussion covered the retraction of Natawidjaja et al.'s (2023) article, which – as noted in the main text – had suggested that Gunung Padang features human megalithic constructions dating to between 25,000 and 14,000 BCE. While Dibble argued against the authors' interpretations of the data and the conclusions in the paper (which is certainly a legitimate move), Hancock accused him and his colleagues of orchestrating a pressure campaign to compel the journal to *retract* the paper (i.e., instead of publishing a critical response), which Hancock felt was *not* reasonable. Hancock for example noted Dibble's apparent sway with prominent media outlets like *The Guardian*, which before the retraction had published articles, citing Dibble, that were highly critical of the study, and moreover argued that some of the animus directed towards the paper was due to his own link to the research (such as it being the centrepiece of an episode of Ancient Apocalypse). This allegation does seem substantiated by the fact that one piece in *The Guardian* suggests that "Controversy [about the paper] has been fuelled by the discovery that the paper was proofread by the controversial British writer Graham Hancock" (McKie, 2023b). The fact that the mere act of Hancock proofreading the paper is mentioned as grounds for suspicion does lend support to his claim that Natawidjaja's work has been unfairly targeted and disparaged for its association with Hancock.

[21] The notion of Lemuria was first proposed by zoologist Philip Lutley Sclater (1864) based on his observations of the distribution of Lemurs, namely that dozens of species are found on Madagascar alone, but only a handful

elsewhere (Bressan, 2013). As a result, he speculated Lemurs had originated in Madagascar and spread to Africa and Asia by a land bridge that once connected these continents, which he named Lemuria. Although it has since been shown that this distribution of Lemurs could have also been achieved by shifting plate tectonics, geologists have discovered traces of a "Precambrian microcontinent" in the Indian Ocean that disappeared some 84 million years ago, which – Lemurs aside – does allude to the possibility of a lost landmass (Torsvik et al., 2013). In any case, Sclater's notion of Lemuria captivated attention, and also inspired similar related myths, most notably by British archaeologist Augustus Le Plongeon (1900), who developed the notion of "Mu." In 1875 he and his wife Alice undertook the first excavation of Chichen Itza, a Mayan city built around 600-900 CE. Based on murals and inscriptions, they came to believe there had been a historical Mayan ruler called Queen Moo. Over time, her legend became intertwined with that of Lemuria, especially by Churchward (1926) in his book *Lost Continent of Mu, the Motherland of Man*. He vividly depicted Mu as a land in the Pacific that had been home to an advanced civilization, called the Naacal, which flourished between 50,000 and 12,000 years ago and was the progenitor of advanced societies elsewhere (hence the book title). However, he claimed the land was "completely obliterated in almost a single night" after a series of earthquakes and volcanic eruptions. Churchward's specific claims have of course been widely disputed, and moreover critiqued on various levels, such as upholding 19th Century ideals around imperialism (Deane, 2008). Even so, many people nevertheless suspect our understanding of history is incomplete, and there may have existed civilizations of which evidence has now been lost, as discussed in the main text.

[22] In terms of lost landmasses, Norman et al. (2024) for example suggest there is a "now-drowned region" northwest of the Australian continent that once existed as an "extensive archipelago" capable of supporting between 50,000 and 500,000 people. They argue that two periods of rapid global sea level rise – around 14,000 years ago (Meltwater Pulse 1A) and between 12,000 and 9,000 years ago – resulted in the rapid drowning of ~50% of the Northwest Shelf, causing a retreat of human populations.

[23] Among the most famous "out of place artifacts" is the "Antikythera mechanism," a Greek hand-powered orrery – a mechanical model of the solar system used to predict astronomical positions – described as the earliest known example of an analogue computer, thought to have been created around 150 BCE (Seiradakis & Edmunds, 2018). Another notable example is the "Baghdad Battery," a name given to three artifacts – a ceramic pot, tube of copper, and rod of iron – discovered together in 1936 by archaeologist Wilhelm Konig which are believed to date to either the Parthian (150 BCE – 223 CE) or Sasanian (224 – 650 CE) empires, and which Koenig argued constitute an electric battery, a conclusion with which modern scholars still concur (Keyser, 1993). Similarly perplexing is the "Schist Disk," discovered by Egyptologist Brian Walter Emery in 1936 while excavating the tomb of Prince Sabu (circa 3,000 BCE) (Coffey, 2023). This is striking on many fronts, including 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 an axis of a wheel), as well being seemingly flawless yet with no prototypes or failed attempts ever found. In addition to such objects are not artifacts per se but apparent examples of technologies and techniques that seem to surpass what we thought people at the time possessed. For example, Cairo's Egyptian museum includes a large granite box, ostensibly dated to 3,000 BCE, that appears to be sliced with millimeter accuracy and precision from top to bottom (Olsen, 2023); crucially, craftspeople at the time were thought to only have copper chisels and hammers, but copper is rated about three on the Mohs Scale of Hardness, yet the rose-granite of the box ranks about an *eight* (with diamond ranking a 10). Similarly, people have been intrigued by design *ideas* that seem out of place, such as a 450-page manuscript written between 1529 and 1569 by a military officer for the Imperial court of Vienna, Conrad Haas, which contains elaborate technical details for multistage rocketry, much of which accurately anticipates designs used in 20th century spaceflight programs (Verma, 2022b). Moreover, as noted in the main text, some potential artifacts are far older. A mysterious pyramid in China's Qinghai Province, for example, features three caves filled with iron pipes which lead to a nearby lake, which were determined by the Beijing Institute of Geology to have been smelted an astonishing 150,000 years ago, many tens of thousands of years before *Homo sapiens* are thought capable of such techniques (MacIsaac, 2014), although sceptics suggest they might have a more prosaic origin in the fossilization of tree roots (Bauer, 2019).

