

Book review

The Human Cosmos: A Secret History of the Stars, by Jo Marchant. Canongate Books Ltd, UK. 2020. 368 pages. ISBN-13: 978-1-78689-402-1. ISBN-10: 1-78689-402-5.

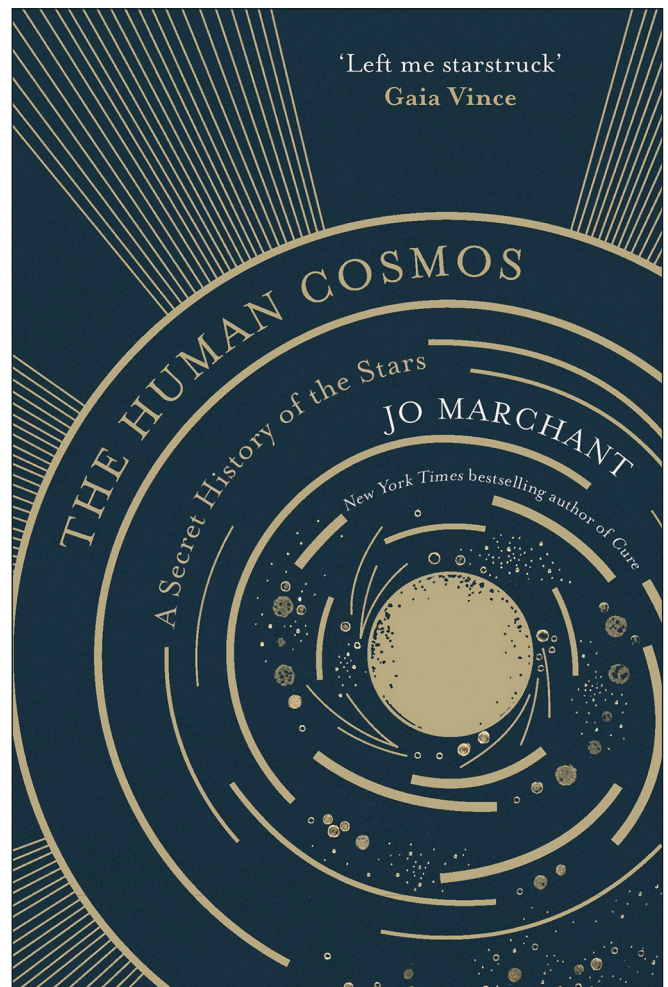
REVIEWED BY WILLIAM WORRAKER

Jo Marchant is an experienced and well-credentialed science journalist. She has a PhD in genetics and medical microbiology (St Bartholomew's Hospital Medical College, London), and an MSc in Science Communication (Imperial College). She has worked as an editor at *New Scientist* and *Nature*, broadcast on TV and radio, published newspaper and magazine articles, and has authored (among others) the books *Decoding the Heavens* (Windmill, 2009) and *Cure* (Canongate, 2016).

In *The Human Cosmos* Marchant takes the reader on an engaging, imaginatively-constructed journey in twelve stages through the history of mankind's changing relationship with the starry heavens from Palaeolithic times to the present day. The core idea is that this has been an inexorable process of separation spanning millennia, starting with a very intimate relationship at the time of the cave-dwellers who produced the famous cave paintings at Lascaux, and ending at the present day, which she characterizes as our being 'in physical isolation from the wider universe', 'oblivious to the messages carved out by the moon or planets' and having 'a much deeper philosophical separation' (pp.291-292). Each step in this progressive separation is linked to a stage in the development of human civilization necessarily involving increasing independence from reliance on the cosmos.

From a biblical perspective the most interesting feature of Marchant's narrative is her appraisal of its endpoint. In the epilogue she summarizes thus (p.294):

Looking back over the history of our relationship with the cosmos shows how we've banished gods, debunked myths, and written our own, evidence-based creation story. Stripping out subjective meaning and focusing on quantifiable observations has given us an epic power to understand and shape the world that dwarfs anything that has gone before. But unchecked, it has the potential to be a cold, narcissistic, destructive force.



Thus Marchant is deeply unsatisfied with this wholly atheistic description of reality. In particular she sees human *experience* of the cosmos and the phenomenon of *consciousness*, missing in the mechanistic, reductionist description of reality, as vitally important. She thus evinces considerable sensitivity to the very real human issues inevitably raised by a hardline atheistic worldview, in contrast to some of its best-known proponents.

First in this review we discuss points of particular interest from Marchant's narrative, especially where they impinge on a biblical worldview. This is



Figure 1. Aurochs, horses and deer depicted in the Upper Palaeolithic cave art of Lascaux, Montignac, Dordogne, France. Photograph by Prof saxx / public domain.

followed by an appraisal from a biblical perspective of her methodology and assumptions, showing how a firmly biblical worldview can provide substantial answers to the deepest contemporary problems she has highlighted. We do not necessarily attempt to refute Marchant's asser-

a firmly biblical worldview can provide substantial answers to the deepest contemporary problems

tions where they conflict with Scripture, since these have generally been addressed

elsewhere by other creation scientists; the interest here is to evaluate her overall argument and address from a biblical perspective the very real present-day problems she has highlighted.

THE NARRATIVE

Chapter 1, 'Myth', as the beginning of Marchant's narrative, is a keynote chapter. In it she explores the lives and thought-world of the Upper Palaeolithic hunter-gatherer cave dwellers who produced the famous cave art at Lascaux (Figure 1), dated to about 20 ka (thousand years) before present, and in numerous other caves in southwestern Europe, assuming without question the standard uniformitarian storyline and time scale. She links various features of the patterns of animals depicted on the cave walls with constellations, notably Taurus (the

Bull), and so on, noting that they indicate an intimate acquaintance with the rhythms of the cosmos, notably the seasons and their impact on the lives of the animals around them. She links this cosmically-oriented way of life of the artists with shamanism, which she regards as humanity's first religion (p.19). Speaking of the universe portrayed thus she concludes (p.24):

In it, there were no boundaries between living and non-living, humans and nature, Earth and stars. It was a cosmos that created us as we created it; in which internal experience and external reality were inextricably entwined. We've been trying to separate ourselves from it ever since.

