



# Scientific Rebuttals to ‘Ancient Aliens’ as Popular Alternatives to Biblical History

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**Abstract:** Just as Christian apologists need to rebut the ‘alternative’ historical claims of *The Book of Mormon*, so they need to rebut claims about so-called ‘ancient aliens’. These claims offer people with a secular worldview historical counter-narratives to biblical history that draw upon the scientific respectability of astrobiology and the search for extra-terrestrial intelligence (SETI). Rather than interacting with the specifics of ‘ancient alien’ narratives on a case-by-case basis, I argue that ‘ancient alien’ theories are intrinsically *convoluted* and highly *ad hoc*, and that multiple essential facets of such theories are *disconfirmed by scientific evidence*. Not only do we lack convincing evidence that extra-terrestrial intelligences have visited Earth, but SETI has provided observational evidence that suggests technologically advanced aliens simply don’t exist, at least in our cosmic neighborhood. In sum, when it comes to ‘ancient aliens’, it’s those who believe in ‘ancient aliens’, not Christians, who are swimming against the scientific evidence.

**Keywords:** Ancient Aliens, Biblical History, Extra-Terrestrial Intelligences, SETI

Christian apologetics should devote some attention to rebutting ‘alternative’ historical claims, whether those claims are contained in, for example, *The Book of Mormon*<sup>1</sup>, or in the many books and television ‘documentaries’ that make claims about so-called ‘ancient aliens’. Claims about ‘ancient aliens’ offer a counter-narrative to the biblical understanding of various historical and/or pre-historical events and figures, including the origins of humanity, the biblical prophets and the reality of the incarnation. These controverted subjects all feature

within the apologetic fields of ‘natural theology’ or ‘ramified natural theology’ (see my paper on ‘Science and Natural Theology in Contemporary Apologetic Context’ earlier in this edition of *Theofilos*).

Proponents of ‘ancient aliens’ see the contradiction between their alien related beliefs and Christianity as a reason to doubt Christianity and thus Christian ramified natural theology. A legitimate but lengthy response to this doubt would be to offer a sufficiently robust positive apologetic for Christianity. This paper

offers another legitimate, and more direct, response by critiquing the core tenants of ‘ancient alien’ beliefs, *principally on the basis of scientific evidence*.

At a methodological level, this paper can be viewed as a case study in addressing anti-Christian claims in contemporary popular culture by drawing upon data from culturally esteemed sources of evidence that constitute common ground between Christians and non-Christians (indeed, to avoid any appearance of bias, I will quote principally from *secular* sources). Rather than engaging with the specifics of the many different ‘ancient alien’ beliefs in contemporary culture, this paper focuses upon using evidence from multiple scientific fields (including physics, psychology, origin of life studies, astrobiology and the search for extra-terrestrial intelligence) to critique the key propositions that a) intelligent extra-terrestrials exist and that b) they have visited planet earth.

### Ancient Aliens in Contemporary Culture

Narratives about alien visitors to Earth are given credence by the intellectually superficial bent of contemporary popular culture. As John A. Keel comments:

The E.T. [Extra-Terrestrial] premise has been promoted by the movies and by the UFO buffs so tenaciously the average person in the street now sort of accepts it, because they haven’t given much thought to it. They don’t realise how much of it is based upon wishful thinking and faulty logic. They have seen the movies or they have heard the UFO buffs on the radio or the TV and they say, ‘Well, that make sense, we’re being visited by aliens.’<sup>2</sup>

Such beliefs combine a superficial respect for science *per se* with ignorance of the

relevant scientific data. Historical claims about ancient aliens get packaged into entertainment driven TV ‘documentaries’ and shared as YouTube videos that spread through our social media environment like the common cold among H.G. Well’s ill-prepared Martian invaders.<sup>3</sup>

Journalist Fiona Macdonald defines ‘fake news’ as ‘news from dubious sources, advertising content, or stories that are just totally made up – but which still go viral on Facebook and Twitter.’<sup>4</sup> As an example of ‘fake news’, consider a July 2017 article from the website of well-known British national newspaper *The Sun*:

LITTLE GREEN AMEN. Does this painting prove ALIENS were present at the Crucifixion of Jesus? Probably not . . . but that’s what UFO watchers are claiming. The painting appears to show ‘crafts’ . . . but they might just represent guardian angels.<sup>5</sup>



Illustration: *The Crucifixion of Christ* fresco, by unknown artist, Svetitskhoveli Cathedral in Georgia.<sup>6</sup>

Whilst stating that ‘art historians who have studied the 11th century piece say the weird dome-shaped “crafts” [sic] represent guardian angels,’ the *Sun* article contrasts this opinion with that of the website *TheAncientAliens.com* as *if they were on a par*: ‘The unknown artist seems to be telling us that these flying saucers were present during the death of Jesus.’<sup>7</sup>

According to the *TheAncientAliens.com* website, from which the *Sun* article is clearly cribbed:

Art historians explain these to be representational of angels watching the event. However, angels were depicted with wings, and halos in Byzantine art of this time, as were all divine entities. We can see in this same painting that Jesus, Mary and John have halos. Others speculate these represent the sun and the moon. However, the sun and moon as personas was not accepted by christianity [sic]. The two objects were not given identities or deity status by the church as was the practice in Sumerian, Egypt and China.<sup>8</sup>

These comments reveal a startling ignorance of Christian theology and art (neither of which would portray Mary, John or angels as ‘divine’). As a matter of fact, I haven’t been able to find *any* art historian who thinks the objects in the Svetitskhoveli Cathedral crucifixion fresco are meant to be angels. Moreover, that an artist personifies the sun and moon doesn’t entail attributing literal ‘personas’ to them, still less ‘deity status’! According to Nigel Watson, author of the *UFO Investigations Manual*:

There are numerous examples of what to our modern eyes look like astronauts and spaceships in ancient and religious artworks. What we have to understand that artists

in the past did not adhere to literal representations of things and often used symbolism to tell a story to give greater meaning to the picture. In this crucifixion of Christ the UFOs are representations of light (life) and darkness (death). Many artists painted the Sun and Moon, faces or angels to present these symbolic elements. Basically, there are no aliens to see here.<sup>9</sup>

As Italian art historian Diego Cuoghi reports: ‘most of the crucifixions done in the Byzantine style show the same “objects” on either side of the cross. They are the Sun and the Moon, often represented with a human face or figure.’<sup>10</sup> Cuoghi points out that those who consider such symbolic elements as representations of alien spacecraft:

assume that the artist, e.g. an Italian artist of the 15th century or an anonymous Byzantine painter, would actually be allowed to insert any non-canonical or un-codified element into a religious representation. On the contrary, in past times the commissioners (those who choose the subject and supervised the execution of the art work – in these cases the religious institutions) would have never allowed the author to insert into a work of art anything other than what [they] previously decided, especially in case of religious subjects.<sup>11</sup>

In short, this ‘ancient aliens’ story is fake news disguised with the form, but not the substance, of journalistic balance. Indeed, the superficially balanced opinions presented by the article appear to have both been drawn from one and the same unreliable source!