[24] Derinkuyu is carved out of the soft volcanic rock of the region, harnessing its naturally occurring caverns and tunnels. It extends down 85 meters and across 18 levels, and incredibly is estimated to have housed as many as 20,000 people, plus livestock and food stores (Ulusay & Aydan, 2018). Even more remarkably, this is just one of some 36 underground cities in the Cappadocia region in central Turkey, with others perhaps yet to be discovered. As to their origins, archaeologists speculate these could have been started as long ago as 2,000 BCE by the Hittites who dominated the region at the time, but were undoubtedly extended by the many groups who have since occupied the area, such as the Phrygians around 700 BCE (Sari & Özsoy, 2010).

While these cities may have served many purposes, they are thought to have above all been sources of refuge and protection, including from persecution by rival groups as well as from natural elements (Erdem, 2008).

[25] Jane Goodall has been asked about Sasquatch (or "Bigfoot") in many interviews (see Murgia, 2023a, for a compilation), and indeed says "everybody talks to me" about the subject. In one interview with Yahoo News she said, "I'm a romantic. I would like Bigfoot to exist. I've met people who swear they've seen bigfoot. And I think the interesting thing is that in every single continent there is an equivalent of Bigfoot or Sasquatch. There's the Yeti. There's the Yarri in Australia. There's the Chinese wild man. And on and on and on. And I've had stories from people who … you have to believe them. So, there's *something*. I don't know what it is. I'm always open-minded." Similarly, in an interview with Jimmy Kimmel, she recounted a story in which she was "in the midst of Ecuador, with jungle all around, and a few little isolated communities. And hunters used to go from community to community. So, I asked my translator, I said, 'When you meet one of these hunters,' all I said [to ask] was, 'Have you seen a monkey without a tail?' And five of them came back and said, 'Oh yeah, there are monkeys without tails. They walk upright and they're six foot high." Asked by Kimmel what these could be, she said, "Maybe, you know, remnant Neanderthals or something." In a third interview, she was even more definitive, saying emphatically, "I'm *sure* they exist. I've talked to so many Native Americans who all described the same sounds. Two who've seen them. I've probably got about, oh, thirty books [about similar creatures] that have come from different parts of the world."