Chapter 2, 'Land', relates to the development of agriculture in the Neolithic, the oldest settlement, Göbekli Tepe (in today's Turkey), dating back 12 ka according to Marchant, the only place where all seven Neolithic 'founder crops' (chickpeas, einkorn wheat, emmer wheat, barley, lentils, peas and bitter vetch) grew together. This development continued until the time of Stonehenge about 6 ka later, by which time animal spirits had given way to human ancestors, and the earlier dependence on caves and the underworld had gone. However the evidence indicates continuing strong interest in natural cosmic cycles (e.g. sunrise and sunset at midsummer

and in midwinter). Marchant argues that a change in cosmological perspective was logically prior to the move from hunter-gathering to farming.

Chapter 3, 'Fate', surveys the earliest known literate civilizations of the ancient Near East, notably the Assyrians, Babylonians, Persians, Greeks and Romans and suggests that the meeting of Babylonian culture, within which precise number-based astronomical predictions could be and were made, and Greek culture, with its 3D geometric (but imprecise) models of the cosmos, gave birth to astronomy as we know it. This was inextricably linked with astrology since the driving interest in the celestial realm, especially on the part of rulers, was to foretell the future. Marchant notes that although many today (e.g. Brian Cox, Richard Dawkins) see astrology as a threat to be eliminated, popular interest in the zodiac and horoscopes is thriving, and she writes of astronomy and astrology (p.63) as reflecting two essential sides of our nature, the desire to see patterns, order and meaning in the sky. Marchant's contempt for Scripture is evident in her description of the Babylonian *Epic of Gilgamesh* (p.46):

. . . *Gilgamesh* caused a sensation when it was discovered because it includes a version of the biblical tale of Noah and the Flood, written centuries before the oldest copy of Genesis.

Chapter 4, 'Faith', is Marchant's own potted history of religion, dealing mainly with the outward practices of Christianity, and focusing especially on the influence of Constantine and his desire to be seen as 'Sol', a sun-god, though she also draws on the practices and beliefs of ancient Egypt. Her discussion of the origin of monotheistic world religions (Judaism, Christianity and Islam) uncritically follows standard atheistic evolutionary lines in attributing the idea of a transcendent, sovereign creator God to the Jews who had returned to Jerusalem after the Babylonian exile: this was supposedly in response to their experience of exile and loss. In this portrayal (p.69) Yahweh is merely a 'powerful idea' and the Old Testament was composed no earlier than the sixth century BC, some of it centuries later. This, of course, completely ignores the testimony and internal evidence of Scripture itself and the great wealth of conservative biblical scholarship. Marchant may be right in linking many *outward* practices in Christianity with ancient sky-oriented practices, but in a biblical world-view these are secondary. She regards the development of religions in which a transcendent God lives outside, above and beyond the universe he created as a further break in mankind's link with the cosmos.

Chapter 5, 'Time', describes the development of clocks, starting with the fourteenth century monk Richard

of Wallingford, which enabled humans to order and measure time independently of the cycles of the cosmos. Chapter 6, 'Ocean', describes the amazing feats of navigation achieved by Polynesian seafarers simply on the basis of an acute awareness and experience of environmental cues (star configurations, wind, ocean currents etc), and contrasts this with our present-day dependence on maps, latitude and longitude, and on GPS technology. Marchant argues that this constitutes a loss not only of our connection with the whole natural environment, including the cosmos, but also of certain brain functions. She comments (p.135):

Just as sedentary lifestyles weaken us physically, over-reliance on technologies to perform sensory or intellectual tasks appears to dull us mentally, and might even make us more prone to neurodegenerative conditions such as dementia.

Chapter 7, 'Power', describes the major political and intellectual changes of the eighteenth century, especially in the Western world, with the 'Enlightenment' centre-stage, and deist Thomas Paine (Figure 2) and his outspoken writings portrayed as catalysts for some of the most important changes. Marchant highlights Paine's *The Age of Reason*, which she says was intended to prevent 'immorality and atheism' (p.155) while 'destroying



Figure 2. Portrait of Thomas Paine by Laurent Dabos (c. 1792). Photograph by National Portrait Gallery / public domain.

organized religion'. Paine asserted that the idea of God's special interest in just one world among many millions in the created universe, involving coming 'to die in our world just because one man and one woman had eaten an apple' (p.156), was patently absurd – an anti-Christian argument commonly used today. Marchant writes of the Newtonian revolution, in which Western philosophers and scientists saw the universe as a self-regulating machine, as having 'removed the need for divine influence', and that 'The soul of the universe began to drain away' (p.159). Intentionally or otherwise, this perception misunderstands the biblical doctrines of creation and providence, both of which imply God's constant involvement in all that takes place in the heavens and on Earth, irrespective of how that involvement is mediated; within a biblical worldview physical law is merely a description of the mechanisms whereby God's sovereignty is normally exercised (e.g. Kulikovsky 2009a).

Chapter 8, 'Light', describes an avalanche of astronomical discoveries resulting from the development and use of telescopes from the late eighteenth century onwards and the subsequent development of astronomical spectroscopy and astrophotography. Marchant attributes special significance to spectroscopy, pioneered by William and

Margaret Huggins, as the means of probing the chemical composition of stars and other

within a biblical worldview physical law is merely a description of the mechanisms whereby God's sovereignty is normally exercised

objects in the heavens. She writes (p.178) of the scientific advances of the nineteenth century as completing 'the job the Enlightenment thinkers started', and of empirical methods 'breaking the Bible's authority as a source of physical knowledge'; these comments are based on the 'discovery' of Earth's deep past in geology, the great antiquity of the tablets from Ashurbanipal's library (allegedly pre-dating Genesis) and the acceptance of Darwin's theory of evolution by natural selection as an explanation of the origin of species including mankind. Marchant thus illustrates the oft-repeated creationist contention that the long-age evolutionary story of origins is incompatible with a self-consistent understanding of the biblical account. This applies to the starting point, course of events and time scale, all of which are vital elements of the gospel. Marchant completes the chapter on a note of lament: for all the amazing discoveries of the modern technological age she sees our present-day view of the cosmos, now gleaned largely through instruments rather than our eyes, as separating us yet further from the cosmos itself.