### **A Brief History of Ancient Aliens and Modern Religion**

As theologian David Wilkinson observes:

'The link between extraterrestrial intelligence and a religious quest has had a significant time in the last hundred years, with various new religious movements built on the mythology of aliens.'<sup>12</sup>

Science fiction author L. Ron Hubbard (1911-1986) founded the Church of Scientology in 1952, blending the 'ancient aliens' hypothesis with his 'Dianetics' system of 'auditing':

Auditing purports to identify spiritual distress from a person's current life and from past lives. Scientologists believe each person is an immortal being, a force that believers call a thetan. 'You move up the bridge to freedom by working toward being an "Operating Thetan," which at the highest level transcends material law,' says David Bromley, a professor of religious studies at Virginia Commonwealth University. 'You occasionally come across people in Scientology who say they can change the material world with their mind.' Bromley and other scholars say the church promotes the idea of an ancient intergalactic civilization in which millions of beings were destroyed and became what are known as 'body thetans,' which continue to latch onto humans and cause more trauma . . . 'It's part therapy, part religion, part UFO group,' says Bromley.<sup>13</sup>

In the mid 1950's, George King claimed to have been contacted by an alien named Aetherius and founded The Aetherius Society to promote the belief that Jesus was an alien. According to Mark Bennett, a contemporary member of The Aetherius Society:

it makes much more sense [to many people] to say that Jesus was an interplanetary being who came to Earth to help mankind, than to say

that God created a one and only son, who was also himself at a random point in history, who came to come to earth and forgive people their sins for some reason we don't really know.<sup>14</sup>

Alternatively (and accommodating the existence of two independent historical birth accounts for Jesus<sup>15</sup>), it might be suggested that aliens 'implanted' Jesus into Mary's womb.<sup>16</sup>

Swiss UFO religion leader 'Billy' Eduard Albert Meier, who began publishing UFO photographs in the 1970's:

claims to be the seventh incarnation of the 'prophet' connecting Earth to the Plejaren [aliens]. The first incarnation was Henoah around 11,000 years ago followed by Elijah around 2,800 years ago, then Isiah, Jeremiah, and [Jesus Christ] around 2,000 years ago, and then Mohammed around 1,400 years ago.<sup>17</sup>

The Raëlian religion, founded by Claude Vorlignon (a.k.a. Raël), claims humans were created 25,000 years ago by aliens using genetic engineering, and that genetic engineering holds the key to eternal life. Vorlignon claims aliens visited him in 1973 and commissioned him to prepare humans for the second coming of their extraterrestrial creators by teaching a message of sexual freedom and eternal life through science:

According to Raël, all life on Earth was created by the Elohim, the same aliens who visited Vermillion. The Elohim have been appearing to humans for millennia, usually in the guise of angels or gods, passing on their message to humanity through human figures like Buddha and Jesus . . .<sup>18</sup>

(Raëlianism illustrates the logical gap between Intelligent Design Theory within

the biological realm and design-based argumentation within natural theology.<sup>19)</sup>

In his 1970 book *Chariots of the Gods?*, Erich von Däniken<sup>20</sup> followed the Reverend John Miller<sup>21</sup> in misinterpreting a vision of the prophet Ezekiel as an encounter with alien machinery; an oft-debunked theory that nevertheless continues to circulate.<sup>22</sup> To someone lacking background knowledge of ancient Jewish literature, such an interpretation has a superficially ‘scientific’ appeal, as Christian philosopher William Lane Craig testifies:

When I was in high school as a non-Christian young man I was really quite into UFOs and read a lot of the literature . . . I remember seeing one article in a popular science magazine in which it claimed that Ezekiel’s vision was of extra-terrestrial beings in [a] sort of hovercraft and wearing helmets and things of this sort that he described in his primitive way as having the face of an ox and the face of an eagle and things of that sort. To me as a young high school teenager at the time it seemed very convincing . . . But as you become a little more sophisticated and understand Jewish apocalyptic literature and symbolism I think it makes it highly, highly unlikely that this was what Ezekiel was seeing; that this was in fact a typical sort of Jewish apocalyptic vision that he described . . .<sup>23</sup>

Recently, the popular TV series *Ancient Aliens*<sup>24</sup> ‘purports to be an actual, independent, serious documentary series exploring the ancient astronaut theory [and] pays lip service to being “scientific”.’<sup>25</sup> In reality, *Ancient Aliens* offers up a mixture of ‘claims unsupported by evidence, leading questions [and] random facts marshalled with circular logic into

self-referential “theories”.’<sup>26</sup> Science writer Andrew May explains that *Ancient Aliens* connects the idea of aliens ‘to a whole range of myths, legends, structures and artefacts that already have perfectly adequate explanations in terms of the cultures they originated in . . .’<sup>27</sup> As Vernon Macdonald observes: ‘Every Ancient Aliens episode, whether dealing with ancient civilizations, artifacts or legends is always made up of some noxious combination of willful deception, wild speculation, and at times just plain stupidity.’<sup>28</sup>

### Popular Belief in Extra-Terrestrial Intelligences

The impulse to re-interpret religion by invoking extra-terrestrial intelligences (ETI’s) gains a superficial legitimacy from the fact that speculation about alien life (including intelligent aliens) is a scientifically respectable past-time known as astrobiology. Since the early 1960’s, astrobiology has included the empirical research of the Search for Extra-Terrestrial Intelligence (SETI).<sup>29</sup>

Many people agree with atheist Richard Dawkins that ‘there probably is intelligent life elsewhere in the Universe.’<sup>30</sup> A 2017 survey conducted in 24 countries showed that 47 percent of 26,000 respondents believed:

in the existence of intelligent alien civilizations in the universe . . . Russians were the biggest believers — with whopping 68 percent saying they think intelligent alien life exists, trailed closely by Mexicans and Chinese respondents. The Netherlands ranked as the most skeptical of life beyond Earth, with only 28 percent of Dutch survey-takers entertaining in the possibility, according to the findings.<sup>31</sup>

According to recent polling:

More than one in two people in the UK, Germany and the US believe there is intelligent life out there in the universe. The next time the subject comes up at the dinner table and you hear sniggers when someone admits they believe in aliens, it is worth remembering that it is not a fringe belief to think there is intelligent life out there – it is the mainstream viewpoint across the western world.<sup>32</sup>

In 2017, a survey of 1700 Americans reported that 47% of those surveyed said they believe in aliens, while 39% said *they believe aliens have visited Earth before* and 18% said they believed in alien abduction.<sup>33</sup> According to a 2018 Cambridge University study, 8% of UK adults believe the government has covered up contact with aliens.<sup>34</sup>

Given this cultural background, even if they don't believe the sort of 'aliens explain away the supposedly supernatural elements of the Bible' theories advanced by the likes of von Däniken, many will think that since alien conspiracy theories have at least one foot in 'scientific reality', they are *at least no less plausible* than traditional, supernatural explanations of the same data. This viewpoint is expressed by journalist David Clarke:

If someone visits a church or mosque to worship we tend to treat their faith with respect. But if they visit a hilltop to charge a prayer battery on the orders of Master Artherius we write them off as 'crackpot' or 'UFO nut'. I could not see why the beliefs of those who claim that flying saucers bring messages from the gods should be regarded as any less genuinely held, or unbelievable, than the tenets of any other religion.<sup>35</sup>

Christian apologists shouldn't argue that

the Artherians' beliefs are less 'genuinely held' than are Christian beliefs, but they should argue that they are more 'unbelievable' than Christian beliefs.