[26] The immediate reaction to the "Nasca mummies" presented by Maussan was overwhelmingly sceptical, with an article in Newsweek immediately after, titled "Have 'alien' bodies shown in Mexico already been debunked?" (Norton, 2023), exemplifying the general tone. Based on the assessment of multiple radiographs and images from CT scans carried out by the third author of the current article, who holds a PhD in biological anthropology with a specialization in hominin evolutionary and comparative anatomy, among the most glaring suggestions of their inauthenticity are: (1) a lack of bilateral symmetry within each individual specimen; (2) no consistency in skeletal morphology across the various specimens presented, indicating a lack of synapomorphies and therefore no shared evolutionary relationship, which, in addition to a clear observable trend toward a more sophisticated manner in which the bones are organized, is highly suggestive of a change over time in how they were fabricated; (3) that some of the bones used in their construction were taken from adolescents, as indicated by unfused epiphyses on the long bones, while other epiphyses within the same specimen are fully fused, indicating they were taken from different individuals of different ages and combined to make a new entity; (4) that some of the bones used were cut off at the ends, others were taken from the arms and used as legs and vice versa, while animal bones were used in place of human bones in certain specimens; (5) a glaring lack of functional articulation points, to the extent that – in a "form follows function" basic biomechanics capacity – none of these diminutive creatures would have been capable of moving any of their body parts and would therefor lack mobility for even simple tasks; (6) metal, stick, glue, and other inorganic objects used to hold the bones in place; see for example the type specimen (NA-01) dubbed "Josephina," who has an acknowledged metal plate stretching mediolaterally and inferior to the clavicle, connecting the left and right side near the anterior surface of the two scapulae, which was considered to have been "implanted…to stabilize her broken and healed clavicle" (Miles, 2022), while the more parsimonious explanation is that the metal piece was inserted to keep the left and right sides of the body from detaching during and after construction. Additionally, other inorganic connectors can be seen in the wrist and hand morphology of certain specimens, which themselves are a mess of various carpals, metacarpals, phalanges, and occasionally metatarsals, which are often turned in the opposite direction, and as with many of the long bones, lack any sensical articulation points; (7) despite possessing a mouth (with no dentition and highly erratic and disjointed masticatory anatomy), if these creatures were to consume any food (or breath for that matter), there is no oesophagus or trachea connecting the mouth to the rest of the body, which would prohibit basic functions like eating and breathing; and (8) on the whole, these specimens lack clear provenience, especially considering that "two figurines turned up in the Lima airport offices of courier DHL in a cardboard box, and were made to look like mummified bodies dressed in traditional Andean attire," which, according to Flavio Estrada, and archaeologist with Peru's Institute for Legal Medicine and Forensic Sciences, "They're not extraterrestrials. They're dolls made from animal bones from this planet joined together with modern synthetic glue… it's totally a made-up story" (Aquino, 2024). This remains the general consensus among scientists: "The opinion of academics, archaeologists, and scientists is unanimous: Part of these mummies are modified pre-Hispanic human bodies, while the rest, especially the smaller ones—like those presented this week in the Mexican Congress—are bodies assembled with animal and human bones" (Lagos, 2023). That said, we ought to acknowledge that numerous other similar specimens have allegedly been discovered, as discussed on a recent episode of That UFO Podcast (2024). As such, extending the spirit of openness that we have sought to bring to this paper more generally, we cannot necessarily assume that our scepticism regarding the specimens associated with Maussan would necessarily apply to other cases. That said,

based on our analysis of this particular case, we are generally sceptical of the entire "mummies" phenomenon – at least until further evidence emerges.

[27] 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 interesting vis-à-vis this notion of "giants" is that people claim to have actually found evidence of such. Some consists of apparent fossilized traces of huge humanoid beings, such as 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, such as 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 – especially 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 found in ancient burial sites over a two-hundred-year period in North America alone (Newman, 2022).

[28] The possibility of an extraterrestrial civilization visiting Earth and taking up subterranean residence before the emergence of *Homo sapiens* is one possible explanation for a CTH. That said, their arrival would not necessarily have to pre-date humans. Ever since Erich von Däniken's (1968) hugely popular book *Chariots of the Gods? Unsolved Mysteries of the Past*, there has been a rich seam of speculation that extraterrestrial entities may have interacted with and even guided humans (with Däniken arguing that technologies and religions of many ancient civilizations were given to them by these visitors, who were interpreted and welcomed as gods). Indeed, an even more radical possibility is that we *Homo sapiens* have an extraterrestrial origin (Lomas & Case, 2024), whether: life in general being seeded from elsewhere, known as panspermia, as famously suggested by the co-discoverer of the structure of DNA, Francis Crick (Crick & Orgel, 1973); or *Homo sapiens* specifically, as articulated by for instance by ecologist Ellis Silver (2022); or whether we did originate here but have somehow had our evolution and DNA manipulated by extraterrestrials, possible via interbreeding, as argued by Fenton and Fenton (2020). Indeed, even figures who represent a more "mainstream" perspective on evolution are open to such ideas; Richard Dawkins for example was interviewed in 2008 and 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" (cited by Murgia, 2023b). Even more relevantly, people have explicitly connected these ideas to the UAP topic. Coulthart (2023b) says 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 account the idea that there has been an NHI presence on this planet for much of human evolution and history." Making a similar point, Kastrup (2023) predicted that "within the next 20 years (perhaps sooner), we will witness three tightly inter-related, gigantic revolutions in our understanding of reality," including "the official recognition of the presence and role of non-human intelligence (NHI) throughout our history" (with the other two being firstly the "rejection of physicalism and embracement of idealism as the only plausible metaphysics," and secondly "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").