Chapter 9, 'Art', at first seems something of a digression,

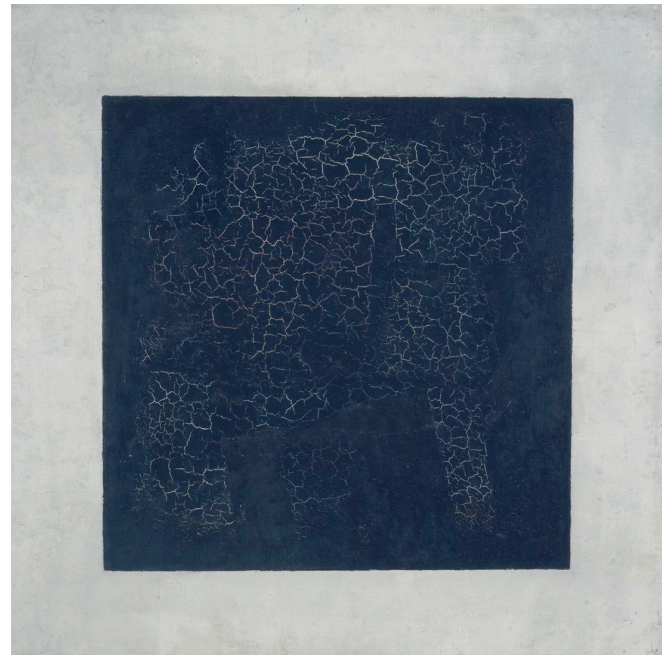


Figure 3. Kazimir Malevich's *Black Square* (1915), oil on linen, on display in the Tretyakov Gallery in Moscow. Photograph by Tretyakov Gallery, Moscow / public domain.

dealing with the 'rebellion' by artists in the late nineteenth and early twentieth centuries against the apparent triumph of 'reason and science', which seemed to them to imply that 'reality equates to the physical world we observe' (p.184). However Marchant suggests that this rebellion was linked to, and possibly inspired by, new developments in the physical sciences from the 1880s onwards including Maxwell's electromagnetic theory, radio waves and X-rays, the discovery of electrons and of radioactivity, the non-detection of the ether, and extra space dimensions in Poincaré's theory of geometry. According to Marchant these 'shook people's understanding of reality' (p.188). The artists mentioned include the Realists, Impressionists (Monet), post-Impressionists (van Gogh, Gauguin, and Seurat) and then increasingly radical artists – Cézanne, Cubist Picasso and Futurist Boccioni. However she focuses on Wassily Kandinsky and Kazimir Malevich, especially the latter, who was known as the first Cubo-Futurist. Malevich was responsible for the infamous anti-opera *Victory over the Sun*, first performed in 1913; it was full of intentionally disturbing, bizarre and irrational elements. His most famous paintings were *Black Square* (1915; Figure 3), which Malevich called the 'Zero of Form', and *White on White* (1918), an example of a style he termed 'Suprematism'. Marchant notes (p.199) that his first one-man show (Moscow, 1920) ended with *White on White*, followed by a room of plain white canvases, and comments that thus 'every last trace of content and distinction had been removed.'

Whatever the influence of contemporary scientific discoveries, such convention-smashing, nihilistic art evinces desperation at finding *communicable* meaning through art. Whilst not directly addressing the work of Kandinsky or Malevich, Francis Schaeffer (1968a,b) analysed this state of affairs in art in terms of a concept he called the *line of despair*. Schaeffer traces this division in human thinking back to philosopher-theologian Thomas Aquinas (1225–1274), who divided everything between the lower, ‘nature’ (encompassing particulars – the material world, including man’s body) and the higher, ‘grace’ (encompassing universals – God, soul/spirit, unifying principles). Aquinas believed that man’s will, but not his intellect, was fallen.

Schaeffer argues that over subsequent centuries this incomplete view of the biblical Fall,¹ which promoted the autonomy of the human intellect, led to an avalanche of problems. In contrast to Leonardo da Vinci and others who had gone before, philosopher Søren Kierkegaard (1813–1855) abandoned any hope of a unified field of knowledge: Aquinas’s dividing line now completely separated ‘faith’ above it from rationality below. By the late nineteenth/early twentieth centuries, Western culture had largely abandoned the God who had revealed himself in Scripture: the problem was to find content for this upper-storey ‘faith’. Schaeffer reasoned that since *in fact*, man is created in the image of the God who exists, he cannot live consistently with his own ‘mannishness’ within a wholly rationalistic, atheistic worldview, which has no place for anything rational in the upper storey to give hope of meaning and purpose to life; man as man is dead. Hence we see the irrational, non-logical ‘leap’ introduced by Kierkegaard manifested in the work of these iconoclastic artists; at a deeper level than Marchant recognises, they were truly desperate men.

Marchant displays sympathy for the work of Kandinsky, Malevich and subsequent artists including Marcel Duchamp (whose art was intentionally destructive – see Schaeffer 1968b, p.35) and the Surrealists. Having noted (p.200) that Surrealism ‘embraced the irrational and absurd’, she also comments (pp.200–201):

Surrealists aimed to use the unconscious mind, as well as chance, to free the imagination and escape the restrictions and conventions of rational thought.

Note the use of the terms ‘free’ and ‘escape’. Marchant links these art movements to early twentieth century developments in physics, notably Einstein’s special and general relativity and quantum mechanics, in which (especially the latter) the observer plays a vital role not contemplated in Newtonian physics. She clearly

sympathizes with Malevich’s imaginative flights of fancy into another (subjective) universe, finishing the chapter thus concerning Malevich’s burial place:

But the site was marked by a white cube, on which was painted a giant black square. I like to think of it as a portal to the cosmos he spent his life reaching for. Malevich had finally left Earth for the infinity beyond.