An instructive example of the need for Christian apologetics to engage with this issue comes from a question posed by an audience member after a talk on the resurrection by William Lane Craig:

I do find . . . the hypothesis that Jesus Christ was taken up into heaven by aliens to be as plausible as the resurrection. You know, I think one of them is absurd, but so's the other one, so what makes one more plausible than the other?<sup>36</sup>

As Craig replied, in contrast to the resurrection hypothesis<sup>37</sup>, the ancient alien hypothesis is:

*ad hoc* and . . . implausible . . . In fact . . . given the religio-historical context of Jesus' life and teachings, the hypothesis that the God of Israel raised Jesus from the dead fits like a hand in a glove, whereas the alien abduction hypothesis is . . . completely *ad hoc* and out of left field and doesn't do anything to illuminate the religio-historical context. And I think this is especially true if, as I say, you have independent reasons to believe in the existence of God . . . so that we've already got the existence of a supernatural being in place when we come to the evidence for the resurrection. [That] would be analogous [to,] if before we came to the evidence for the resurrection, you already had good evidence that there are these extra-terrestrial aliens who've come to earth . . . That would make [the alien hypothesis] more plausible, if there were some evidence for that, but there just isn't; so I think the God hypothesis is much more plausible than that.<sup>38</sup>



## The Drake Equation

Speaking scientifically, the existence of extra-terrestrial life *of any kind* remains an open question;<sup>39</sup> let alone the existence of *intelligent* alien life with the  *motive, means* and  *opportunity* to participate in a religious conspiracy on planet Earth! Contrary to popular opinion, ‘Of the search for  *intelligent* life in particular, many scientists are skeptical.’<sup>40</sup>

The so-called ‘Drake Equation’, devised by American astronomer and astrophysicist Frank Drake, which is a ‘formula designed to provide a rough numerical estimate of an unknown quantity’<sup>41</sup>, suggests that the number of detectable alien civilizations (N) can be estimated by multiplying:

- the rate of formation of stars suitable for life ( $R^*$ )
- the fraction of those with planets ( $f_p$ )
- the number of those planets that are suitable for life ( $n_e$ )
- the fraction of these planets where life actually evolves ( $f_l$ )
- the fraction of these on which intelligent life evolves ( $f_i$ )
- the fraction of these that develop civilizations that produce detectable signs of their existence ( $f_c$ )
- the length of time in which such civilizations will produce detectable signs of their existence ( $L$ )

That is:

$$N = R^* \times f_p \times n_e \times f_l \times f_i \times f_c \times L$$

According to Andrew May: ‘The first factor in the Drake equation . . . is the only one that’s reasonably well established . . .

The other factors are subject to debate . . .’<sup>42</sup> Hence the value of N derived from this equation tends to owe more to the philosophical assumptions underlying the values assigned to its component parts than to scientific evidence. For materialists, the value of N principally hinges upon whether or not the evolution of sentient life by purely natural processes is a likely occurrence (i.e. upon the value of  $f_l \times f_i$ ), for even many naturalists argue that (barring intelligent intervention of some kind) both the origin and subsequent macro-evolution of life (whether on Earth or elsewhere) are ‘non-trivial’ contingencies that cannot be taken for granted.<sup>43</sup>

The pre-conditions for eukaryotic plant and animal life aren’t as simple as the ‘star plus rock plus water’ formula popularized by media reports about the discovery of extra-solar planets! According to astrobiologist Lewis Dartnell: ‘complex animal life . . . may only be possible around Sun-like stars, on very Earth-like planets with plate tectonics, oceans of water, continental land, a thick oxygen-rich atmosphere and large moon.’<sup>44</sup> Currently, despite the discovery of ‘more than 4,000 exoplanets’,<sup>45</sup> no such planet is known besides our own. Peter Schenkel’s observation continues to hold true: ‘none of the detected planets around other stars comes close to having conditions apt . . . for the development of even the most primitive forms of life, not to speak of more complex species.’<sup>46</sup>

As Harvard biologist Itai Yanai admits: ‘it is fair to say that all origins of life models suffer from astoundingly low probabilities of actually occurring.’<sup>47</sup> Atheist philosopher Thomas Nagel takes Richard Dawkins to task over the origin of life:

Dawkins . . . says that there are . . . a billion billion planets in the universe with life-friendly physical and chemical environments like ours. So all we have to suppose [to account for the origin of life on Earth] is that the probability of something like DNA forming . . . is not much less than one in a billion billion . . . [However] no one has a theory that would support anything remotely near such a high probability . . . at this point the origin of life remains, in light of what is known about the huge size, the extreme specificity, and the exquisite functional precision of the genetic material, a mystery . . .<sup>48</sup>

Eugene V. Koonin (Senior Investigator at the National Center for Biotechnology Information in Bethesda, USA) calculates that: ‘in a finite universe . . . the emergence of a coupled replication-translation system is unlikely to the extent of being, effectively, impossible.’<sup>49</sup> (To avoid the implication of design, Koonin turns to the *ad hoc* and un-parsimonious hypothesis of a multiverse.<sup>50</sup>) Likewise, cosmologist and astrobiologist Paul Davies concludes:

we are probably the only intelligent beings in the observable universe, and I would not be very surprised if the solar system contains the only life in the observable universe. I arrive at this dismal conclusion because I see so many contingent features involved in the origin and evolution of life . . .<sup>51</sup>

According to a 2018 analysis by physicists Anders Sandberg, Eric Drexler and Toby Ord, of the Future of Humanity Institute at Oxford University:

existing calculations for the probability of extra-terrestrial intelligent life . . . rest on uncertainties and assumptions that lead to outcomes containing margins for error span-

ning ‘multiple orders of magnitude’. Constraining these, as much as possible, by factoring in models of plausible chemical and genetic mechanisms, results, they conclude, in the finding ‘that there is a substantial probability that we are alone’.<sup>52</sup>

The co-authors highlight:

critical questions regarding the emergence of life from non-living material – a process known as abiogenesis – and the subsequent likelihoods of early RNA-like life evolving into more adaptive DNA-like life. Then there is the essential matter of that primitive DNA-like life undergoing the sort of evolutionary symbiotic development that occurred on Earth, when a relationship between two different types of simple organisms resulted in the complex ‘eukaryotic’ cells that constitute every species on the planet more complicated than bacteria.<sup>53</sup>

They conclude: ‘When we take account of realistic uncertainty, replacing point estimates [in the Drake Equation] by probability distributions that reflect current scientific understanding, we find no reason to be highly confident that the galaxy (or observable universe) contains other civilizations.’<sup>54</sup>