[29] The first author to connect Mount Shasta to Lemuria was apparently Frederick Spencer Oliver (1899), who presented himself as an amanuensis for a "spirit" named Phylos the Thibetan. His book made claims of a tunnel to a secret city inside Mount Shasta, which hosted a "mystic brotherhood" of escapees from Lemuria. Similarly, Beckley (1993) includes a narrative given by a woman who claims to be a princess, called Sharula, from Telos, a subterranean city beneath the mountain with a population of some 1.5 million, apparently constructed about 14,000 years ago at the collapse of Lemuria around the end of the Ice Age. Likewise, Hamilton (1986) gives an account of this same person, suggesting Telos was built inside an "artificial dome-shaped cavern in the Earth a mile or so beneath Mount Shasta." Other texts offer further details about this realm and its supposed inhabitants. Cerve (1931) wrote of "odd-looking persons" who were "tall, graceful, and agile … with larger heads, much larger foreheads" who would visit local towns and "trade nuggets and gold dust for some modern commodities." Likewise, Lanser (1932) said "The Lemurians have been seen on various occasions; they have been encountered in the Shasta forest, but only for a brief glimpse, for they possess the uncanny secret knowledge of the Tibetan masters and, if they desire, can blend themselves into their surroundings and vanish. At times they came into the neighboring towns--tall, barefoot, noble-looking men." Moreover, Maurice Doreal (no date) even suggested he himself had been invited into the underground realm in 1931 by two inhabitants who had attended his lecture.

He claimed they came to a space "about two miles in height and about twenty miles long and fifteen miles wide and it was as light as a bright summer day, because suspended, almost in the center of that great cavern of space was a giant glowing mass of light" (p.14). Somewhat similarly, in Beckley's (1993) account, Sharula claimed Telos has "perpetual light through a process of energizing stones to create full spectrum lighting," whereby the inhabitants can "process them with the forces that make small suns" (p.122).

[30] Kirk describes his subject as "the subterranean and (for the most part) invisible people" (p. 29), and notes that fairies "are said to be of a middle nature betwixt man and angel," both as to their constitution – being framed "of intelligent studious spirits, and light changeable bodies, (like those called astral) somewhat of the nature of a condensed cloud" (p.51) – and as to their lifespan ("They live much longer than we; yet die at last, or at least vanish from that state" (p. 56)). While "their bodies of congealed air are sometimes carried aloft," Kirk notes, their "ordinary dwellings" were thought to be subterranean, "the earth being full of cavities and cells, and there being…no such things as a pure wilderness in the whole universe" (p.52). Kirk describes reports of "women yet alive who tell that they were taken away when in child-bed to nurse Fairy children," and were brought down into underground cities illuminated by "continual lamps and fires, often seen without fuel to sustain them" (p.56). He also emphasizes, however, that most people are completely incapable of seeing fairy-folk, this requiring some kind of mysterious "second sight," an endowment which seems to be place-specific, with some seers reporting "that several did see the second sight when in the Highlands or the Isles, yet when transported to live in other countries, especially in America, they quite lose this quality" (p.78).

[31] As Hart (2022) puts it, "If you believe that everything arises from an infinite act of mind – the rock over there no less than the intelligence in you – then you believe that there's the presence of … an infinite knowing logos within the discrete logos that constitutes each thing as what it is. There's a depth – even a personal depth, so to speak – in everything, an inner awareness that knows each reality from inside … or from deeper than inside … There is *one* who knows what it's like to be a rock. And wouldn't that infinite personal depth have to express itself … in a finite personal interiority of some sort? … A personal, reflective dimension as the necessarily contracted mode in which the contracted infinite act of mind is exemplified in that thing? And why shouldn't we call that dimension or mode by its classical names – dryads, hamadryads, naiads, nereids … *kami* and *tama* … *yaksas* and *yaksinis* and *gandharvas* and *apsaras* … nymphs and fairies and elves and *longaevi* of every kind? (p.75).

[32] In 1896-1897, the US saw a spate of UAP sightings that seemed to resemble "airships," curiously involving apparent technology that, as DeLonge and Levenda (2017) put it, was merely "twenty or thirty years (at most) beyond the capability" of humans at that time (p.89). Although sceptics have suggested such technology could have been within human reach at that point (Danalek, 2010), newspaper reports of the events are replete with unusual details that resist such explanations (see Busby, 1994), not least sightings of unusual beings. For example, in The Dallas Morning News, Haydon (1897) reported an airship had actually crashed, noting, "The pilot of this ship is supposed to have been the only one on board, and while his remains are badly disfigured, enough of the original has been picked up to show he was not an inhabitant of this world." Most relevantly here though, some witnesses report interacting with the pilots of these airship, with these experiences resembling the uncanny encounters often found in fairy folklore. Even though many of the "aeronauts" were "indistinguishable from the average American population of the time," as Vallée (2008) puts it, descriptions of interactions generally seem to have a strange dreamlike quality, as is evident in the examples cited by Vallée.