This is obviously just wishful thinking, and misses the underlying tragedy of all the artists of this ‘rebellion’, viz. that their atheism left them with nowhere to go to express their inherent humanness except to the irrational and the absurd, which could never bring fulfilment. As Schaeffer insisted throughout his ministry, only the whole biblical gospel, starting with the infinite-personal God as creator and focused on the finished propitiatory work of Jesus Christ on the cross in space and time, could fully meet their deepest needs – spiritual, moral and intellectual (e.g. Schaeffer 1968b, p.106).

Chapter 10, ‘Life’, surveys the arguments among biologists from the 1950s onwards regarding the regulation of biological cycles and rhythms, notably whether they are internally or externally regulated. A central figure in Marchant’s account is American biologist Frank Brown (1908-1983), whose early research suggested that the feeding habits of oysters were regulated by the Moon, but his results were largely sidelined by the majority of his peers. Although chronobiology, which studies the timing of biological processes, notably repeating processes, is now an established field of study, Marchant sees a strong bias in the twentieth century scientific establishment towards internal regulation of biological cycles. Referring to the ancient belief that life in general, and human health in particular, is closely tied to the cosmos, she says (p.232):

Modern science and medicine severed that link between life and the cosmos. Science moved from credulity to scepticism, demanding physical mechanisms rather than subtle influences. But more than that, it created a model of living organisms, particularly humans, as essentially isolated entities, separate from the workings of astronomy.

Marchant regards this ‘detached’ mindset as defining our modern way of life, e.g. living in artificially temperature-controlled conditions and working, sleeping etc at times of our choice regardless of our larger environment. She notes how this adversely affects other living creatures, for example via night-time light pollution, which disrupts the migration and breeding patterns of numerous organisms; noise from our electronic

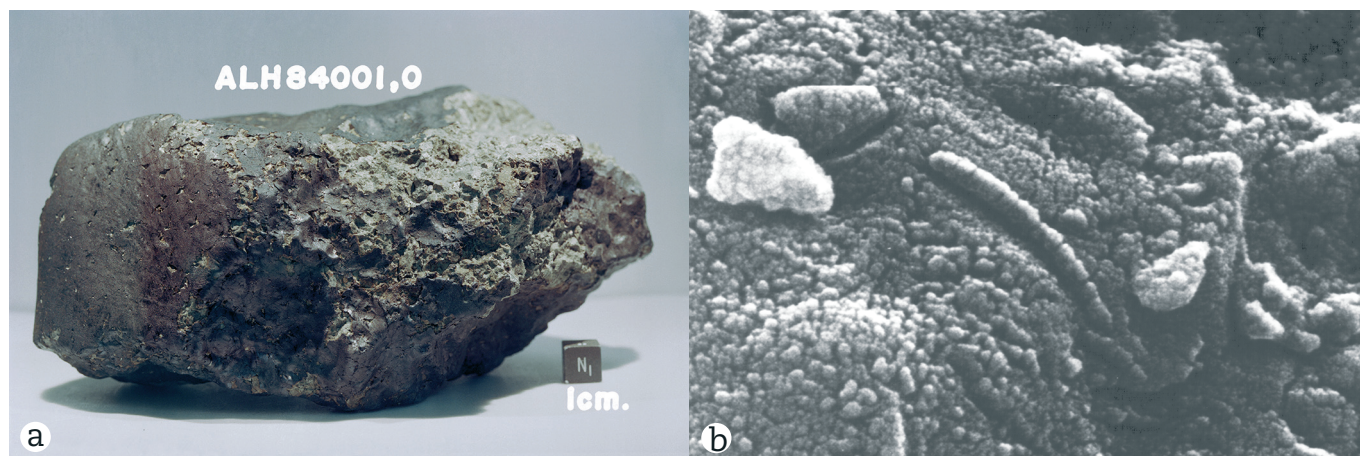


Figure 4. a. The Martian meteorite ALH84001. **b.** Electron microscope image of the tiny structures in the meteorite that provoked controversy about Martian life in 1996. Both photographs by NASA / public domain.

transmissions, even weak radio-frequency transmissions, can disrupt clocks and compasses in insects, mice and birds. Most of this chapter is unexceptionable and fits well into Marchant's overall theme. She finishes by approvingly citing a comment made by Frank Brown in 1977 that 'Cosmobiology is a field which must and will be explored'. However cosmobiology is a pseudo-scientific form of astrology (Wikipedia 2021), which hints at Marchant's leaning towards a worldview extending beyond the rational.

Chapter 11, 'Aliens', introduces and explores the question of whether we are alone in the universe, and the implications for how we see ourselves and life in the broadest sense. Marchant describes at length the discovery of Martian meteorite ALH84001 in Antarctica and subsequent scientific analysis and controversy over whether certain tiny features (magnetite crystals, PAHs, or polycyclic aromatic hydrocarbons, and supposed micro- and nanofossils) were the remains of ancient Martian life (Figure 4). This culminated in a White House press conference in 1996, amidst great public excitement. Although the controversy over the interpretation of the data from ALH84001 effectively reached a stalemate, it pushed NASA (struggling to justify its budget in the 1990s) towards space exploration and the founding of the Astrobiology Institute (NASA 2021), thus (in Marchant's view) launching the 'new field' (p.252) of astrobiology.

Marchant goes on to describe the discovery of a huge diversity of exoplanets from 1995 onwards, which she sees as providing potential habitats for life, together with discoveries by biologists of thriving ecosystems in places previously thought to be too inhospitable for life. These included deep-sea hydrothermal vents (in the 1970s), and from the 1990s various 'extremophiles', e.g. bacteria in frigid, salty lakes under the Antarctic ice, tardigrades etc; some of these ecosystems are powered by chemical energy rather than sunlight. She then considers possible

habitats in the solar system (Mars, Venus in the distant past, Europa, Enceladus and even Titan), followed by the discovery by Jocelyn Bell (now Bell Burnell) of pulsars and Frank Drake's speculations on the probability of intelligent life arising elsewhere in the universe. Whilst admitting (p.261) that 'we still don't have a single proven example of life elsewhere', Marchant enthuses about the possibility of life elsewhere in the universe, stating that 'the evidence seems to support the case that life in the cosmos is not the exception, but the rule.' She sees this as a return to the concept of a living cosmos, or 'life in the sky'.