### Preconditions of Science

It’s one thing for intelligent aliens to exist, another for them to develop sophisticated technology. As botanist William C. Burger observes: ‘Whether here on planet Earth or elsewhere in the universe, the assumption that since science happened once, science ought to happen often is wishful thinking.’<sup>55</sup> As biologist Michael Denton explains

the march of technological advance from the Stone Age . . . was only



possible because of what would appear to be an outrageously fortuitous set of environmental conditions, without which, despite our genius . . . no advance beyond the most primitive stone tools would have been possible.<sup>56</sup>

According to Denton:

There is . . . every justification for viewing our planetary home with its oxygen-containing atmosphere, large land masses covered in trees, with its readily available and well scattered metal-bearing rocks as an ideal and perhaps unique environment for the use of fire and the development of metallurgy and ultimately the emergence of a technologically advanced complex society . . .<sup>57</sup>

Second, consider the fact that ‘The scientific perspective flowered in Europe as an outworking of medieval biblical theology.’<sup>58</sup> As Paul Davies comments:

It was from the intellectual ferment brought about by the merging of Greek philosophy and Judeo-Islamic-Christian thought that modern science emerged, with its unidirectional linear time, its insistence on nature’s rationality, and its emphasis on mathematical principles . . . [Today] even the most atheistic scientist accepts as an act of faith that the universe is not absurd, that there is a rational basis to physical existence manifested as a lawlike order in nature that is at least in part comprehensible to us.<sup>59</sup>

Historian of science James Hannam confirms that ‘the metaphysical background to Christianity turned out to be uniquely conducive to successfully understanding the working of nature . . . Christianity was a necessary, if not sufficient, cause of the flowering of modern science.’<sup>60</sup>

Furthermore, it was Christian belief in

the incarnation that elevated ‘the dignity of matter and of manual work . . . Modern science was possible only when investigators became willing to dirty their hands in workshops and laboratories, and only when they began to see all material things, which have been created by God, as good in themselves.’<sup>61</sup> In sum:

The origin of modern science and technology depend on a precise configuration of economic, cultural, philosophical, and theological precursors, and an unusually long-lasting and stable warm climate. Technology requires dexterity and a level of capacity to communicate that, of millions of known species of life, only humans possess. It also requires access to an oxygen-rich atmosphere, dry land, and concentrated ores. The laws of physics did not uniquely determine any of these. Until these factors came together, no civilization developed technology advanced enough to harness radio communication. And even on Earth, this has happened only once. What justification do we have for assuming that it’s an inevitable result of life, even intelligent life, everywhere?<sup>62</sup>

Hence, as astrophysicist John Gribbin concludes: ‘the kind of intelligent, technological civilization that has emerged on Earth may be unique, at least in our Milky Way Galaxy.’<sup>63</sup> It would certainly seem that the burden of proof is on the ancient alien theorist.

### Close Encounters?

Reports about alien space-craft, visitations and abductions (whether ancient or modern) fail to meet that burden of proof. As Stephen Hawking comments: ‘I discount suggestions that UFOs contain beings from outer space, as I think that any visits by aliens would be much more

obvious – and probably also much more unpleasant.<sup>64</sup> Such UFO reports as we have are generally susceptible to mundane explanations.<sup>65</sup> Upon investigation, the vast majority of Unidentified Flying Objects (UFOs) become Identified Flying Objects of a non-alien nature. That some UFOs remain *unidentified* is, like the existence of unsolved crimes, hardly supportive of the hypothesis that ETI’s exist.

Physicist Stephen Webb notes that ‘the percentage of “inexplicable” UFOs does not vary much within the overall number of sightings . . . whether it is a busy year or a quiet year for UFO sightings, the IFO/UFO ratio is about the same’<sup>66</sup>, which, he argues, is ‘not at all what one would expect if the “inexplicable” UFO sightings represent alien craft.’<sup>67</sup> On the basis of this data, Robert Sheaffer concludes: ‘the apparently unexplainable residue is due to the essentially random nature of gross misperception and misreporting.’<sup>68</sup>

Astronomer Seth Shostak notes:

Our technology for documenting alien spacecraft . . . is substantially better than even a few decades ago . . . fabulous cameras are in the hands of nearly two billion smartphone users world-wide. And yet the UFO photos are as blurry and muddy as ever. You’d think at least a few people could make snaps that aren’t ambiguous or hoaxed. And I haven’t mentioned the surveillance provided by the 1,100 active satellites in orbit above our heads.<sup>69</sup>

In the judgement of psychologist Susan A. Clancy:

alien-abduction memories are best understood as resulting from a blend of fantasy-proneness, memory distortion, culturally available scripts, sleep hallucinations, and scientific illiteracy, aided and abet-

ted by the suggestions and reinforcement of hypnotherapy.<sup>70</sup>

The hypothesis that alien abduction experiences are delusional is supported by several recorded cases in which people have reported ‘full-blown abduction experiences whilst other witnesses could see that the individual in question had not physically gone anywhere. Instead, they appear to have either lost consciousness or to be in a trance state’.<sup>71</sup>

In sum: ‘The field of UFOlogy has failed to produce one concrete example of an alien visitation . . . the burden of proof remains squarely on the UFOlogists.’<sup>72</sup>

### **An Accumulating Evidence of Absent Aliens**

As far as we know, the only body in space to host life, or to have hosted life, is planet earth. As Andrew May observes: ‘despite the thousands of exoplanets we’ve discovered over the last couple of decades, we’ve yet to find conclusive evidence of life on any of them.’<sup>73</sup>

Mars may have been a habitable world with a global ocean for several billion years up until around four billion years ago;<sup>74</sup> but even supposing it were to be discovered that (most plausibly, microbial) life once existed (or even that life currently exists) on Mars,<sup>75</sup> it may well have originated on Earth and have been transferred there on rocks from impact events, or vice versa, in which case it wouldn’t be truly *alien* life.<sup>76</sup>

In the summer of 2020 a well-publicized paper in *Nature Astronomy* reported the claimed detection of phosphine gas in the atmosphere of Venus, gas that *may* be a biosignature (that is, an indicator of life). On the one hand, phosphine gas isn’t a clear biosignature: ‘Since the 1980s, scientists have theorised that phosphine is created by microbes in oxy-

gen-free environments, like sewage sludge, but it is not a widely-accepted signature of life.<sup>77</sup> According to Paul Byrne, Associate Professor of Planetary Science at North Carolina State University: ‘If phosphine is confirmed beyond doubt to be present at Venus, it’s very unlikely to be biotic in origin.’<sup>78</sup> On the other hand, subsequent analysis cast serious doubt on the claim that phosphine had been detected in the first place, at least at any significant level.<sup>79</sup>