In one report in the Arkansas Gazette, for example, Captain James Hooton describes encountering a "medium-size looking man aboard" as follows: "I noticed that he was wearing smoked glasses, [and] was tinkering around what seemed to be the back end of the ship, and as I approached I was too dumbfounded to speak. He looked at me in surprise, and said: "Good day, sir; good day." I asked: "Is this the airship?" And he replied: "Yes, sir,"". After the man briefly mentioned that the craft used "condensed air and aeroplanes, but you will know more later on," it "gradually arose with a hissing sound." In another account, Constable Sumpter and Deputy Sheriff McLemore are reported as approaching a shining UAP which descended over a distant hill, when "A man with a long dark beard came forth with a lantern in his hand, and on being informed who we were proceeded to tell us that he and the others – a young man and a woman – were travelling through the country in an airship," and that "the man with the whiskers invited us to take a ride, saying that he could take us where it was not raining." A third curious report describes witnesses seeing a "heavy object dragging along with a rope attached … On looking up they saw what they supposed was the airship … After some ten minutes, a man was seen descending the rope … He wore a light blue sailor suit and was small in size. He stopped when he discovered parties at the anchor, and cut the rope below him and sailed off in a northeast direction." Other accounts, as for example summarized by Enigma Labs (2023), involve an aeronaut who allegedly introduced himself as "Wilson," while on another occasion he insisted a witness "call me Smith," giving him a $10 bill to buy "lubricating oil," telling him to keep the change. In yet another encounter, the aeronaut claimed he was

transporting dynamite to Cuba, and even offered an ex-Arkansas senator a ride there to go "kill Spaniards." These are almost like fairy stories reimagined in the age and place of the modern Wild West.

[33] Many of the rumours surrounding Operation Highjump stem from an ostensible "missing diary" which surfaced in the 1970s, allegedly written by Byrd (1990) during the operation, subtitled, "A Secret Expedition and Journey to a Paradise Inside the Earth." In this, he claimed to have been pulled through a "vortex" while flying over an unknown mountain range, whereupon he entered "inner Earth" and encountered a fantastical city, inhabited by humanoid creatures. Seemingly summoned as representative of humanity, he was reprimanded by a figure called "The Master" about the invention of the atomic bomb and warned a dark age is to come if humans do not mend their ways. However, as discussed on The Why Files (2022), this is widely believed to be a work of fiction. For example, whole paragraphs of what The Master apparently said to Byrd are seemingly plagiarized from the 1937 film Lost Horizon (in which the main character talks to The Dalai Lama who issues the same kind of environmental warning). However, other rumours about the mission are less easily dismissed, or are at least rather strange. These even include events relating to the trip recounted in the seemingly fictional diary, most notably the claim that Byrd's experience involved a period of "missing time"; for instance, records show that Byrd did take a flight that arrived back at base three hours late, despite him being in a small short-range airplane that in theory would not have had enough fuel for that length of flight. Other stories of the expedition that have some corroborating evidence include the claim that the mission was cut short because it had faced attacks from UAP appearing out of the water, which apparently was verified by a secret Soviet intelligence report that was released (along with many others) after the collapse of the USSR. As summarized on The Why Files:

> According to documents leaked in 1991, things … take a strange turn just two days after arriving. Bright lights were seen on the horizon. The sailors thought it was another ship but they were below the Antarctic circle in uncharted waters. The lights then ascended at a 45 degree angle into the sky very quickly. They tried to make radar contact but were out of range. Three hours later, five more lights appeared in the sky and began flying directly toward the ships. Anti-aircraft guns and 20-millimeter cannons were fired but had no effect. A radio operator stationed on the USS Brownson gave testimony of how strange crafts suddenly appeared from the ocean. This is corroborated by Lieutenant John Sayerson, who said objects shot vertically out of the water at tremendous speeds. One object flew between the mass of his ship with such force that the radio antenna oscillated back and forth from the turbulence. An aircraft from the USS Currituck took to the sky but was immediately struck by a beam of energy and destroyed. About 10 miles away the torpedo boat USS Maddox burst into flames and began to sink. According to the report this was the first attack of several that would occur over the next few weeks. February 26 would be the last engagement with the unknown craft: the Navy task force ordered retreat and left the area a full six months before their mission was supposed to end.