This conclusion neatly fits Marchant's overall theme but reveals a serious blind spot in her methodology. In discussing the probability of life starting by chance (p.241), and in particular the extraordinary DNA/RNA-mediated information-carrying and information-transmitting system vital to all known life, she uses phrases like 'extraordinary fluke' and 'almost a miracle'. However she then moves

she sidesteps the fundamental question of how this information system and the information itself ... could have arisen by chance

on (p.242 onwards) to describe how the discovery of ALH84001 and all that followed transformed the origin-of-life discussion. In doing so, she sidesteps the fundamental question of how this information system and the information itself (two different things!) could have arisen by chance, given that this is not just highly improbable, but simply impossible (e.g. Gitt 2000; Williams 2007a,b). Furthermore when Marchant writes of 'life in the sky', she is referring to physical organisms living in the tangible, material universe we inhabit, whereas the 'life in the sky' seen and depicted by ancient people as described in Chapter 1 was mystical and symbolic, the constellations readily serving to represent the animal life which mattered to them; this connection is perhaps only intended metaphorically. Marchant closes the chapter by speculating

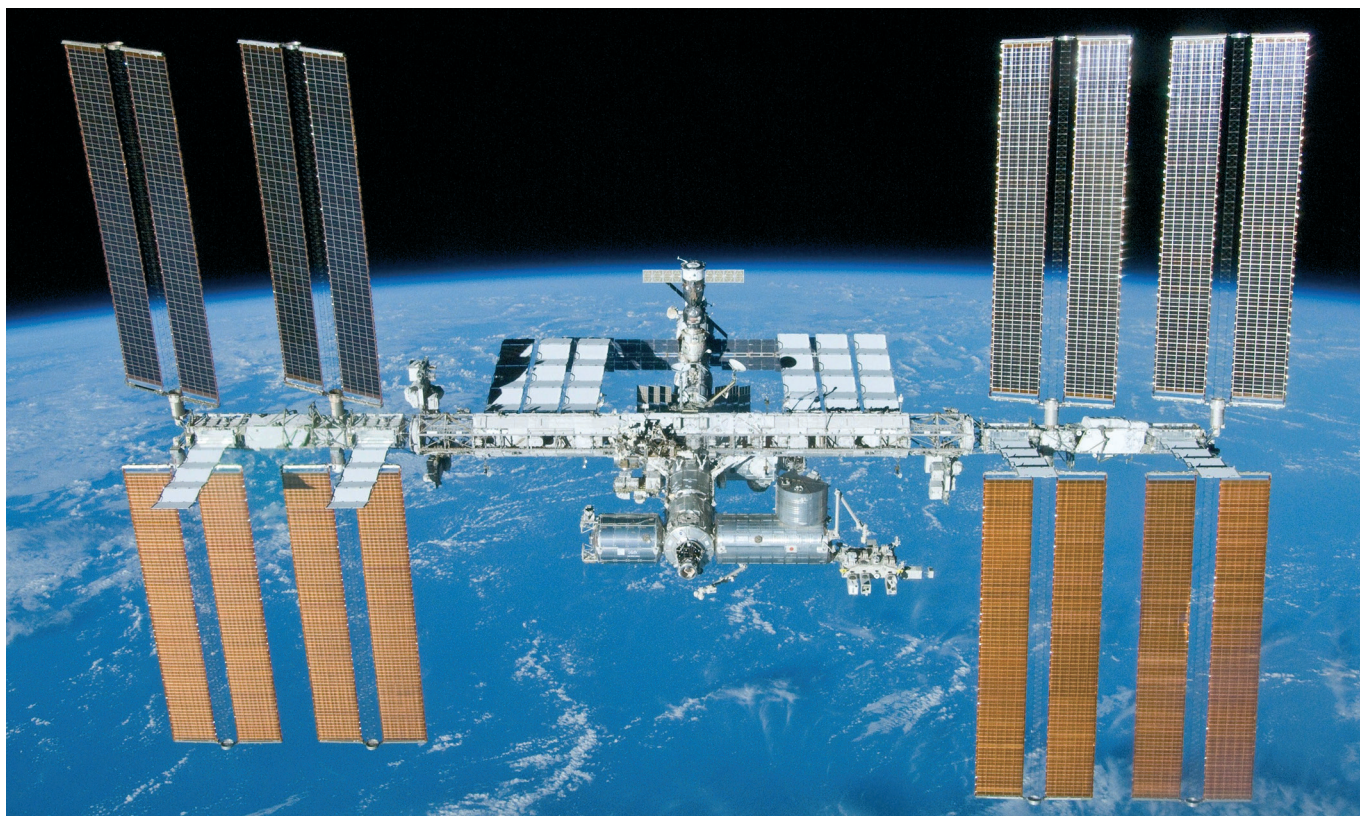


Figure 5. The International Space Station photographed by a crew member of the Space Shuttle Atlantis on 23 May 2010. Photograph by NASA / Crew of STS-132 / public domain.

(p.262) on ‘the possibility of a cosmos that’s not just alive but awake.’ While this smacks of New Age mysticism it provides a convenient lead-in to the final chapter.

Chapter 12, ‘Mind’, delves into the question of the relationship between mind and matter in the context of the cosmos as a whole. The chapter begins on an inspiring note by recounting the experience of NASA astronaut Chris Hadfield (p.263) on making his first spacewalk from the International Space Station in 2001 (Figure 5):

When he first floated free in the vacuum of space, holding onto the spaceship with one hand, all thoughts of his mission – to prepare a 17-metre-long robotic arm for installation – temporarily left his head. Instead, he was ‘attacked by raw beauty’. To his right was the velvet, bottomless bucket of the universe, stretching on for ever and brimming with stars. And to his left, the whole world – an exploding kaleidoscope of colour – poured by. It was ‘stupefying’, he said later, ‘It stops your thought.’