Paul Davies notes that ‘we can be pretty sure that there are zero prospects for intelligent life arising on any other planet in the solar system.’<sup>80</sup> Since the early 1960’s, scientists have been searching for intelligent extraterrestrials beyond our solar system. Over a half century of this ‘search for extra-terrestrial intelligence’ (SETI) – ‘mainly in the radio, but occasionally in the infrared and increasingly in the visible’<sup>81</sup> – has thus far produced a null result, despite rapid technological improvements in the field.<sup>82</sup> Historian of science George Basalla reports that ‘Many SETI supporters expected extraterrestrial contact well before the coming of the millennium.’<sup>83</sup> Consequently, as Stephen Webb observes: ‘the continuing silence, despite intensive searches, is beginning to worry even some of the most enthusiastic proponents of SETI.’<sup>84</sup>

Philosopher David Lamb argues:

Generous estimates of the number of planets with intelligent communicative life suffered a serious setback in 1992 following the completion of a radio search conducted by D.G. Blair . . . The search covered the neighbourhoods of 176 stars . . . within forty light years of the Earth. No signal was detected. The negative results weaken [the] assumption that technological intelligence will inevitably emerge

through enough time on an Earth-sized planet near a Sun-like star.<sup>85</sup>

Likewise, writing in a 2006 *Skeptical Inquirer* article, Peter Schenkel observed:

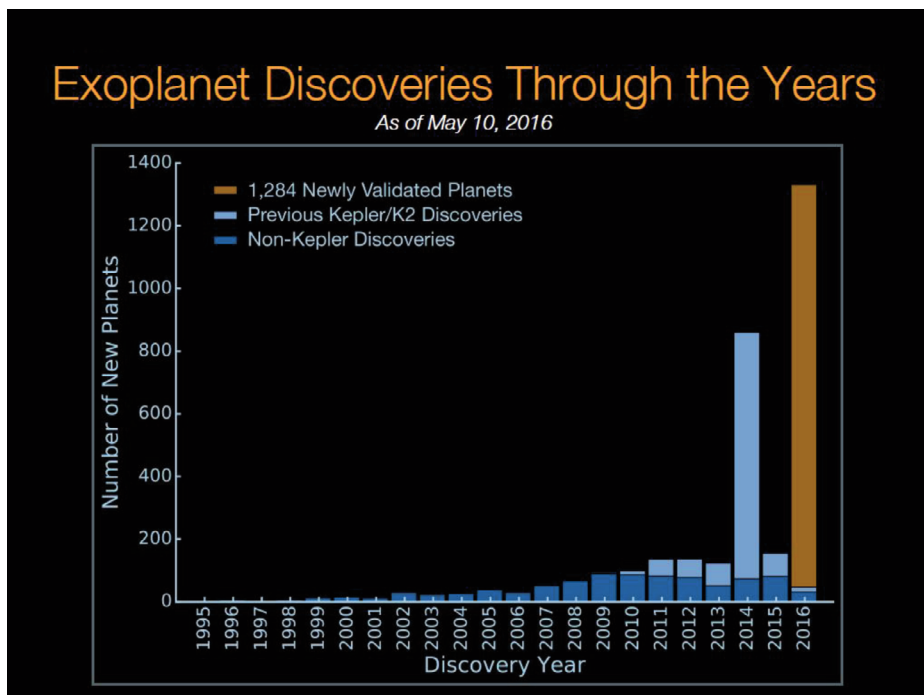
Since project OSMA I in 1959 by Frank Drake, about a hundred radio-magnetic and other searches were conducted in the U.S. and in other countries and a considerable part of our sky was scanned thoroughly and repeatedly, but it remained disappointingly silent . . . If a hundred searches were unsuccessful, it is fair to deduce that estimates of a million or many thousands ETI are unsustainable propositions.<sup>86</sup>

Of particular note: ‘Between 1995 and 2004, Project Phoenix used radio telescopes to look at hundreds of Sun-like stars within a couple of hundred light years of Earth without detecting any sign of alien civilization.’<sup>87</sup> Schenkel concludes that: ‘Earth may be more special, and intelligence much rarer, than previously thought.’<sup>88</sup>

More recent SETI projects, especially since the launch of the Kepler space telescope, have had the advantage of being guided by hard data about extra-solar planets.

Philosopher David R. Koepsell notes that there are about 500 [sun-like ‘G’ class] stars within a one-hundred light-year radius of us: ‘and so far, listening to them, we have heard nothing, although we have observed nearly 100 planets in that vicinity.’<sup>89</sup>

A recent targeted search of ‘86 Kepler Objects of Interest . . . hosting [164] planet candidates judged to be most amenable to the presence of Earth-like life’<sup>90</sup> looked for narrow band radio emissions but found ‘No signals of extraterrestrial



NASA

<https://commons.wikimedia.org/wiki/File:ExoplanetDiscoveries-Histogram-20160510.jpg>

origin . . . no evidence of advanced technology indicative of intelligent life’,<sup>91</sup> thus ‘placing limits on the presence of intelligent life in the galaxy . . .’<sup>92</sup>

In 2018 a paper by Jean-Luc Margot *et al* detailed the results of ‘A Search for Technosignatures from 14 Planetary Systems in the *Kepler* Field with the Green Bank Telescope at 1.15–1.73 GHz.’<sup>93</sup> Focusing on 14 planetary systems, 858,748 candidate narrowband radio signals were analysed from within c. 420 and c. 13000 light-years of Earth, producing a short-list of 19 candidate signals. However, ‘All of these candidates were observed in more than one direction on the sky, thereby ruling them out as extra-terrestrial signals.’<sup>94</sup>

In 2019, The Berkeley SETI Research Center ‘Breakthrough Listen’ project ‘completed a comprehensive scan of 1,372

nearby stars, but no evidence of aliens was detected over the course of the three-year survey.’<sup>95</sup> This search ‘involved an analysis of 1,372 stars out of a total sample pool of 1,702 stars, none of which are farther than 160 light-years away. The survey included a wider variety of star types than usual, including stars that aren’t similar to our Sun.’<sup>96</sup> Study co-author Andrew Siemion commented that: ‘These results will . . . lead us toward further analysis that will place yet more stringent limits on the distribution of technologically capable life in the universe. . .’<sup>97</sup>

In 2020, a paper Dr Chenoa Tremblay and Professor Steven Tingay, of the International Centre for Radio Astronomy Research, published in the *Publications of the Astronomical Society of Australia*, detailed how they ‘used the

Murchison Widefield Array (MWA) telescope to explore hundreds of times more broadly than any previous search for extraterrestrial life.<sup>98</sup> This ‘groundbreaking survey of over 10 million star systems’<sup>99</sup> observed the sky around the constellation of Vela (‘a region of space known to contain at least six exoplanets’<sup>100</sup>), ‘looking more than 100 times broader and deeper than ever before.’<sup>101</sup> The researchers reported that: ‘With this dataset we found no technosignatures - no sign of intelligent life.’<sup>102</sup>

In recent decades, several extensive searches for alien optical emissions have been conducted:

- In December 2000, a Harvard-Smithsonian SETI project reported that almost 20,000 observations of nearly 5,000 sun-like stars had ‘found no evidence for pulsed optical beacons from extraterrestrial civilizations.’<sup>103</sup>
- In a 2015 paper, University of California Berkeley astronomers Nathaniel K. Tellis and Geoffrey Marcy ‘present a search for laser emission coming from point sources in the vicinity of 2796 stars, including 1368 Kepler Objects of Interest (KOIs) that host one or more exoplanets’ and note: ‘We did not find any such laser emission coming from any of the 2796 target stars.’<sup>104</sup>
- In a 2017 paper, Tellis and Marcy report being unable to detect any optical signatures from advanced civilizations in over 67,000 individual spectra produced within the planetary regions of 5,600 stars in the Milky Way:

We searched high resolution spectra of 5600 nearby stars for emission lines that are both inconsistent with a natural origin and

unresolved spatially, as would be expected from extraterrestrial optical lasers . . . We found no such laser emission coming from the planetary region around any of the 5600 stars. As they contain roughly 2000 lukewarm, Earth-size planets, we rule out models of the Milky Way in which over 0.1% of warm, Earth-size planets harbor technological civilizations that, intentionally or not, are beaming optical lasers toward us.<sup>105</sup>

Astronomers have also searched at the galactic level for the energetic signatures of any civilizations using much of a galaxy’s starlight to satisfy their power requirements:

- In 1999 the *Journal of the British Interplanetary Society* reported the results of one such search, noting: ‘For a sample of 137 galaxies, no such outliers are found.’<sup>106</sup>
- In 2015 a Swedish study of 1359 spiral galaxies detected no signs of galactic scale civilization.<sup>107</sup>
- Also in 2015, another research group published the results of their extensive search for ‘the thermodynamic consequences of galactic-scale colonization.’<sup>108</sup> According to *Scientific American*: ‘After examining some 100,000 nearby large galaxies a team of researchers lead by The Pennsylvania State University astronomer Jason Wright has concluded that none of them contain any obvious signs of highly advanced technological civilizations.’<sup>109</sup>

This evidence isn’t evidence for the cosmic absence of technologically advanced alien life *per se* (the observable universe is a *very* big place to search); but it does disconfirm the hypothesis that technologically advanced alien civilizations

abound in or around our slice of space and time,<sup>110</sup> a conclusion that in turn disconfirms historical theories involving extraterrestrial visitors.

### The Fermi Paradox

The non-existence of technologically advanced ETI’s is the *simplest* answer to ‘the Fermi paradox – the contradiction between the apparent absence of aliens, and the common expectation that we should see evidence of their existence.’<sup>111</sup> William Borucki, principal investigator of NASA’s planet-hunting Kepler mission comments: ‘We have . . . no visits, no communications we’ve picked up . . . the evidence says, no one’s out there.’<sup>112</sup> Observing that ‘we’ve seen no convincing evidence of other civilizations among the stars in our skies’, astrobiologist Lewis Dartnell concludes that technologically sophisticated intelligent life ‘may well be vanishingly rare in the Galaxy.’<sup>113</sup> Andrew Norton, Professor of Astrophysics at the Open University concurs that ‘intelligent, communicating life may well be extremely rare . . .’<sup>114</sup> David Wilkinson concludes:

The Fermi paradox seems to indicate that the Galaxy is not teeming with alien civilizations . . . we are either currently alone as an intelligent civilization in our Galaxy or . . . civilizations are relatively few and quite late developers in the history of the Milky Way. This would receive support from those biologists who stress the unlikely evolution of intelligent life on other worlds.<sup>115</sup>

### Space is Very Big

To quote Andrew May: ‘As far as we know, the universe isn’t literally “infinite”, but it’s very big.’<sup>116</sup> Even if technologically sophisticated ETI’s exist, they probably lack the means of visiting us.

Richard Dawkins reckons that intelligent life ‘is probably extremely rare and isolated on far-flung islands of life, like a celestial Polynesia’ and consequently concludes that ‘Visitations to one island by another are hugely more likely to be in the form of radio waves than visitations by corporeal beings.’<sup>117</sup> Indeed, our *closest* extra-solar star (Proxima Centauri<sup>118</sup>) is 4.22 light years away!<sup>119</sup>

Dartnell comments that ‘The laws of physics . . . strongly constrain movement across the vast gulfs between stars.’<sup>120</sup> Although atheist physicist Lawrence M. Krauss finds it ‘hard to believe that we are alone’<sup>121</sup>, he calculates that ‘Energy expenditures beyond our current wildest dreams would be needed’<sup>122</sup> to facilitate interstellar travel and so concludes that ‘we probably don’t have to worry too much about being abducted by aliens.’<sup>123</sup>

What about interstellar travel using a so-called ‘warp’ drive (which hypothetically circumvents the light-speed limit by ‘warping’ space)? Krauss argues that the energetic requirements for such a drive are prohibitive:

The gravitational field near the surface of the Sun is miniscule in terms of the kind of gravitational effects required to perturb space-time [in the way required by a warp drive]. . . One way to estimate how much energy would have to be generated is to imagine producing a black hole of the size of the [fictional *Star Trek* ship] *Enterprise* – since certainly a black hole of this size would produce a gravitational field that could significantly bend any light beam that travelled near it . . . it would take more than the total energy produced by the Sun during its entire lifetime to generate such a black hole.<sup>124</sup>

What about interstellar travel via a so-called ‘wormhole’? In 2016 Ping Gao and



Daniel Jafferis of Harvard University and Aron Wall of Stanford University described how ‘a new species of traversable wormhole’<sup>125</sup> could *theoretically* result from the quantum coupling of two black holes linked by Hawking radiation, such that ‘something tossed into one will shimmy along the wormhole and, following certain events in the outside universe, exit the second [albeit as Hawking radiation!].’<sup>126</sup> Whilst the authors note that quantum coupling ‘allows information to be recovered from black holes’, they also note it means that ‘the wormhole doesn’t offer any superluminal boost . . .’<sup>127</sup>. Professor Robert Matthews comments:

calculations based on the wormhole types studied so far suggest that using them would actually be slower than simply travelling directly through space . . . The laws of nature seem to insist that wormholes can either perform amazing feats but collapse in an instant, or be traversable but useless.<sup>128</sup>

Krauss cautions: ‘My understanding of wormholes is that we have no idea how to make them stable and traversable without exotic unknown forms of energy, so any discussion of traversable wormholes as realistic travel devices is highly speculative at best.’<sup>129</sup>

Nobel Prize winning theoretical physicist Kip Thorne muses that ‘If a wormhole can be held open, the precise details of *how* remain a mystery’,<sup>130</sup> and states: ‘I doubt the laws of physics permit traversable wormholes . . .’<sup>131</sup> He concludes: ‘there are very strong indications that wormholes that a human could travel through are forbidden by the laws of physics . . .’<sup>132</sup>

Wormholes remain purely ‘hypothetical constructs’.<sup>133</sup> According to Dr Eric Christian and Dr Louis Barbier:

Wormholes are allowed to exist in the math of ‘General Relativity’ . . . [So, if] general relativity is correct, there may be wormholes. But no one has any idea how they would be created, and there is no evidence for anything like a wormhole in the observed Universe.<sup>134</sup>

Krauss concludes: ‘physics cannot give us what we need to roam the galaxy.’<sup>135</sup> Once again, a substantial burden of proof falls upon anyone claiming aliens have visited Earth.