[34]Antarctica has long been a site of intrigue, both in relation to the UAP topic and also just on its own terms. To begin with, observers have scoured photographic evidence on sites like Google Earth looking for apparent anomalies. As a result, some curious structures and objects have potentially been identified, although there is much debate about their interpretation (see e.g., https://captainantarctica.com.au/anomalies/google-earth-anomalies/, posted in 2018, for seven such examples). One is an apparent pyramid, which led some people to argue this was a remnant of a long-lost civilization since buried beneath the ice, though sceptics have argued in response that mountains do have the potential to become pyramid-shaped through natural "freeze-thaw" type erosion (Geggel, 2016). Another source of intrigue regarding the region are military "whistleblower" accounts of unusual features and activity in the region, such as one reported by UAP researcher Linda Moulton Howe (Earthfiles, 2017), which she said had been provided by a "retired US Navy petty officer" who had apparently led a c-130 crew "flying cargo and doing rescues in Antarctica from 1984-85 period to 1997." His most notable allegation was summarized by Howe as follows: "[The crew] saw a huge football field-sized hole in the ice, only about five to ten miles from the geographic South Pole, that was supposed to be an air sampling station, but in a no-fly zone. During an emergency medevac crisis, to speed up their trip, the crew flew across that no-fly zone and apparently saw what they were not supposed to see: an alleged entrance to what was rumoured to be a human and ET science collaboration research base under the ice… [He] and his flight crew received several orders at different times to not talk, and were sternly told, "you did not see the ice hole, you saw nothing"." More generally, regarding the potentially unusual nature of the region, some observers find significance and intrigue in the existence of the Antarctic Treaty, signed in 1959 by 12 major powers, which protects the continent as "a natural reserve, devoted to peace and science" (IAATO, 2023). Of course, the most likely explanation is that the Treaty should be taken at face value, with the participating nations – and subsequently the whole world – genuinely agreeing not to advance territorial claims over the region and instead preserving it for scientific exploration. Nevertheless, for people persuaded that clandestine NHI bases on Earth are being kept secret by the military powers, the Treaty does also plausibly serve these more esoteric goals, not least because it

essentially places the location “off limits” to the public. Such sceptics note, for example, that world nations are rarely so co-operative when it comes to ceding or disavowing territorial claims, and wonder if other motives may be at play, such as maintaining secrecy regarding aspects of the content (e.g., whether an NHI presence or base, the remnants of an extinct civilization, or something else entirely) (Salla, 2021).

[35] Phil Schnieder gave the following account of his alleged experience at the Dulce base at a public event in 1995 (Kent, 2023): “I'm Phil Schneider. I spent 17 years in black budget programs as a government geologist, engineer and structural engineer with aerospace applications and I'm a self-taught metallurgist. In working with the black projects, I was involved in something very controversial, almost totally unbelievable to most of you. I was involved in building another base inside of Dulce, New Mexico, which is Los Alamos laboratory. On the southwest part of the Archuleta Mesa, we were in the process of the early stages of building the four large tunnel-like holes. Some of them ran two and a half miles under the surface. Anyway, after we drilled all four holes, it took about two days to drill all four of them. When you build an underground base, you drill four basic holes, then you build, called stoves, or crossmember holes, across and then you use blasting equipment and you blast out, or tunnel out, deflagrate or melt rock out… the equipment kept coming up broken. So, we wanted to go down, send somebody down there, a human observer, or human observers in this case, to find out what was going on. When I saw green beret and black beret people … I knew something was up; the gig was up. In this process, I was lowered down in a basket of one of these holes, and … [there] was sitting a seven-foot tall alien Gray. The stench was worse than the worst garbage you can imagine. I didn't waste any time. I reached for my pistol … I carried a little Walther PPK pistol with a nine-shot clip. When you're in an almost space-suit environment and you're reaching for a gun, it's not the easiest thing to do and then to pop a clip into it and start shooting. Man, I killed two of them. Yes, they're mortal and they do die, however in the process one of them did this … All I remember is that he just kind of waved his hand in front of his chest and the next thing I know this blue beam hit me and just literally opened me up like a fish. It was some form of electrical force because it was kinda like being hit with a lightning bolt … burned all my toenails off of me. A green beret that was right behind me, he risked his life. He shoved me back in the basket and hit the button and took me up. I wouldn't be alive talkin' to you today if it wasn't for him. I'm forever indebted. He lost his life. 66 secret service agents, green berets, black berets, crack troops, lost their lives, because the government, our United States government lied, did not tell us anything about the alien threat. There's a war underneath there—and I'm talking dead serious.”

[36] Claims of an underwater base in the Catalina Channel 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 recent 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 on July 26], maybe not.” Indeed, the search for other potential bases has been invigorated by resources like Google Earth, with people scouring maps looking for anomalies, generating numerous cases that some claim could be an underwater base – or at the very least seem genuinely strange – with several examples discussed by Byrd (2016). One is the outlines of an apparent structure near Baja California involving long, tube-shaped lines that stretch for some 76 miles, which notably is in the vicinity of the region noted by Gallaudet and also researchers like Dennett (2018). So too is another a strange finding six miles off the coast of Malibu, some 2,000 feet below the surface, of an oval-shaped object nearly three miles wide with a huge flat top and what “appear to be pillars or columns that seem to reveal the entrance to a darker, inner place” (Speigel, 2014). While rumours of NHI bases may be wild speculation, such sites are at least unusual and worth investigating, though from a sceptical perspective one might ask, if cryptoterrestrials wanted to *hide* – if indeed that would be their intention – why would they select a location merely 2,000 feet down right off the California coast.