Marchant then describes similar perspective-changing experiences of other astronauts on being directly confronted with the universe in all its immensity and awesome beauty, but suggesting that looking back to Earth had even greater impact; their experiences led to the coining of the phrase ‘Overview Effect’ and the founding of the Overview Institute (Overview Institute 2021). One aspect of the effect noted by Marchant is

increased concern for the Earth, our natural environment as a whole, and the entire human race. She also notes that writers through history, going back to Ptolemy in the first century AD, have reported similar awed reactions to the night sky regardless of their background or religious beliefs, and relates a similar experience of her own when camping in Mexico.

Marchant then refers to psychologist Dacher Keltner and others, who studied the impact of awe on mental health, with positive results – improved short-term memory, improved originality and persistence in problem-solving, and more. There were also long-lasting effects – people felt generally happier and less stressed; they experienced activation of the parasympathetic nervous system, which calms the flight or fight response, and reduced levels of cytokines, which promote inflammation. There was also a generally increased concern for others, reduced self-concern, and a greater sense of connectedness to others. Marchant notes that Keltner and others worry about the present-day ‘disappearance of awe’ related to our fixation on smartphones and screens, which they see as making us more self-focused and less connected to others. She advocates fighting (p.274) to preserve ‘the most mind-blowing experience’ available, ‘central to human existence for millennia but now fading fast’, viz. the starry sky.

The rest of the chapter discusses the concept of

'cosmic consciousness', the feeling of merging with a greater awareness, which in the late twentieth century was largely dismissed by scientists as pseudoscience. The apparently critical role of the observer in quantum mechanics, which led to the 'Copenhagen Interpretation', was resisted by Einstein and Planck because of the implied conflict with objective reality in science (p.277), but was accepted by others (notably Pauli and Schrödinger) because it seemed to offer the possibility of unifying science and mysticism. Subsequent twentieth century discoveries seemed to dispel the case for consciousness as a phenomenon beyond explanation in purely physical terms. This conclusion (no distinct role for consciousness) is currently still the mainstream position, held by well-known atheist scientists including Stephen Pinker, Daniel Dennett, Richard Dawkins, Francis Crick, Stephen Hawking and Steven Weinberg. Marchant (p.280) cites others who have adopted 'a more conciliatory tone', viz. Brian Cox, Sean Carroll and Brian Greene, but notes that 'At its root, though, their view of humanity is as hard-line as ever.' However she notes that subsequently a few others (physicist Paul Davies, biologist Stuart Kauffman and philosophers Thomas Nagel and Galen Strawson) have expressed dissatisfaction with this conclusion.

Marchant then describes a small but growing movement among philosophers towards *panpsychism*, of which Strawson is a leading proponent. Panpsychism is the idea

that 'everything has a mind or mind-like quality' (IEP 2021), and has a long historical pedigree. Contemporary proponents include leading neuroscientists, for example Christof Koch (Figure 6), Chief Scientist of the MindScope Program at the Allen Institute (Koch 2021). Marchant also notes alternative approaches, including the quantum-mechanics-inspired proposals of cosmologist John Wheeler, subsequently developed by others into 'QBism', which involves a Bayesian approach to quantum mechanics in which everything is related to the observer's knowledge. The fundamental message of the chapter, which summarizes her overall theme, is that it is *essential* for the future of mankind and indeed the Earth, to fully acknowledge human experience of the cosmos; science is immensely powerful for its purpose, but is inherently limited because it cannot encompass all of reality. Despite a clear longing for 'something more, something beyond' the universe as described in purely 'scientific' terms, Marchant has no clear suggestion for solving the very real problems she has highlighted. Furthermore, she studiously avoids even contemplating the supernatural in any form, as do all the contemporary scientists she mentions; her worldview, like theirs, is wholly atheistic. At the same time, her thinking borders on ancient Eastern and New Age mysticism.

Marchant has no clear suggestion for solving the very real problems she has highlighted.

APPRAISAL FROM A BIBLICAL PERSPECTIVE

Marchant writes of 'science' as a single, unified body of knowledge of the nature and history of the universe. However, the historical sciences, including cosmology, geology, palaeontology and archaeology etc, which seek to reconstruct past events, are limited in that it is impossible to verify our conclusions by 'repeating the experiment'; there is no way to go back to the original circumstances. The best that is possible is to build self-consistent models incorporating several converging yet independent lines of evidence. Certainty is never achievable because the available evidence is always incomplete, an increasingly serious problem the further back in time we look. This is a major issue in cosmology, which suffers from the fatal weakness of underdetermination, i.e. there is always a range of possible models consistent with the recognised laws of physics which can reproduce observations (Hartnett 2018).

Marchant's understanding of human origins and of the origin of religion (presented in Chapters 1–3) completely follows the mainstream evolutionary long-age paradigm and treats the testimony of Scripture with contempt; where she mentions the Bible she makes no attempt



Figure 6. Christof Koch, the German-American neuroscientist and proponent of panpsychism. Photograph by Romanpoet / public domain.

to engage meaningfully with it, but rather follows the critical literature without question. Consequently her storyline starts with late Palaeolithic cave-dwelling hunter-gatherers, who were seeking to survive and to make sense of the world around them including the sky; in her worldview they were, and we are, simply evolved animals. From a biblical perspective the fact that these people were able to live in this way depended on God having created the Sun, Moon and stars as recorded in Genesis 1:14–19 to provide light on the Earth and to serve for ‘signs, seasons, days and years’, and his pledge after the Genesis Flood to continue providing for us through the seasonal rhythms he had built into the created order (Genesis 8:22).