### Space is Very Dangerous

Colliding with even very small objects can be hazardous in space, and this problem gets worse the faster one goes. At twenty percent of light-speed ‘even individual atoms can damage the vehicle, and a collision with a bit of dust could be catastrophic.’<sup>136</sup>

Exposure to cosmic radiation increases the risk of fatal health problems in humans, and would plausibly be detrimental to any space-faring organic life-form:

A recent study of the 24 astronauts who left Earth’s low orbit on Nasa’s Apollo missions in the 60s and 70s showed that they were five times more likely to die of heart disease than the astronauts who didn’t enter deep space – a result scientists think may have been caused by excessive radiation exposure. Astronauts on missions at the [International Space Station] are shielded from too much radiation by Earth’s atmosphere and magnetic field. But on a trip to Mars, humans would be exposed to radiation from the sun and from high-energy particles called galactic cosmic rays, which degrade DNA and drastically increase cancer risk.<sup>137</sup>

The further one travels, the worse this problem becomes, as one's exposure increases; and while increasing one's speed may reduce the temporal *length* of one's exposure to these health risks, it creates its own set of catastrophic problems:

as spaceship velocities approach the speed of light, interstellar hydrogen H . . . turns into intense radiation that would quickly kill passengers and destroy electronic instrumentation. In addition, the energy loss of ionizing radiation passing through the ship's hull represents an increasing heat load that necessitates large expenditures of energy to cool the ship. Stopping or diverting this flux, either with material or electromagnetic shields, is a daunting problem. Going slow to avoid severe H irradiation sets an upper speed limit of  $v \sim 0.5 c$ . This velocity . . . would not substantially assist galaxy-scale voyages. Diffuse interstellar H atoms are the ultimate cosmic space mines and represent a formidable obstacle to interstellar travel.<sup>138</sup>

In short: 'there's a natural speed limit imposed by safe levels of radiation due to hydrogen, which means [biological beings] couldn't travel faster than half the speed of light unless they were willing to die almost immediately.'<sup>139</sup> Of course, aliens might avoid the physiological (and psychological) problems of space travel<sup>140</sup> by sending robots in their stead. However, that wouldn't negate the threat radiation poses for electronics, or the heat load it creates.

### Directed Panspermia?

To explain the existence of life on Earth, some scientists invoke the hypothesis of 'panspermia', the idea that 'life didn't begin on Earth, but elsewhere in the uni-

verse, and that it [or some ingredients thereof] was carried here on meteoroids and other space bodies.'<sup>141</sup> However, the further this organic material is supposed to travel, the less likely it is to make or survive the journey.<sup>142</sup> These problems are mitigated somewhat by the theory of 'directed panspermia', first proposed by Nobel laureate Francis Crick and origin-of-life researcher Leslie Orgel in an article published in *Icarus* (volume 19, 1973, 341-346).<sup>143</sup> Crick expanded upon the hypothesis in his book *Life Itself* (Simon & Schuster, 1981), suggesting that an advanced alien species sent one or more spacecraft to Earth with the intent of peppering it with the necessary life forms (or components of life) to generate a zoo of diverse species. However, even leaving aside the difficulties associated with transporting organic material through interstellar space, the hypothesis of 'directed panspermia' merely displaces the problem of abiogenesis without solving it.<sup>144</sup>

### Ad Hoc Aliens with Complex Schemes using Unlikely Hypothetical Technology?

Even if technologically sophisticated aliens existed in our cosmic neighborhood, and had the means to visit Earth, it's far from certain that they would do so. As Dartnell observes: 'humanity has only been detectably civilised [that is, broadcasting radio waves] for about a century . . .'<sup>145</sup> Andrew May notes that if aliens were simply looking for natural resources, they'd 'probably find it more cost-effective to pillage other parts of the Solar System instead. Rare elements would be far easier to extract from small asteroids than from the Earth, while water – if that's what they're after – is far more plentiful, in the form of ice, in the outer Solar System than it is on our own planet.'<sup>146</sup>

But suppose, for the sake of argument, that ETT's visited first century Israel. Might they have used hypothetical technology to fake Jesus' 'resurrection' and other miracles (and if so, why)? Might a 'matter transporter' *a la* Star Trek have been used to remove Jesus' corpse from the tomb so he could be brought back to life somehow (using 'science') before being 'beamed' into the upper room to surprise the disciples? This hypothesis is not only *ad hoc* and *complex* but, given the scientific problems facing such hypothetical technology, highly *unlikely*. Krauss explains:

building a transporter would require us to heat up matter to a temperature a million times the temperature at the centre of the Sun, expend more energy in a single machine than all of humanity presently uses, build telescopes larger than the size of the Earth . . . and avoid the laws of quantum mechanics.<sup>147</sup>

Hence, as Davies warns: 'Speculation about alien super-civilizations doing super-science and deploying super-technology is certainly great fun, but it needs to be tempered with a healthy skepticism.'<sup>148</sup>

### Conclusion

The scientific evidence strongly suggests that, at least on a naturalistic worldview, the odds are against the existence of extra-terrestrial life. Even if extra-terrestrial life does exist, it seems unlikely (again, at least on a naturalistic worldview) that it would develop into anything complex, let alone intelligent. And even if extra-terrestrial intelligences (ETT's) exist, it seems unlikely (again, at least on a

naturalistic worldview) that they'd be blessed with the ecological and cultural preconditions for the development of science and advanced technology.

Moreover, the scientific Search for Extra-Terrestrial Intelligence has provided observational evidence that suggests there are few if any technologically advanced ETT's in our cosmic neighborhood, and the non-existence of technologically advanced ETT's remains the simplest answer to 'the Fermi paradox'.

That said, even if some technologically advanced ETT's do exist in our cosmic neighborhood, there are significant psychological and physical barriers to interstellar travel, and even technologically advanced ETT's both willing and able to engage in interstellar travel wouldn't necessarily possess the motive, means and opportunity to visit Earth (especially in its pre-radio-signaling past). And even if they did, it seems unlikely that, for example, they'd both have and use the hypothetical technology required to convince a bunch of first century Jews that Jesus of Nazareth was the crucified-but-risen, miracle-working Son of Man. The compound improbability of any such sequence of events is prohibitive.

Theories about 'ancient aliens' being behind events of perceived religious significance are intrinsically *convoluted* (i.e. complex) and *ad hoc*, and have multiple essential facets that are strongly *disconfirmed* by scientific evidence available from secular sources. In sum, when it comes to 'ancient aliens', it's the conspiracy theorists and adherents of UFO religions, not Christians, who are swimming against the scientific evidence.