[37] Regarding other potential underwater NHI bases, the author Michael Salla (2024) for example has suggested, based on an apparent US military informant, that there is “a space ark is located at the bottom of the Atlantic with naval ships surrounding it.”

[38] There is a long history of rumours about an NHI presence on the moon, most of which is highly contested, seen as credible by some and strongly rejected by others. A vivid example of these murky waters involves an alleged Apollo 20 mission in 1976. Officially, the last lunar lending was Apollo 17 in December 1972, with Apollo 18, 19 and 20 cancelled that year – despite already being in the construction and planning stages – supposedly due to declining public interest and budget cuts. However, in 2007 a series of videos were posted to YouTube – seemingly by William Rutledge, a retired American astronaut, under the username “retiredafb” – which purported to show secret NASA footage from an alleged Apollo 20 mission in 1976. Its alleged purpose was to investigate a two-mile-long spaceship that had apparently crashed millions of years ago on the far side of the moon, and which had been discovered by previous missions. Venturing inside the craft, the video showed

the astronauts encountering the body of a humanoid female – in a state of "suspended animation" of some kind – who became dubbed the Martian "Mona Lisa" (Aerospace Engineering, 2017). Needless to say, the account has been much disputed. Indeed, in 2007, a French artist and writer, Theirry Speth, claimed to have created the videos in 2006 for a science fiction story he was writing that was eventually published a decade later (Speth, 2017), a claim which has been corroborated by the likes of Reuters (2022). Even so, some observers remain sceptical about Speth's claims, suggesting his apparent "confession" may itself be a form of disinformation to discredit what is actually a genuine story; to that point, Italian ufologist Luca Scantamburlo (2010) claimed to have interviewed Rutledge himself, who confirmed it was a real mission. Thus, for example, the footage has been promoted as credible, such as by the documentary Aliens on the Moon: The Truth Exposed (Kiviat, 2014). However, critics point out that Scantanburlo never met Rutledge in person (with the interview conducted over Yahoo! Messenger), and that his claims of veracity have no weight (Hoaxeye, 2022). Essentially, while we ourselves believe the story to almost definitely be false, that we cannot be 100% certain is indicative of the tantalising and uncertain standing of the moon with respect to this topic.

[39] In terms of the strangeness of the moon, as discussed on an episode of The UFO Rabbit Hole podcast (Chase, 2022), the reason it seems "so unsettling is just the sheer preponderance of weirdness." Essentially, there are myriad oddities and coincidences, and while any one individually might be merely curious, together they create an unnerving sense of artificiality (Knight & Butler, 2006). (1) We only ever see one side of it (i.e., one side is always facing Earth), which is only possible because the moon is rotating on its axis at the exact rate that it orbits the Earth. (2) The moon and the sun appear roughly the same size in the sky because although the sun is 400 times bigger than the moon, it is almost exactly 400 times further away from the Earth than the Moon. (3) In addition to the moon and sun appearing a similar size, the moon has a slightly tilted orbit that aligns to Earth's orbit around the sun (in contrast to most moons, which orbit around the equator of their planets), meaning we experience eclipses. (4) It is particularly massive; although there are over 200 moons in our solar system, despite Earth being only the fifth largest planet, it has the fifth largest moon; consider that the largest moon, Jupiter's Ganymede, is only about 50% larger than our moon, even though Jupiter is 11 times bigger than Earth. (5) It is potentially hollow in some ways (or at least has hollow cavities), based on seismic reverberations observed in tests conducted by the Apollo missions. (6) We don't currently have a settled and definitive understanding of how or when the moon was formed, and although numerous theories have been proposed, these have been challenged by the kinds of observations noted above; for example, a prominent early explanation was the "capture" hypothesis, in which, during the chaos of the early solar system, the moon's path happened to have intersected with that of Earth in just the right way, so became pulled into its orbit. However, since the moon is so large, and its orbit so close to Earth and also so perfectly circular, this idea has fallen out of favour. Given all these oddities, some people speculate the moon could be an artificial satellite created by an NHI, with various reasons proposed for its manufacture. Perhaps the most obvious one is that it would serve as a secret base from which to observe life on Earth. However, a deeper and more profound possibility is that it was fashioned to help *create* and nurture life on Earth itself. This observation is based on the recognition that, were it not for the moon, life may not have been able to emerge on Earth at all, especially its more complex forms. The essence of the argument is that the moon has a particularly profound impact on our tides (being so large and so close), which are integral to both the creation and maintenance of life (from supporting the flux of the oceans from which life is thought to have emerged, to helping regulate the climate and temperature of the planet).