A biblically-based understanding of origins would place Palaeolithic hunter-gatherers, people created in the image of God (Genesis 1:27; 5:1–2), in the post-Flood, post-Babel period (Genesis 11:9), but in spiritual and cultural terms outside the mainstream of human development. In this framework, religion (in the broad sense) began with the direct dealings of God, the creator who exists independently of any human response to him, with the first man and first woman (Genesis 2:7–3:24); worship is first recorded in Genesis 4:26. A further aspect of God’s purpose in creating the heavens is to reveal his glory (Psalm 19:1–6) and to humble us (e.g. Job 38:31–33; Psalm 8:1,3–4). Thus the spirituality of the Palaeolithic cave-dwellers as described by Marchant, including their shamanism, represents a corrupted, idolatrous form of religion which no longer acknowledged the creator, instead worshipping and serving created things (Romans 1:25). Thus the great cultures of the ancient Near East described by Marchant in Chapter 3 (Assyrian, Babylonian, Egyptian, Persian, Greek and Roman) may also be viewed as idolatrous; only Abraham and his offspring, represented by the nation of ancient Israel, maintained the worship of the real creator God (and then only through numerous setbacks). The earliest of these cultures would in reality have been broadly contemporaneous with Palaeolithic hunter-gatherers, a point conflicting sharply with the established ‘scientific’ understanding of history and prehistory followed by Marchant. Furthermore our progressive shift away from an intimate original relationship with the stars in the Palaeolithic to a generally disconnected relationship today, whilst producing definite negative effects, may be seen at a spiritual level as shifting from one form of idolatry to others (e.g. materialism).

Another point of contention with Marchant’s account of the historical development of science as we know it



Figure 7. The creation of the Earth by Wenceslas Hollar (1607–1677). Historians of science have shown how the biblical doctrine of creation provided the foundation for the rise of modern science. Photograph by Wenceslas Hollar Digital Collection / public domain.

is that she makes much of the eighteenth century Enlightenment (Chapter 7 – see above) but only mentions the Renaissance once in passing (p.186), while the Protestant Reformation does not figure at all. However both of these movements played vitally important historical roles, especially the Reformation, as documented, for example, by Hooykaas (1977), who showed how the biblical doctrine of creation provided a solid foundation for the modern scientific enterprise (Figure 7). Although Marchant’s book is not intended as a comprehensive history of science, these omissions reveal her strong atheistic bias and thus distort her historiography of science.

More importantly, a biblical worldview not only enables us to understand our present-day separation from the cosmos as identified and articulated by Marchant, but also provides substantial answers to our deeper underlying problems. The key is the analysis articulated by Francis Schaeffer (1968a,b) as discussed above in connection with Marchant’s Chapter 9 (‘Art’). As described in Genesis 3 and subsequently, man’s sinful rebellion against God bore the bitter fruit of alienation in several different ways: separation from God (Genesis 3:8,22–24; Romans 5:12–19; Ephesians 2:1,12); separation between people, even within the closest family relationships (Genesis 3:12,16; 4:8,23–24); inner conflict

(separation from oneself; Genesis 3:16; 4:13–14); alienation from the created world (Genesis 3:17–19; 9:2), which itself was cursed and is now ‘groaning in travail’, awaiting its promised redemption in line with the ultimate redemption of God’s people (Romans 8:19–22); see also Schaeffer (1972). Furthermore sin, essentially a spiritual and moral phenomenon, is the root cause of man’s corrupted powers of reasoning (e.g. Genesis 3:7–8; Exodus 16:19–20, 23–27; 1 Kings 18:25–29; Psalm 14:1; Proverbs 8:1–21; Isaiah 40:18–20: 41:7); Romans 1:18–32 (notably verses 22, 25, 28) shows how these aspects of our rebellion against God are closely interwoven; the converse is Romans 12:2. More generally true wisdom, which encompasses understanding and insight, is closely associated in Scripture with godliness and righteousness (Job 28:28; Psalm 37:30; 111:10; Proverbs 1:7; 9:10). In New Testament terms both wisdom and righteousness are embodied in Christ and in the Gospel, but unbelievers are blind to true wisdom (1 Corinthians 1:18–25,30; 2:13–16). As noted above, the centuries-long failure to acknowledge the connection between human sin and human reasoning gave rise to the present-day divided concept of truth delineated by Schaeffer’s line of despair. Within today’s dominant atheistic worldview this has led to despair at finding purpose and meaning in life except

through an irrational leap of ‘faith’, despite that ‘faith’ having no object or content.

In this light Marchant’s evaluation of our collective separation from the cosmos simply highlights one aspect, which had previously received little attention, of our many forms of alienation. Other terrestrially-oriented forms of environmental alienation have been widely recognized for a long time in the phenomena of anthropogenic climate change, deforestation, over-fishing, pollution etc. Some of these issues have been heavily politicised and the realities distorted

this has led to despair at finding purpose and meaning in life except through an irrational leap of ‘faith’, despite that ‘faith’ having no object or content.

in the public arena, leading to pressures for potentially damaging changes in environmentally-relevant international policies (Extinction Rebellion 2021; Kulikovsky 2009c). Furthermore, efforts to address genuine environmental problems, which are indeed part of mankind’s creation mandate (Genesis 1:28; 2:5,15; 6:19–21), and are praiseworthy and arguably necessary for our future, face numerous practical and political problems (e.g. Dunne 2018). While significant progress is certainly possible, our efforts cannot ultimately achieve fully satisfactory solutions (Kulikovsky 2009b,c). Concerted practical



Figure 8. A beautiful starry night over the domes of the La Silla Observatory, La Higuera, Coquimbo, Chile. Photograph by ESO / H. Dahle / CC BY 4.0.

efforts to address the problem of ‘vanishing stars’ highlighted by Marchant date back to the 1980s, the main thrust being the control and efficient use of outdoor night-time lighting, and these have achieved some progress (CfDS 2021; IDA 2021).