## Recommended Resources

### Watch:

William Lane Craig, 'Is the Resurrection Hypothesis Really As Absurd as the Alien Hypothesis?' <https://youtu.be/QW97epVeN7Y>

YouTube Playlist, 'Aliens & UFOs'

[www.youtube.com/playlist?list=PLQhh3qcwVEWiiXwhvDhbqSoO3qcIK7zu5](http://www.youtube.com/playlist?list=PLQhh3qcwVEWiiXwhvDhbqSoO3qcIK7zu5)

YouTube Playlist, 'The Origin of Life'

[www.youtube.com/playlist?list=PLQhh3qcwVEWggFeEP9H7k1Lycxfxzv0Sr](http://www.youtube.com/playlist?list=PLQhh3qcwVEWggFeEP9H7k1Lycxfxzv0Sr)

YouTube Playlist: 'The Rare Earth Hypothesis'

[www.youtube.com/playlist?list=PLQhh3qcwVEWiLU4H5kBr2JzSAzfllTRst](http://www.youtube.com/playlist?list=PLQhh3qcwVEWiLU4H5kBr2JzSAzfllTRst)

YouTube Playlist, 'Physical Preconditions of Science & Technology'

[www.youtube.com/playlist?list=PLQhh3qcwVEWiEbtcuD5f8bK0DHH31Lg6Y](http://www.youtube.com/playlist?list=PLQhh3qcwVEWiEbtcuD5f8bK0DHH31Lg6Y)

YouTube Playlist, 'The Theological Roots of Science'

[www.youtube.com/playlist?list=PLQhh3qcwVEWh3jDVYqFFzWSnTbtUeCg3](http://www.youtube.com/playlist?list=PLQhh3qcwVEWh3jDVYqFFzWSnTbtUeCg3)

### Listen:

Peter S. Williams, 'Ancient Aliens? Rebutting Alien Conspiracy Theories as Popular Alternatives to Biblical History' (ELF, 2020)

<http://podcast.peterswilliams.com/e/elf-2020-ancient-aliens-rebutting-alien-conspiracy-theories-as-popular-alternatives-to-biblical-history/>

Peter S. Williams, 'Scientific Rebuttals to Ancient Alien Conspiracy Theories as Popular Alternatives to Biblical History' (Veritas Symposium, 2018)

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Jason Colavito, Ancient Aliens: Unauthorized Reviews,

[www.jasoncolavito.com/ancient-aliens-reviews.html](http://www.jasoncolavito.com/ancient-aliens-reviews.html)

Jon Coumes, 'Ancient Aliens is Everything That's Wrong With America'

[www.theawl.com/2017/09/ancient-aliens-is-everything-thats-wrong-with-america/](http://www.theawl.com/2017/09/ancient-aliens-is-everything-thats-wrong-with-america/)

William Lane Craig, 'UFOs'

[www.reasonablefaith.org/media/reasonable-faith-podcast/ufos/](http://www.reasonablefaith.org/media/reasonable-faith-podcast/ufos/)

Diego Cuoghi, 'The Art of Imagining UFOs'

[www.diegocuoghi.com/arte-ufo/SKEPTIC\\_CUOGHI\\_ARTUFO\\_complete.pdf](http://www.diegocuoghi.com/arte-ufo/SKEPTIC_CUOGHI_ARTUFO_complete.pdf)

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- George Bassala, *Civilized Life In The Universe: Scientists On Intelligent Extraterrestrials* (Oxford University Press, 2006)
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- David Clarke, *How UFOs Conquered The World: A History Of A Modern Myth* (Aurum Press, 2015)
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- John Gribbin, *Alone In The Universe: Why Our Planet Is Unique* (Wiley, 2011)
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- Peter C. Ward and Donald Brownlee, *Rare Earth: Why Complex Life is Uncommon in the Universe* (Springer, 2009)
- Stephen Webb, *Where Is Everybody? Fifty Solutions To The Fermi Paradox And The Problem Of Extraterrestrial Life* (Copernicus, 2010)
- David Wilkinson, *Science, Religion, And The Search For Extraterrestrial Intelligence* (Oxford, 2017)



## Notes

- <sup>1</sup> See: YouTube Playlist, 'Mormonism', [www.youtube.com/playlist?list=PLQhh3qcwVEWjOn4gyNXipluUzVuNsJjJl](http://www.youtube.com/playlist?list=PLQhh3qcwVEWjOn4gyNXipluUzVuNsJjJl); Peter S. Williams, 'Mormonism – An Introductory Critique' <http://podcast.peterswilliams.com/?s=Mormonism>; James A. Beverley, *Mormon Crisis: Anatomy of A Failing Religion* (Burlington, Ontario: Castle Quay, 2013); Stan Larson, *Quest for the Gold Plates: Thomas Stuart Ferguson's Archaeological Search for The Book of Mormon* (Salt Lake City: Freethinker, 2004); Latayne C. Scott, *The Mormon Mirage: A Former Member Looks at the Mormon Church Today*, third edition (Grand Rapids, Michigan: Zondervan, 2009); Peter S. Williams, *Getting at Jesus: A Comprehensive Critique of Neo-Atheist Nonsense About the Jesus of History* (Eugene, Oregon: Wipf and Stock, 2019).
- <sup>2</sup> John Keel in David Clarke, *How UFOs Conquered The World: A History Of A Modern Myth* (London: Aurum Press, 2015), 243.
- <sup>3</sup> See: H.G. Wells, *The War of the Worlds* (London: Penguin, 2005).
- <sup>4</sup> Fiona Macdonald, 'Bad news: 80% of students can't tell the difference between real and fake news' [www.sciencealert.com/bad-news-study-finds-80-of-students-can-t-tell-the-difference-between-real-and-fake-news](http://www.sciencealert.com/bad-news-study-finds-80-of-students-can-t-tell-the-difference-between-real-and-fake-news).
- <sup>5</sup> Sara Kamouni, *The Sun* (13th July 2017) [www.thesun.co.uk/news/4014174/does-this-painting-prove-alien-were-present-at-the-crucifixion-of-jesus-probably-not-but-thats-what-ufo-watchers-are-claiming/](http://www.thesun.co.uk/news/4014174/does-this-painting-prove-alien-were-present-at-the-crucifixion-of-jesus-probably-not-but-thats-what-ufo-watchers-are-claiming/). See also: Sean Martin, 'Aliens were present at Crucifixion of Jesus – and here's the "proof"' *Express* (14<sup>th</sup> July, 2017) [www.express.co.uk/news/weird/828178/alien-jesus-christ-crucifixion-ufo](http://www.express.co.uk/news/weird/828178/alien-jesus-christ-crucifixion-ufo); Rob Waugh, 'Painting "proves aliens were present at Christ's crucifixion", UFO fans claim' *Metro* (17<sup>th</sup> July 2017) <https://metro.co.uk/2017/07/17/painting-proves-alien-were-present-at-christ-crucifixion-ufo-fans-claim-6784461/>.
- <sup>6</sup> Wikimedia commons, [https://commons.wikimedia.org/wiki/File:Svetitskhoveli\\_Crucifixion\\_fresco.jpg](https://commons.wikimedia.org/wiki/File:Svetitskhoveli_Crucifixion_fresco.jpg).
- <sup>7</sup> Kamouni, *The Sun*.
- <sup>8</sup> 'ALIENS IN ART: Crucifixion of Christ' [www.theancientaliens.com/alien-art---crucifixion-of-christ](http://www.theancientaliens.com/alien-art---crucifixion-of-christ).
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