[40] Many people have looked for lunar anomalies using publicly available photographs taken by NASA's Apollo missions, as well as by more recent endeavours such as NASA's Lunar Reconnaissance Orbiter (the LRO: a robotic spacecraft which since 2009 has been orbiting the moon gathering data), China's Yutu 2 (the robotic rover component of CNSA's Chang'e 4 lunar mission, launched in 2018), and Google Moon (which primarily uses a mosaic of images taken by NASA's Clementine mission in 1994). These have generated many unusual images, which some people have interpreted as evidence of an NHI presence on the moon, although in many cases sceptics have argued there is a natural explanation. Among the most well-known researchers in this area is Richard Hoagland (e.g., Hoagland & Bara, 2007), whose analyses of NASA photographs have yielded various apparently anomalous lunar structures. For instance, in 1967 the Lunar Orbiter III took a photo – frame LO-III-84-M (https://nssdc.gsfc.nasa.gov/imgcat/html/object_page/lo3_m84.html) of the Bruce crater and the Sinus Medii Mare plain. An overexposed 44x enlargement by Hoagland revealed what seems to be an irregularly-shaped vertical object 1.5 miles tall (see https://www.bibliotecapleyades.net/luna/esp_luna_26.htm), dubbed the "Shard." Sceptics have sought to find naturalistic explanations for this: an article by Live Science (2012) for example claimed this was merely an artefact of Hoagland's "manipulation" of image processing software, which "appears to have turned a tiny spot of light near the horizon of the moon (perhaps light from a distant star) into a blurry image artifact." Other explanations offered have been that this is merely an ephemeral "outgassing" event – an explosive vertical release of gas, which can indeed happen naturally on the moon – that just happened to coincide with the photograph being taken. However, these "debunking" claims have themselves been critiqued

and 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). Indeed, he 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. We have no way here of adjudicating these claims, but while not necessarily agreeing with Hoagland about the nature or interpretation of these images, we also suggest they cannot simply be dismissed out of hand. The same is true of various other anomalies people have observed in lunar images, such as several massive and seemingly artificial structures identified by Scott Wearing – involving straight lines that suggest these have been manufactured rather than forming naturally – in the Copernicus crater (Monzon, 2019) and the De Moraes Crater (Malewar, 2019). Essentially, the same principle applies here as with the CTH more generally: while we regard the probability of artificial structures on the moon as highly unlikely, we also suggest the possibility should not be ruled out and instead deserves genuine investigation.

[41] NASA "whistleblowers" include Karl Wolfe, an Air Force photo technician, who claimed that in 1965, when on loan to NASA's lunar orbiter project, a colleague said "in a very distressed way" that "we've discovered a base on the back side of the moon," and proceeded to show photographs which "clearly" feature "a base which had geometric shapes … there were spherical buildings, there were very tall towers and things that looked somewhat like radar dishes." Similarly, Ken Johnston, a former NASA aerospace engineer, has alleged that NASA has detailed photos of a lunar NHI presence, and claimed he was fired after refusing to destroy this evidence, some of which he apparently personally retained (Verma, 2022a). Indeed, some of the claims made by Richard Hoagland, as mentioned in endnote 40 – such as there being ruins of buildings, huge dome-like objects made of glass, and stone towers – are seemingly based in part on evidence provided to him by Johnston.

[42] In terms of NASA astronauts, most have accounts of witnessing a UAP, at least technically speaking (i.e., phenomena that is unidentified and anomalous). More relevantly though, many have also expressed belief in, or at least openness to, an NHI explanation for UAP (e.g., as listed on The UFO Rabbit Hole, 2022). Perhaps most prominent is Edgar Mitchell, as noted in the main text, although in public he has sometimes denied that he has personally seen a UAP. However, according to Coulthart (2021), Mitchell told one of Coulthart's sources (one of Mitchell's "closest personal friends") that – in Coulthart's words – "every Apollo mission was followed out, observed while there, and followed back." Or consider Buzz Aldrin, who in an interview for Kiviat's (2014) admittedly sensationalistic and controversial documentary Aliens on the Moon, said of his Apollo mission, "I saw this illumination that was moving with respect to the stars. We were smart enough to not say "Houston there's a light out there that's following us." So technically, it becomes an unidentified flying object." Perhaps the most vivid and unusual response among the Apollo astronauts to the NHI question came from Apollo 15 command module pilot Al Worden, who on a British TV program in 2017 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, 2022c). His voice can therefore be added to others, discussed in endnote 28, who have similarly advocated for an extraterrestrial origin for human beings.

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