Furthermore, and critically, the serious dissatisfaction of Marchant and other atheistic scientists with the dominant, purely mechanistic worldview of today may be seen as a desperate expression of the inherent humanity or ‘mannishness’ of those created in the image of God yet denying his existence. Their toying with panpsychism and related thought-forms is an irrational, doomed attempt to escape the grip of a soul-less, pitiless, utterly indifferent universe with no reason for existing. As explained in connection with Marchant’s Chapter 9, the biblical account of our creation and history reveals sin as the root cause of our alienation from our environment, including the cosmos, and presents God’s solution for our basic sin problem on a human level, both individually and collectively, through the person and completed work of Jesus Christ; this is the only real answer – and it is a glorious, soundly-based answer – to the despair and deep pessimism of Marchant and others who think like her. However Scripture also makes clear that the scope of Christ’s redemptive work includes the whole creation (Romans 8:19–22; this is also implicit in eschatological passages, e.g. Isaiah 11:1–10; 65:12–25; Ezekiel 47:1–12; 2 Peter 3:13; Revelation 21:1–27; 22:1–5). Schaeffer (1970) argues that the biblical gospel, properly applied, should have a very positive impact in addressing the ecological and environmental problems of today’s world. He does not claim complete answers, but rather the possibility of substantial healing and restoration. There are no magic bullets in dealing with environmental problems in the present world, and there is no return to Eden before the Fall, but within a biblical worldview real progress to benefit mankind and our environment as a whole and honour our creator God is possible. As noted above, this can be applied at the most basic level of Marchant’s concern, the visibility of the stars (Figure 8). Although the question of our collective awareness, appreciation and attitude toward the sky appears less tractable, this also might be fruitfully addressed through a more general awareness of the heavens as the handiwork of our super-abundantly wise and generous creator God who truly cares for his creatures.

SUMMARY

In this imaginatively composed, well-researched and very readable book Marchant has documented our collective alienation from the starry heavens through a

progression of seemingly inevitable steps through the history of human civilization. She has also highlighted the associated impacts in terms of our mental health, social awareness and connectedness, and even of the damage we are causing to animal life. These impacts should be of real concern to us all; in raising awareness of these issues she has done us a valuable service. However in ignoring the biblical account of origins, mankind’s history and the redeeming work of Christ, Marchant has missed the root cause of our separation from the cosmos and ended with deep and unresolved dissatisfaction with her own atheistic worldview, leading her to an irrational and ultimately hopeless flirting with various forms of mysticism. Only a wholly biblical worldview can provide genuine answers.

ENDNOTE

1. Some have objected that the term ‘Fall’ is never applied in Scripture to the events recorded in Genesis 3, but the sequel makes it clear that these events constituted a major downward step in every sense.

REFERENCES

- Canongate. 2020. <https://canongate.co.uk/books/2508-the-human-cosmos-a-secret-history-of-the-stars/>, accessed 13 March 2021.
- CfDS (Commission for Dark Skies). 2021. Safeguarding the night through star-quality lighting: <https://www.britastro.org/dark-skies/>, accessed 8 April 2021.
- Dunne, D. 2018. Mapped: where ‘afforestation’ is taking place around the world: <https://www.carbonbrief.org/mapped-where-afforestation-is-taking-place-around-the-world>, accessed 8 April 2021.
- Extinction Rebellion. 2021. This is an emergency: <https://rebellion.global/>, accessed 8 April 2021.
- Gitt, W. 2000. *In the Beginning was Information* (DVD). Creation Ministries International.
- Hartnett, J.G. 2018. Cosmology’s fatal weakness – under-determination. *Journal of Creation* 32(2):15–17.
- Hooykaas, R. 1977. *Religion and the Rise of Modern Science*. Scottish Academic Press, Edinburgh.
- IDA (International Dark Sky Association). 2021. The International Dark-Sky Association works to protect the night skies for present and future generations: <https://www.darksky.org>, accessed 8 April 2021.
- IEP (Internet Encyclopedia of Philosophy). 2021. Panpsychism: <https://iep.utm.edu/panpsych/>, accessed 29 March 2021.
- Koch, C. 2021. Is consciousness everywhere? *The MIT Press Reader*: https://thereader.mitpress.mit.edu/is-consciousness-everywhere/?utm_source=pocket-newtab-global-en, accessed 29 March 2021.

Kulikovsky, A.S. 2009a. Creation, preservation and dominion: part 1 – God, humanity and the created order. *Journal of Creation* 23(1):86–93.

Kulikovsky, A.S. 2009b. Creation, preservation and dominion: part 2 – Christianity, development and environmentalism. *Journal of Creation* 23(2):82–89.

Kulikovsky, A.S. 2009c. Creation, preservation and dominion: part 3 – a Christian approach to environmental issues. *Journal of Creation* 23(2):90–95.

NASA. 2021. NASA Astrobiology Institute: <https://astrobiology.nasa.gov/nai/>, accessed 26 March 2021. Overview Institute. 2021. Profound change in worldview & paradigm: <https://overviewinstitute.org>, accessed 27 March 2021.

Schaeffer, F.A. 1968a. *Escape from Reason*. Inter-Varsity Press, London.

Schaeffer, F.A. 1968b. *The God who is There*. Hodder and Stoughton, London.

Schaeffer, F.A. 1970. *Pollution and the Death of Man: The Christian View of Ecology*. Hodder and Stoughton, London.

Schaeffer, F.A. 1972. *Genesis in Space and Time*. Hodder and Stoughton, London.

Williams, A. 2007a. Life's irreducible structure – Part 1: autopoiesis. *Journal of Creation* 21(2):109–115.

Williams, A. 2007b. Life's irreducible structure – Part 2: naturalistic objections. *Journal of Creation* 21(3):77–83.

Wikipedia. 2021. Cosmobiology: <https://en.wikipedia.org/wiki/Cosmobiology>, accessed 26 March 2021.

AUTHOR BIOGRAPHY

William Worraker is an Associate Researcher with Biblical Creation Trust. He has a BSc (Hons) in Physics and a PhD in Engineering Mathematics, both from University of Bristol, UK. Until recently employed in scientific software development, he has been an active amateur astronomer for over 25 years and participated in collaborative professional-amateur observing projects. His current BCT research seeks a scientific solution to the 'Flood heat problem': where did all the heat go that was released during the Genesis Flood?

